10 Household Plants That Are Dangerous to Dogs and Cats

- Over 700 indoor/outdoor plants contain toxic substances that may harm dogs and cats.
- If these plants are ingested, signs of poisoning can be mild to severe, sometimes even causing death.
- Most houseplants have multiple names, so it is important to confirm that the houseplants you currently own or may purchase are not toxic to your pet.

Asparagus Fern

Asparagus fern (also called *emerald feather, emerald fern, sprengeri fern, plumosa fern*, and *lace fern*) is toxic to dogs and cats. The toxic agent in this plant is sapogenin—a steroid found in a variety of plants. If a dog or cat ingests the berries of this plant, vomiting, diarrhea, and/or abdominal pain can occur. Allergic dermatitis (skin inflammation) can occur if an animal is repeatedly exposed to this plant.

Corn Plant

Corn plant (also known as *cornstalk plant, dracaena, dragon tree*, and *ribbon plant*) is toxic to dogs and cats. Saponin is the toxic chemical compound in this plant. If this plant is ingested, vomiting (with or without blood), appetite loss, depression, and/or increased salivation can occur. Affected cats may also have dilated pupils.

Dieffenbachia

Dieffenbachia (commonly known as *dumb cane, tropic snow*, and *exotica*) is toxic to dogs and cats. Dieffenbachia contains a chemical that is a poisonous deterrent to animals. If this plant is ingested, oral irritation can occur, especially on the tongue and lips. This irritation can lead to increased salivation, difficulty swallowing, and vomiting.

Elephant Ear

Elephant ear (also known as *caladium, taro, pai, ape, cape, via, via sori*, and *malanga*) contains a chemical similar to the one in dieffenbachia, so an animal’s toxic reaction to elephant ear is similar: oral irritation, increased salivation, difficulty swallowing, and vomiting.

Lilies

Many plants of the lily family are considered toxic to cats, and some are considered toxic to dogs. Cats are the only animals in which the Easter and stargazer lilies are known to be toxic. Generally, a cat’s first toxic reaction to this plant includes vomiting, lethargy, and a lack of appetite, but severe kidney failure, and even death, can quickly follow if a cat is untreated. The peace lily (also known as *Mauna Loa*) is toxic to dogs and cats. Ingestion of the peace lily or calla lily can cause irritation of the tongue and lips, increased salivation, difficulty swallowing, and vomiting.
Cyclamen

Cyclamen (also known as sowbread) is a pretty, flowering plant that is toxic to dogs and cats. If ingested, this plant can cause increased salivation, vomiting and diarrhea. If an animal ingests a large amount of the plant’s tubers—which are found at the root, generally below the soil—heart rhythm abnormalities, seizures, and even death can occur.

Heartleaf Philodendron

Heartleaf philodendron (also known as horsehead philodendron, cordatum, fiddle-leaf, panda plant, split-leaf philodendron, fruit salad plant, red emerald, red princess, and saddle leaf) is a common, easy-to-grow houseplant that is toxic to dogs and cats. This philodendron contains a chemical that can irritate the mouth, tongue, and lips of animals. An affected pet may also experience increased salivation, vomiting, and difficulty swallowing.

Jade Plant

Jade plant (also known as baby jade, dwarf rubber plant, jade tree, Chinese rubber plant, Japanese rubber plant, and friendship tree) is toxic to cats and dogs. The toxic property in this plant is unknown, but ingestion of it can cause vomiting, depression, ataxia (incoordination), and bradycardia (slow heart rate; this is rare).

Aloe Plant

Aloe plant (also known as medicine plant and Barbados aloe) is a common, succulent plant that is toxic to dogs and cats. Aloin is considered the toxic agent in this plant. This bitter, yellow substance is found in most aloe species and may cause vomiting and/or the urine to become reddish.

Satin Pothos

Satin pothos (also known as silk pothos) is toxic to dogs and cats. If ingested by a cat or dog, this plant may irritate the mouth, lips, and tongue. The pet may also experience an increase in salivation, vomiting, and/or difficulty swallowing.

Learn More

For a full list of toxic and non-toxic indoor and outdoor plants, visit the American Society for the Prevention of Cruelty to Animals (ASPCA) website at [www.aspca.org](http://www.aspca.org) or The Humane Society of the United States website at [www.humanesociety.org](http://www.humanesociety.org).
10 Ways to Help an Arthritic Dog

1. Bring your dog in for regular checkups so that your veterinarian can monitor your dog’s arthritis and make necessary adjustments to the treatment plan.
2. Getting or keeping your dog slim can help by decreasing the load on his or her joints. Feeding your dog the right amount of high-quality food should help with weight control.
3. Carefully monitored exercise on soft surfaces can help affected dogs. Ask your veterinarian for more details.
4. Because arthritis is aggravated by the cold and damp, keep your dog warm and dry. Padded dog beds can help. Warm compresses can soothe affected joints.
5. Massage therapy can increase your dog’s flexibility, circulation, and sense of well-being. Professional animal massage therapists are available.
6. Pain medication, including nonsteroidal antiinflammatory drugs (commonly called NSAIDs), may help relieve signs of your dog’s arthritis. Disease-modifying osteoarthritis drugs (DMOADs) can also be an important part of managing osteoarthritis. Never give your dog a drug without your veterinarian’s recommendation.
7. Glucosamine and chondroitin supplements are considered DMOADs and can be used to help manage arthritis in dogs and other animals.
8. Acupuncture isn’t just for people. It’s painless and has shown some success in animals with arthritis.
9. Surgery may be a good choice in advanced cases of canine arthritis. Your veterinarian can tell you more.
10. A low-stress environment, plenty of affection, and supportive care can help improve your dog’s quality of life.

Many pain relievers that help dogs and people are poisonous to cats.

At-Home Aids for Arthritic Dogs

- Slip-free flooring
- Soft bedding
- Ramps (instead of steps)
- A warm, dry environment
- Help with grooming
A Pet Owner's Guide to Flea Control

- Adult fleas are only part of the problem. Immature fleas (eggs and larvae) contribute to flea infestation, too.
- Your pet does not have to go outside to get fleas.
- Your veterinarian is a reliable source of information on safe and effective flea control products for your pet and home.

What Are Fleas?

Fleas are blood-feeding parasites that can infest many species of birds and mammals. Although fleas on dogs and cats don’t infest people, fleas may bite people if an area is heavily infested. Flea infestation is one of the most common medical problems veterinarians see, and pets suffer greatly from this condition. Flea bites can trigger severe allergic reactions in some pets. The intense itching caused by flea infestation causes pets to scratch and bite themselves. This can lead to skin wounds, skin infections, and general misery for your pet. Even if your pet is not allergic to flea bites, fleas can transmit serious diseases, such as bartonellosis (the bacteria that causes “cat scratch disease” in people), and other parasites, like tapeworms.

How Do Animals Become Infested With Fleas?

Fleas are very successful parasites. Temperature and humidity extremes can kill them, but they can survive for long periods of time under a surprising range of conditions. Developing fleas can even become dormant for many months if there are no hosts available.

If your pet spends time outside, in kennels, or around other animals, the risk of picking up fleas increases. However, even a completely indoor pet can become infested with fleas. Because the temperature and humidity conditions inside your home are fairly stable, fleas can live there with relative ease. In this way, fleas can live in colder regions of the country, surviving climate conditions that would otherwise be intolerable. Once they have entered a house, fleas can multiply very well under favorable year-round conditions, adding to the challenge of controlling them in a home environment.

You can bring fleas into your home on your clothing, and any people or animals that come into your home can also bring fleas with them. Once fleas find a host, they begin to feed almost immediately. They lay large numbers of eggs, which eventually mature into new fleas that continue the infestation. Adult fleas may remain on an animal, but the eggs and larvae fall off the animal and remain in the environment. Flea larvae are mobile, and they can hide in places such as carpeting, bedding, furniture, and baseboards. Once they mature, they take the first opportunity to jump onto an animal or person and begin to feed, continuing their life cycle.

How Can I Tell If My Pet Has Fleas?

Fleas may not be easily visible on your pet. If an infestation is heavy, you may see fleas on the animal’s skin, or you may find them by combing your pet with a flea comb. Adult fleas are the easiest stage of the parasite to find, but they account for less than 5% of an infestation. The other
stages (eggs, larvae, and pupae), which make up the other 95%, are smaller and more difficult to find.

You may also find small black/brown specks on your pet’s skin or bedding. These specks look like tiny coffee grounds and are commonly called “flea dirt.” Flea dirt is the feces of adult fleas and is actually the digested blood of the host. When the dark particles get wet, the red color returns, which may help with identification.

Some pets are allergic to fleas and can become intensely itchy from a single flea bite, whereas other pets may experience mild itching or none at all. Just because your pet isn’t scratching doesn’t mean there are no fleas. When in doubt, check it out!

**How Can I Treat the Problem?**

Because flea infestations involve multiple life stages, an effective treatment strategy targets as many stages as possible. If you believe your pet is infested with fleas, begin with a trip to your veterinarian. Your pet may have a skin infection or other problem that needs attention. Once your pet has been examined, your veterinarian can recommend a safe and effective product that you can use to kill the fleas. Some products specifically target adult fleas, while others also target the immature stages, like eggs and larvae. Regardless of what product is used, multiple treatments are generally required to completely eliminate an infestation. If you have multiple pets in your home, each animal should be treated with an appropriate product. In some cases, the house may also need to be treated to exterminate fleas. Products are also available for treating the yard and outdoors. Care must be taken, however, as these products may seep into the soil over time and affect groundwater. A “greener” strategy may be to focus on targeting fleas on your pets and in the home.

Although fleas have been around for a long time, many products are available today that can safely and effectively eliminate them. Ask your veterinarian about the best way to control fleas and keep them from endangering your pets!
Abdominal Radiography

- Abdominal radiography is painless, very safe, and noninvasive, and it can sometimes be performed during an outpatient visit while you wait.
- Abdominal radiography is useful for evaluating the size, shape, and position of abdominal organs.
- Sedation is sometimes recommended for patients undergoing radiography.
- Radiography can help your veterinarian diagnose numerous medical conditions involving the intestines, bladder, and other abdominal organs.

What Is a Radiograph?

A radiograph (sometimes called an x-ray) is a type of photograph that reveals the body’s internal organs. The procedure for obtaining a radiograph is called radiography. Radiography is a very useful diagnostic tool for veterinarians because it can help obtain information about almost any organ in the body, including the heart, lungs, and abdominal organs, as well as the bones.

How Does Radiography Work?

Traditional radiography machines use very low doses of radiation delivered in a focused beam (an x-ray) that is aimed at a photographic plate containing specialized photographic film. The patient is positioned between the x-ray beam and the photographic plate. When the x-ray beam passes through the patient, an image is created on the specialized film. Structures that are very thick or dense, such as bone, do not allow much of the beam to penetrate and expose the film. These structures look very bright or white on a radiograph (see the x-ray image). In contrast, structures that are not dense (such as gas in the intestines) allow the beam to penetrate more completely and expose the film. As a result, these structures appear relatively dark when the radiograph is viewed. Structures that are of medium density, such as fluid, appear in various shades of gray on the film.

Digital radiograph machines use a very similar principle, but the final image can be much sharper and can show greater detail than images obtained from traditional radiography machines.

How Is Abdominal Radiography Performed?

Abdominal radiography is painless, safe, and completely noninvasive. Your pet will be positioned on the x-ray table, and the width of the abdomen will be measured. This is necessary for precisely adjusting the intensity of the x-ray beam to capture the most accurate information. Once the measurements are complete, the x-ray tube (which will generate a beam of low-level radiation) is aligned over the abdomen, and a button is pushed on the radiograph machine to take the “photograph.” This part of the procedure is very much like taking a photograph with a camera. In most cases, at least two “pictures” are taken from different angles to create a three-dimensional image of the abdominal organs.
Your veterinarian may recommend that your pet receives sedation before undergoing radiography. When an animal is sedated, positioning is much easier because the patient is completely relaxed. Sedation may also be recommended if the patient is in pain.

**What Are Abdominal Radiographs Used For?**

Abdominal radiography may be recommended to investigate a variety of clinical signs, including the following:

- Abdominal pain
- Vomiting
- Diarrhea
- Appetite loss
- Weight loss
- Abnormal urination or defecation
- Lethargy

Radiographs are used to examine the size, shape, and position of the abdominal organs. The size of organs is important because some medical conditions can cause enlargement of the kidneys, liver, spleen, or other abdominal organs. Some chronic conditions, such as chronic kidney disease or chronic liver disease, can cause these organs to appear smaller than normal on a radiograph. The shape and position of organs can be altered or distorted by certain medical conditions, including intestinal blockages or cancer. Radiography is sometimes used to detect pregnancy and determine the number and position of the fetuses. Tumors, depending on their size and position, can be detected using radiography. Fluid or gas in the abdomen can also be detected through radiography. Conditions such as internal bleeding or intestinal perforation (holes) can cause fluid or gas to collect in the abdomen.

Radiography can be used to diagnose many other conditions involving abdominal organs, including bladder stones, kidney stones, and intestinal foreign bodies.

**What Are the Benefits and Risks of Abdominal Radiography?**

Radiography has many benefits and very minimal risks. It is very safe, completely painless, and non-invasive. It is available in most veterinary practices and can sometimes be performed during an outpatient visit while you wait. Depending on the type of radiographic study being performed, the procedure may take only a few minutes.

The risks of radiography are minimal. Because the level of radiation exposure needed to perform radiography is very low, even pregnant females and very young pets can undergo radiography. If a pet is very unstable, such as a pet with severe breathing difficulties, the stress of performing radiography may be a concern. In these cases, it may be necessary to stabilize the pet (with oxygen or other therapy) before attempting to perform radiography. In the vast majority of cases, the benefits of performing radiography far outweigh the possible risks. Radiography is a valuable tool for your veterinarian because it can provide critical information about many different illnesses and medical conditions.
This abdominal radiograph shows several organs that your veterinarian will examine: the stomach (A), intestines (B), bladder (C), and colon (D). Gas in the colon and stomach appears very dark on the radiograph; however, fluid in the bladder is gray, and the bones of the spine (E) appear closer to white.
Acetaminophen Toxicity

- Acetaminophen can be toxic to dogs and cats, but cats are 7 to 10 times more susceptible to acetaminophen toxicity than dogs are.
- Once swallowed, acetaminophen reaches the blood stream within 30 minutes; toxic effects are rapid and damage the liver and red blood cells.
- Never give a medication intended for people to your pet unless instructed to do so by your veterinarian.

What Is Acetaminophen Toxicity?

Acetaminophen is the active ingredient in Tylenol and some other related medications that are used to treat pain and fever in people. Unfortunately, this drug can be extremely toxic (poisonous) to cats and dogs. Acetaminophen toxicity occurs when a cat or dog swallows enough of the drug to cause damaging effects in the body.

Acetaminophen is mostly metabolized (broken down and eliminated from the body) by the liver. Some of the substances that are created during this process can have harmful effects on cats and dogs. Cats are at much greater risk of toxicity than dogs because they lack certain proteins necessary for the liver to safely metabolize acetaminophen.

How Does Acetaminophen Toxicity Occur?

Many cases of acetaminophen toxicity in dogs and cats are accidental. A pet may find and chew on a bottle of pills or eat a pill that has fallen on the floor. Sadly, some cases occur because pet owners give medication intended for people to their pets without being instructed to do so by a veterinarian.

Acetaminophen is a drug meant for people. However, there are situations in which your veterinarian may prescribe a specific dosage of acetaminophen for your dog. Be sure to follow your veterinarian’s dosage directions very carefully and report any vomiting or other problems right away. Cats are 7 to 10 times more susceptible to acetaminophen toxicity than dogs are. Because cats are extremely sensitive to the drug’s toxic effects, acetaminophen is not given to cats.

What Are the Clinical Signs of Acetaminophen Toxicity?

Once swallowed, acetaminophen is rapidly absorbed from the stomach and intestines and can achieve significant levels in the blood within 30 minutes. The main toxic effects take two forms:

- **Liver damage:** One of the substances produced by the breakdown of acetaminophen binds to liver cells, damaging them. Severe damage can lead to liver failure.
- **Damage to red blood cells:** One of the substances produced by the breakdown of acetaminophen binds to red blood cells. Once bound, this substance changes hemoglobin (the protein in red blood cells that enables them to carry oxygen) into a molecule that is no longer able to carry oxygen. This means that the blood can no longer supply adequate
amounts of oxygen to the body’s vital organs. The altered hemoglobin molecule is called methemoglobin; its lack of oxygen-carrying ability changes the color of blood from red to brown.

Cats and dogs can develop both forms of acetaminophen toxicity. However, cats are more likely to suffer hemoglobin damage while dogs are more likely to suffer liver damage. The main clinical signs associated with acetaminophen toxicity that result from liver injury and an inability of the blood to carry oxygen include:

- Vomiting
- Decreased appetite
- Lethargy (tiredness)
- Difficult or rapid breathing
- Abdominal pain
- Brown discoloration of the gums (a result of methemoglobin)
- Brown urine
- Blue gums (known as cyanosis, indicates inadequate oxygen supply)
- Swelling of the face or paws
- Shock, collapse, death

**How Is Acetaminophen Toxicity Diagnosed?**

Diagnosis of acetaminophen toxicity is commonly based on a history of recently chewing or swallowing pills. Your veterinarian may recommend diagnostic testing, such as a chemistry panel and complete blood cell count (CBC), to assess the extent of the damage.

**What Are the Treatment and Outcome for Pets Suffering From Acetaminophen Toxicity?**

Acetaminophen is absorbed and metabolized very quickly. If you realize right away that your pet has swallowed acetaminophen, vomiting can be induced to remove the drug from your pet’s stomach before the body can absorb it. Another option may be to anesthetize your pet in order to flush out the contents of the stomach. Your veterinarian may also administer a special preparation of liquid-activated charcoal to slow absorption of toxic material from the stomach and intestines.

There is a specific antidote for acetaminophen toxicity. This medication, N-acetylcysteine, limits formation of the toxic substance that damages the liver and red blood cells. Additional treatments may include blood transfusions, intravenous fluid therapy, and other medications to help support and stabilize the patient.

Acetaminophen toxicity can be fatal. However, pets can survive if the condition is recognized, diagnosed, and treated quickly.

Most cases of acetaminophen toxicity are preventable. Never give medications meant for people to your pet unless instructed to do so by your veterinarian, and keep all medications in the home secured to help prevent accidental swallowing.
ACTH Stimulation Test

- ACTH (adrenocorticotropic hormone) is a hormone produced by the brain that stimulates the adrenal glands to release cortisol and other hormones.
- Two medical conditions, Cushing’s disease and Addison’s disease, occur when the body’s regulation of adrenal gland hormones is altered.
- The ACTH stimulation test can help your veterinarian diagnose Cushing’s disease or Addison’s disease.

What Is ACTH?

Glucocorticoids (primarily cortisol) and mineralocorticoids are two important types of hormones produced by the body’s adrenal glands. Glucocorticoids and mineralocorticoids help regulate numerous complex processes in the body and participate in critically important functions, including the following:

- Maintaining fluid balance
- Maintaining sodium and potassium balance
- Maintaining the integrity and function of blood vessels
- Regulating blood pressure and blood flow to vital organs, like the kidneys
- Supporting cardiac function
- Controlling blood sugar levels and carbohydrate metabolism
- Helping to counteract the effects of stress
- Helping to maintain immune system function

Under normal conditions, the brain releases a hormone called adrenocorticotropic hormone (ACTH) that stimulates the adrenal glands to release their hormones. The body has highly developed systems called feedback mechanisms that control, based on the body’s needs, how much of these hormones the adrenal glands produce and release. For example, during times of physical or emotional stress, the body tends to increase the production and release of glucocorticoids (cortisol) to help it deal with the stressful episode. In contrast, when the body is receiving cortisol from an outside source (like a cortisone pill or injection), it reduces the amount of cortisol that the adrenal glands produce.

Two medical conditions, Cushing’s disease and Addison’s disease, occur when the body’s regulation of these hormones is altered; such alterations can cause significant illness in affected pets. Cushing’s disease occurs when the body produces and releases excessive amounts of cortisol. The clinical term for Cushing’s disease is hyperadrenocorticism. Addison’s disease occurs when the brain doesn’t release adequate amounts of ACTH, or the adrenal glands fail to release their hormones in response to ACTH. The medical term for Addison’s disease is hypoadrenocorticism.

Cushing’s disease occurs when a change in the body causes the adrenal glands to ignore the normal feedback mechanisms that regulate cortisol, leading to excessive production and release of the hormone. Sometimes Cushing’s disease is caused by a tumor on one of the adrenal glands, which continues to make cortisol despite signals from the body telling it to stop. Sometimes, the
adrenal glands are “tricked” by the pituitary gland in the brain into continuing to produce too much cortisol. Either way, the sustained overproduction and release of cortisol eventually results in negative effects on the body.

In most cases, the cause of Addison’s disease is not determined. Sometimes, the body’s immune system can damage the adrenal glands’ cells so extensively that they can’t release hormones when necessary. In other cases, such as a brain tumor, the part of the brain that should release ACTH is unable to. However, Addison’s disease can also occur if a pet that is receiving cortisol medication suddenly stops getting it. In this case, the body has reduced its own cortisol production and can’t increase it quickly enough to compensate when the medication is discontinued. This is why steroid medications, such as prednisone, should not be discontinued suddenly, but must instead be gradually reduced and then discontinued.

Cushing’s disease and Addison’s disease are most commonly diagnosed in dogs, although they occur rarely in cats.

**What Is an ACTH Stimulation Test?**

If your veterinarian suspects your pet may have Cushing’s disease or Addison’s disease, an ACTH stimulation test may be recommended. The ACTH stimulation test involves administering a small amount of ACTH by injection and then measuring the levels of cortisol produced over a period of a few hours. In dogs with Cushing’s disease, the injection of ACTH causes the adrenal glands to release unusually high amounts of cortisol. In a dog with Addison's disease, the adrenal glands may be unable to respond adequately to ACTH, so the injection of ACTH does not result in a significant increase in cortisol levels. These responses can help your veterinarian diagnose Addison’s disease or Cushing’s disease in your pet. However, additional tests are recommended in many cases to confirm a diagnosis.

**How Is an ACTH Stimulation Test Performed?**

Your veterinarian will begin the test by drawing a small amount of blood from your pet to check the baseline (“starting”) cortisol level. Afterward, a very small amount of ACTH is given by injection. A repeat blood sample is taken 1 to 2 hours after the injection to measure the cortisol level and determine if the body’s response is appropriate. The blood samples are submitted to a diagnostic laboratory, and results are generally available within a few days.

Your veterinarian will likely recommend that your pet remain in the hospital for the few hours that are needed to complete the ACTH stimulation test. This is to avoid stress or excitement (for example, from a car ride), which can affect your pet’s cortisol level and reduce the accuracy of the final test result. Generally, pets undergoing an ACTH stimulation test are temporarily kept in a very quiet area of the hospital to reduce stress and excitement as the test is being performed. Your veterinarian may ask you to withhold food on the day of the test. You should mention any medications or supplements that your pet may be receiving, as some chemicals can affect the accuracy of the test. Be sure to address any questions or concerns with your veterinarian.

**What Is an ACTH Stimulation Test Used For?**
Cushing’s disease and Addison’s disease are complicated medical conditions, and confirming a diagnosis can be challenging. Your pet’s response on this test can provide valuable information to help your veterinarian reach a diagnosis. In many cases, additional tests (including blood tests, x-rays, abdominal ultrasound examinations, and urine tests) are recommended to confirm a diagnosis.

Once a pet has been diagnosed with Cushing’s disease and is undergoing treatment, many veterinarians periodically perform ACTH stimulation tests to assess how well the pet is responding to treatment.

**Are There Risks Associated with Performing an ACTH Stimulation Test?**

There are very few risks associated with ACTH stimulation testing. The ACTH injection is very safe and side effects are exceptionally rare. Drawing blood takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Your veterinarian will also take steps to ensure that your pet is safe and comfortable while being hospitalized for the test. Once blood is obtained, all further processing is performed at your veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.

Diagnosing Cushing’s disease and Addison’s disease can be complicated, but an early diagnosis can mean early treatment and a better chance at a normal life for your pet.
Addison's Disease

- Addison’s disease occurs when the body cannot produce adequate amounts of certain hormones, including a hormone called cortisol.
- Addison’s disease tends to affect young to middle-aged dogs, and females are more commonly affected than males. It is rare in cats.
- Diagnosis can be complicated, but most dogs respond well to appropriate treatment and can live normal lifespans.

What Is Addison’s Disease?

Glucocorticoids (primarily cortisol) and mineralocorticoids are two important types of hormones produced by the body’s adrenal glands. Under normal conditions, the brain releases a hormone called adrenocorticotropic hormone (ACTH) that stimulates the adrenal glands to release their hormones. Addison’s disease occurs when the brain doesn’t release adequate amounts of ACTH, or the adrenal glands fail to release their hormones in response to ACTH. The medical term for Addison’s disease is hypoadrenocorticism.

Glucocorticoids and mineralocorticoids help regulate numerous complex processes in the body and participate in critical functions such as the following:

- Maintaining the body’s fluid balance
- Maintaining the body’s balance of sodium and potassium
- Maintaining the integrity and functioning of blood vessels
- Regulating blood pressure and blood flow to vital organs, like the kidneys
- Supporting cardiac function
- Controlling blood sugar levels and carbohydrate metabolism
- Helping to counteract the effects of stress
- Helping to maintain immune system function

The body has highly developed systems called feedback mechanisms that control how much of these hormones the adrenal glands produce and release, based on the body’s needs. During times of physical or emotional stress, the body tends to increase the production and release of glucocorticoids (cortisol) to help it deal with the stressful episode. In contrast, when the body is receiving cortisol from an outside source (like a cortisone pill or injection), it reduces the amount of cortisol that the adrenal glands produce.

In most cases, the cause of Addison’s disease is not determined. Sometimes, the body’s immune system can damage the adrenal glands’ cells so extensively that they can’t release hormones when they need to. In other cases, such as a brain tumor, the part of the brain that should release ACTH is unable to. However, Addison’s disease can also occur if a pet that is receiving cortisol medication suddenly stops getting it. In this case, the body has reduced its own cortisol production and can’t increase it quickly enough to compensate when the medication is discontinued. This is why steroid medications (such as prednisone) should not be discontinued suddenly, but must instead be gradually reduced and then discontinued.
Addison’s disease is most commonly diagnosed in dogs, although it does occur rarely in cats. Young to middle-aged dogs are generally affected, and females are more commonly affected than males.

**What Are the Clinical Signs of Addison’s Disease?**

The clinical signs associated with Addison’s disease can vary greatly and can resemble those of other diseases. They include the following:

- Vomiting and diarrhea
- Decreased appetite
- Increased drinking and urination
- Dehydration
- Weakness and collapsing episodes
- Abdominal pain
- Weight loss
- Weak pulse and slow heart rate

These clinical signs can vary in severity, and many owners report that the problems seem to “wax and wane”—sometimes seeming to resolve on their own and sometimes responding temporarily to very nonspecific treatment. Because dogs with Addison’s disease have a reduced ability to handle stress, the emotional stress of visiting a boarding kennel or the excitement of a family gathering can cause clinical signs to resurface.

**How Is Addison’s Disease Diagnosed?**

Diagnosis of Addison’s disease may require several steps. Your veterinarian will likely begin by reviewing your pet’s medical history. A complete physical examination may be followed by recommendations to perform diagnostic tests. Results of these tests can support a diagnosis of Addison’s disease:

- Blood tests, including a chemistry panel and complete blood cell count (CBC)
- Urinalysis
- Abdominal radiographs (x-rays)
- Abdominal ultrasonography

If your veterinarian suspects Addison’s disease, an additional test called an *ACTH stimulation test* may be recommended. As described above, ACTH is the hormone the brain produces that stimulates the adrenal glands to release glucocorticoids and mineralocorticoids. In a dog with Addison’s disease, ACTH may be absent or the adrenal glands may be unable to respond adequately to it. The ACTH stimulation test involves administering a small amount of ACTH by injection and then measuring the levels of cortisol produced over a period of a few hours. In dogs with Addison’s disease, the injection of ACTH does not result in a significant increase in cortisol levels. This response can be used to confirm a diagnosis.
The ACTH stimulation test requires a few hours of hospitalization so that blood can be drawn to check the body’s response to the injection.

**What Are the Treatment and Outcome for Addison’s Disease?**

Some dogs with Addison’s disease arrive at the veterinary office in a state of life-threatening crisis. Low blood pressure, shock, dehydration, impaired heart function, and other complications of the disease can be fatal if not treated immediately and aggressively. In such a case, hospitalization for emergency intravenous fluid therapy and other stabilization is necessary.

In other cases, the clinical signs of Addison’s disease are more subtle. As long as the dog is stable, treatment can begin on an outpatient basis.

The primary treatment for Addison’s disease consists of giving the body the adrenal gland hormones it is unable to produce on its own. Glucocorticoid supplementation commonly involves administering prednisone or hydrocortisone pills. Most dogs also need mineralocorticoid supplementation; these are available in pill and injectable formulations. A popular mineralocorticoid formulation is injectable deoxycorticosterone pivalate (DOCP); this medication can be given as an injection every 21 to 30 days.

Medications for Addison’s disease only replace missing hormones; they don’t cure the disease. Therefore, dogs with Addison’s disease need to receive medications for the rest of their lives. Periodic veterinary examinations and repeat blood testing are required for the life of the pet, and sometimes medication dosages need to be adjusted. Your veterinarian may also want to discuss modifying your pet’s medication during times of stress, when the body’s need for these hormones may increase. Fortunately, dogs that receive proper treatment for Addison’s disease can have a normal lifespan and enjoy a good quality of life.
Administering Injectable Medication To Your Dog

- Most injectable medications given at home are administered by injection directly under the skin (known as subcutaneous injection).
- Do not risk being bitten or otherwise injured trying to medicate your pet. If you are unable to administer medication, your veterinarian may be able to offer other options.
- Your veterinary health care team will work with you to make sure you know how to give Injectable medication without injuring yourself or your dog.

Why Does My Dog Need Injectable Medication?

Certain medications, such as insulin, can only be administered by injection. Depending on the formulation and the type of medication, injectable medications can be given by several routes. They can be given through direct injection into a vein (known as intravenous, or IV injection), injection into a muscle (known as intramuscular, or IM injection), or injection directly under the skin – a procedure known as subcutaneous (SC or SQ) injection. It is very important that you understand how your pet’s injectable medication needs to be given; for example, if you accidentally give a medication intravenously instead of subcutaneously, complications can result. Most injectable medications given at home are intended to be given subcutaneously.

Getting Started

Before you start, ask your veterinary health care team for training and advice to make sure you know how to give injectable medication without injuring yourself or your dog. If you aren’t comfortable or need additional training sessions, don’t be afraid to ask!

Here are a few things to consider:

- **Be sure you can handle your dog without being injured.** This may not be an issue if your dog is very relaxed and is used to being handled. However, if you have had problems in the past trying to trim nails or perform other procedures on your dog, you may need help giving medication by injection. Talk to your veterinary care team about tips for properly restraining your dog for medication injections before attempting your first session. In some cases, you may need another person to help hold your dog so you can safely give the injection.
- **Don’t be afraid to ask questions.** Your team of veterinary professionals will be glad to answer any questions you may have about safely administering medication injections to your dog.
- **Record your dog’s medication schedule on the calendar.** Include the date and time that the medication needs to be administered. This will help you to avoid forgetting to give a dose to your dog and to remember when the course of treatment is completed.
- **If you can’t do it, ask about other options.** Giving medication injections to a dog requires skill, patience, and confidence. If you aren’t comfortable trying to give injections at home, ask your veterinary team if the injections can be done at your veterinarian’s
office. For long-term therapy (such as insulin), this may require a prolonged time commitment. For short-term medication, however, outpatient injections can be a very practical option.

Basic Equipment

The “syringe” is the clear (usually plastic) cylinder that holds the medication to be injected. The “needle” is the sharp, metal tip that is injected into the skin. The “plunger” is a stem that moves inside the syringe. Pull the plunger backward to fill the syringe and push it forward to empty the syringe. A new needle/plunger and syringe are sterile until they are opened. The bottle of injectable medication is also sterile. It is important to handle these items properly to avoid contaminating them. Your veterinary care team will show you how to properly open a syringe and draw up injectable medication without breaking sterility. Be sure to use a new syringe, plunger, and needle for each injection. Reusing syringes and needles can cause infection. Additionally, a used needle is dull and therefore more painful than a new needle.

Proper Restraint

A small dog may be happy lying or sitting on your lap while you administer an injection. For a larger dog, you may need to sit in a chair next to the dog or sit on the floor with the dog. Some small dogs may do better on a smooth surface, such as a table; the surface of a washing machine can simulate the smooth metal table at your veterinarian’s office and encourage your dog to remain still during the procedure. Additionally, some dogs do better with two people administering the injection – one person to hold the pet and the other one to give the injection.

Giving a Subcutaneous Injection

Your veterinary care team will show you how to administer an injection before you have to try it alone at home:

- Maintaining sterility, load the syringe with medication and set it close by.
- Find an area of loose skin. The skin over the middle of the back or just behind the shoulders generally works well. If the injection will be given frequently (such as insulin), try to alternate injection sites so you are not using the same location each time.
- Gently pinch a section of loose skin between your thumb and forefinger. When you pull the loose skin gently upwards, you should see a small indentation of skin between your fingers.
- Holding the syringe in the opposite hand, insert the sterile needle directly into the indentation. Keep the needle level (or parallel) with the surface of the skin on the back. If you angle the needle too much, you may enter a muscle, go through the skin to the opposite side, or stick your own finger.
- Once the needle has been inserted, pull back on the plunger only. If you see blood, remove the needle and try a different location. If not, push the plunger forward to empty the syringe.
- When the syringe is empty, remove the needle (backing out along the same path that was used to enter the skin).
If there is no bleeding or leakage of medication, release the dog after giving him or her a big hug for being a good patient!
Be sure to dispose of used needles and syringes properly.

Giving an Intramuscular Injection

There are a few precise areas on the body that are commonly used for giving intramuscular injections. You will need to find “landmarks” on your dog so that you know where to give the injection. Your veterinary care team will show you how to find an appropriate injection site and administer an intramuscular injection before you have to try it alone at home:

- Maintaining sterility, load the syringe with medication and set it close by.
- Find the injection site, using the techniques your veterinarian demonstrated for you. If the injection will be given frequently, try to alternate injection sites so you are not using the same location each time.
- Holding the syringe in one hand, insert the sterile needle directly through the skin and into the underlying muscle. The angle of the needle should be between 45° and 90°, depending on the area of injection. If your angle is too shallow, you may not inject deeply enough to enter a muscle.
- Once the needle has been inserted, pull back on the plunger only. If you see blood, remove the needle and try a different location. If not, push the plunger forward to empty the syringe.
- When the syringe is empty, remove the needle (backing out along the same path that was used to enter the skin).
- If there is no bleeding or leakage of medication, release the dog after giving him or her a big hug for being a good patient!
- Be sure to dispose of used needles and syringes properly.

Ask your veterinary team to teach you how to administer medication injections safely. If you aren’t comfortable giving injections, ask about scheduling outpatient visits for the injections to be given.
Administering Subcutaneous Fluids to Your Dog

- The procedure of injecting a sterile fluid solution directly under the skin is referred to as subcutaneous fluid administration.
- The advantages of the subcutaneous fluid route include a lower cost (compared with the intravenous route) and ease of administration.
- Your veterinary health team will work with you to make sure you know how to give subcutaneous fluid injections without injuring yourself or your dog.

What Are Subcutaneous Fluids?

Fluid administration is a regular part of veterinary medical care. Any time that a patient is dehydrated or needs fluids, your veterinarian determines the best way to provide them. Fluids can be given by mouth, injection into a vein (known as intravenous fluids or IV fluids), or injection directly under the skin – a procedure known as subcutaneous fluid administration.

If a pet is able to eat and drink, giving fluids by mouth may be an option. However, if the pet is vomiting, unwilling to drink, or unable to obtain enough fluids through drinking, other methods of fluid administration must be considered. To receive intravenous fluids, pets generally need to be hospitalized because only a small amount can be given at a time and the IV catheter (through which the fluids are given) requires special care and maintenance. However, subcutaneous fluids can be given in larger amounts over a relatively short period of time, so hospitalization is frequently not required. The injection of sterile fluid is given under the skin and absorbed slowly over the next several hours. Advantages of the subcutaneous route include a lower cost (no catheter is required, and hospitalization is often not necessary) and ease of administration.

When Are Subcutaneous Fluids Necessary?

Dogs being treated for chronic kidney disease are the most likely to receive subcutaneous fluids on a regular basis. Your veterinarian may also recommend subcutaneous fluids for pets that are vomiting or unable (or unwilling) to drink adequate amounts of water. Examples may include dogs receiving chemotherapy or dogs with a high fever.

Depending on the medical condition being treated, your veterinarian may recommend fluid injections daily, every other day, or a few times a week. The frequency of injections and the amount of fluids given at each injection may change over time, so be sure to keep a notebook detailing when fluids are given and how much.

Getting Started

Before you get started, your veterinary health care team will work with you to make sure you know how to give the subcutaneous fluid injections without injuring yourself or your dog. If you aren’t comfortable or need additional training sessions, don’t be afraid to ask!
Here are a few things to consider:

- **Be sure you can handle your dog without being injured.** This may not be an issue if your dog is very compliant and is used to being handled. However, if you have had problems in the past trying to trim nails, give a pill, or perform other procedures on your dog, you may need help giving fluid injections. Talk to your veterinary care team about tips for properly restrain your dog for fluid injections before attempting your first session. In some cases, you may need another person to help hold your dog so you can safely give the injection.
- **Don’t be afraid to ask questions.** Your team of veterinary professionals will be glad to answer any questions you may have about safely administering fluid injections to your dog.
- **Record your dog’s fluid schedule on the calendar.** Include the date and time that the fluids need to be administered. This will help you to avoid forgetting to give fluids to your dog and to remember when the course of treatment is completed.
- **It’s okay to leave fluid injections to the professionals.** Giving fluid injections to a dog requires skill, patience, and confidence. If you aren’t comfortable trying to give injections at home, ask your veterinary team if the injections can be done at your veterinarian’s office.

The new fluid bag, fluid line, and needles are sterile until they are opened. It is important to handle these items properly to avoid contaminating them. Your veterinary care team will show you how to assemble the fluid line and bag and to attach a fresh needle without breaking sterility. Be sure to change the needle after each injection; the fluid line can be changed when each bag of fluids is completed.

For the fluids to flow from the bag and into your pet, the fluid bag must be suspended over the area where your pet is sitting. Many pet owners use a bent wire coat hanger to hang the fluid bag over the top of a door; you can then sit in a nearby chair or kneel/sit on the floor with your dog while fluids are being given.

**Proper Restraint**

A small dog may be happy lying or sitting on your lap while you administer the fluid injection. For a larger dog, you may need to sit in a chair or on the floor next to your dog. Some small dogs may do better on a smooth surface, such as a table; the top surface of a washing machine can simulate the smooth metal table at your veterinarian’s office, which might encourage your dog to remain still during the procedure. Additionally, some dogs do better with two people administering the injection – one person to hold the dog, and the other one to give the injection.

**Giving the Fluid Injection**

Your veterinary care team will show you how to administer fluids before you have to try it alone at home:
• Find an area of loose skin; the skin over the middle of the back or just behind the shoulders generally works well. If the injection will be given frequently, try to alternate injection sites so you are not using the same location each time.
• Gently pinch a section of loose skin between your thumb and forefinger. When you pull the loose skin gently upward, you should see a small indentation of skin between your fingers.
• While holding the needle in the opposite hand, insert the sterile needle directly into the indentation. Keep the needle level (or parallel) with the surface of the skin on the back. If your angle of injection is too sharp, you may enter a muscle, go through the skin to the opposite side, or stick your own finger.
• Once the needle has been inserted, open the dial on the fluid line to begin administering fluids. The procedure should take only a few minutes.
• When the desired amount of fluid has been given, remove the needle (backing out along the same path that was used to enter the skin) and gently pinch the skin for a few seconds to help prevent the fluid from flowing back out.
• If there is no bleeding or leakage of fluid, release your dog after giving him or her praise and a big hug for being a good patient!

Ask your veterinary team to teach you how to administer fluid injections safely. If you aren’t comfortable giving injections, ask about scheduling outpatient visits for the fluid injections to be given.
Adopting Instead of Buying a Pet

- While estimates vary, approximately three to four million dogs and cats are euthanized (“put to sleep”) each year in the United States because too few people spay or neuter the pets they have, too few adopt their new pets, and too many give up their pets.
- By adopting a pet from an animal shelter or rescue group, you'll help save the lives of two animals—the pet you adopt and a homeless animal that can be rescued because of space you make available.
- Animal shelters and rescue groups have plenty of healthy, well-behaved animals waiting for a home.
- Adopting a pet from an animal shelter is much less expensive than buying a pet.
- Although many shelters and rescue groups have purebred animals, an adopted mixed-breed pet may be healthier than a purebred pet and, therefore, cost less overall.
- If you’re thinking of adding a pet to your household, there are many good reasons to adopt instead of buy one.

You'll Save Lives

While the estimates vary, approximately three to four million dogs and cats are euthanized (“put to sleep”) each year in the United States because too few people spay or neuter the pets they have, too few adopt their new pets, and too many give up their pets. Because space at shelters is limited, staff members must make the difficult decision to euthanize healthy animals that aren’t adopted within a certain amount of time.

The number of euthanized animals could be reduced greatly if more people adopted pets instead of buying them. By adopting from an animal shelter or rescue group, you'll help save the lives of two animals—the pet you adopt and a homeless animal that can be rescued because of space you make available.

You'll Get a Great Pet

Animal shelters and rescue groups have plenty of healthy, well-behaved animals waiting for a home. Most shelters examine and vaccinate animals when they arrive, and many shelters spay or neuter them before adoption. In addition to providing medical care, more and more shelters and rescue groups screen animals for specific temperaments (“personality” characteristics) and behaviors to match pets with prospective owners.

It is a common belief that animals end up in shelters because they were abused or behaved badly. In truth, most animals in shelters are there because of “people reasons”: divorce, moving, lack of time, and financial constraints are among the most common reasons why pets lose their homes. Adopted pets are just as loving, intelligent, and loyal as purchased pets.

You'll Save Money

Adopting a pet from an animal shelter is much less expensive than buying a pet at a pet store or through other sources. Buying a pet can easily cost $500 to $1000 or more; adoption costs range
from $50 to $200. In addition, animals from many shelters are already spayed or neutered and vaccinated, which makes the shelter’s fee a bargain.

Although many shelters and rescue groups have purebred animals, an adopted mixed-breed pet may be healthier than a purebred pet (purebred pets are more likely to have genetic problems) and, therefore, cost less overall.

You Won’t Support Puppy or Kitten Mills

Puppy and kitten mills are factory-style breeding facilities that put profit above the welfare of animals. Most animals raised in these mills are housed in poor conditions with improper medical care. They are often in poor health and have ongoing behavior and health problems due to lack of human companionship and inbreeding. Mill animals are sold to unsuspecting consumers in pet stores, over the Internet, and through newspaper classified advertisements.

By adopting instead of buying a pet, you can be certain that you aren't supporting puppy or kitten mills.

You Can Choose a Pet of Any Age

Although puppies and kittens are cute, they can require a lot of work to train. An adult or older pet that is already trained may be a better fit for your lifestyle. For example, adopting an adult dog that is already housetrained and knows basic commands is often much easier than adopting a puppy.

You’re Likely to Have a Support System

Most pet stores don’t provide any support if you have questions or problems with your new pet. However, rescue groups do provide support for new owners because keeping pets in good homes is in the best interest of these groups.

Search for adoptable pets on Web sites like Petfinder.com and theshelterpetproject.org or contact your local shelter for adoptable pets in your area.
Aggression in Dogs

- If your dog has become aggressive, consult your veterinarian to rule out a medical cause.
- Understanding the various types of aggression in dogs can help you determine why your dog might be aggressive.
- Do not use physical punishment on your dog. Hitting your dog could cause him or her to become afraid or more aggressive.
- Treating canine aggression is usually complex and can be dangerous, so a treatment plan should be designed and supervised by a behavior specialist.

The Basics

The most common and serious behavior problems of dogs are associated with aggression. Canine aggression includes any behavior associated with a threat or attack (e.g., growling, biting). Aggressive dogs usually exhibit some part of the following sequence of increasingly intense behaviors:

- Becoming still and rigid
- Threatening barking
- Lunging or charging at a target without making contact
- Mouthing a person or animal to move or control him or her
- “Muzzle punching”—the dog punches with his or her nose
- Growling
- Showing teeth
- Snarling—a combination of growling and showing teeth
- Snapping the mouth
- Nipping quickly without leaving a mark
- Biting quickly and tearing the skin
- Biting, resulting in a bruise
- Biting, resulting in puncture wounds
- Rapid, repeated biting
- Biting and shaking

Dogs don’t always follow the above sequence, and they often engage in several of the behaviors simultaneously. Owners often don’t recognize the warning signs before a dog bite, so they think that their dog has suddenly become aggressive for no apparent reason. However, dogs rarely bite without warning.

If your dog has become aggressive, it is crucial to take him or her to your veterinarian in order to rule out medical issues before you do anything else. Some dogs are aggressive because of a medical condition (e.g., any type of pain, an orthopedic [bone or joint] problem, a thyroid gland abnormality, adrenal gland dysfunction, cognitive [brain] dysfunction, a seizure disorder, loss or decrease of senses such as vision or hearing). Geriatric dogs that feel confused or insecure may become aggressive. In addition, certain medications can alter your dog’s mood, possibly causing your dog to become aggressive.
If a medical cause of your dog’s aggression has been ruled out by your veterinarian, think about the situations that upset your dog. Who or what was the target of your dog’s aggression? When and where did it happen? What else was occurring at the time? What had just happened or was about to happen to your dog? What seemed to stop your dog’s aggression? Answering these questions can clarify the circumstances that trigger your dog’s aggression and can help you and your veterinarian understand the reasons for your dog’s behavior. Understanding the various types of aggression in dogs can also help you determine why your dog is aggressive.

Types of Aggression

Aggression can be a complicated condition to evaluate. Some dogs may exhibit a single form of aggression, while others may exhibit several types of aggression at the same time. Understanding the different types of aggression can help get to the root of the problem:

- **Dominance aggression** (also called *impulse control aggression*) occurs when a dog threatens or attacks people for correcting his or her behavior. Situations that provoke this aggression include physical restraint and control of food and toys.
- **Fear aggression** occurs when a dog is afraid. Affected dogs often urinate or defecate during the episode. The dog is initially passive or withdrawn but becomes aggressive when he or she can no longer avoid the frightening situation.
- **Interdog aggression** is directed at other dogs inside and/or outside the household.
- **Maternal aggression** occurs when a mother dog is excessively aggressive toward people who she feels are threatening her puppies or toward the puppies themselves.
- **Pain aggression** is a protective reaction by a dog in pain. This aggression can occur when a dog is touched or moved or anticipates being handled.
- **Play aggression** occurs with play behaviors such as chasing. Vigorous play (e.g., tug-of-war) by people does not necessarily lead to play aggression in dogs.
- **Possessive aggression** occurs when a dog thinks that a person or animal may try to take a toy or other non-food object.
- **Predatory aggression** is associated with predation (e.g., stalking, hunting, or catching small animals). This aggression usually involves a sudden attack, a severe bite, and shaking of the prey.
- **Protective aggression** occurs when a dog guards his or her owner from another person who may not pose an actual threat.
- **Redirected aggression** occurs when a dog cannot attack an intended target (e.g., person or animal) and redirects his or her aggression toward another target.
- **Territorial aggression** occurs when a dog protects a place, such as a yard or house, from another animal or a person who may not pose an actual threat.

Play Versus Aggression

It can be difficult to tell the difference between nonaggressive and aggressive nipping and mouthing by dogs. Some dogs use their mouths out of fear or frustration, which can indicate a problem with aggression. In most cases, playful dogs have a relaxed body and face. During play, your dog’s muzzle might look wrinkled, but the facial muscles shouldn’t look tense. Playful nipping or mouthing is usually not painful. However, an aggressive dog often has a stiff body, a
wrinkled muzzle, and exposed teeth. Aggressive bites are usually quicker and more painful than playful nipping or mouthing.

Risk Factors

You are ultimately responsible for your dog’s behavior. If you are deciding whether to keep and treat your aggressive dog, consider the following factors:

- **Size**: Large dogs are more frightening and can inflict more damage than small dogs.
- **Age**: Young dogs that are aggressive are thought to be easier to treat than older dogs.
- **Bite history**: Dogs that have already bitten are a known risk and an insurance liability.
- **Severity**: Aggressive dogs that do not bite are significantly safer to have than dogs that bite.
- **Predictability**: Dogs that give little or no warning before they bite are at the highest risk of being euthanized for aggression. Dogs that warn before they bite allow people and other animals time to avoid getting hurt.
- **Targets**: The ability to manage and treat your dog’s aggression can be affected by how often your dog is exposed to his or her targets of aggression. For example, a dog that is aggressive toward strangers may be easy to control if you live in a rural area with a securely fenced yard. A dog that is aggressive toward children can be easier to manage if children are seldom around.
- **Triggers**: Are the triggers that cause your dog to become aggressive easy or impossible to avoid? For example, if your dog is only aggressive while eating, the solution is easy: stay away from your dog while he or she is eating.
- **Reproductive status**: Spaying or neutering can help with several forms of aggression.
- **Motivation**: How easy is it to motivate your dog during training? The safest and most effective way to treat aggression is to use behavior modification under the guidance of a qualified professional. Modifying a dog’s behavior involves rewards for good behavior, so success is more likely if your dog enjoys praise, treats, and toys. Dogs that aren’t very motivated by these rewards can be challenging to train, so the likelihood of improvement is lower.

Treatment

Treating canine aggression is usually complex and can be dangerous, so a treatment plan should be designed and supervised by a behavior specialist. Look for a certified applied animal behaviorist (CAAB or ACAAB), a veterinary behaviorist (DACVB), or a certified professional dog trainer (CPDT) in your area. If you choose a CPDT, be sure that he or she has training and experience in treating canine aggression.

Helping your dog avoid situations that cause him or her to become aggressive can reduce the risk of your dog biting someone. Physical punishment, including the use of prong collars and electric shock collars, can worsen a dog’s aggression. Therefore, punishment of aggression is not recommended.
Agility Training for Dogs

- Dog agility training is a great form of exercise for dogs and handlers, can harness a dog’s energy and boost his or her confidence, and can help improve the human–animal bond.
- Always put your dog’s health and safety first during exercise. Your veterinarian can help you determine whether your dog is a good candidate for dog agility training.
- Completion of an obedience class is required for enrollment in most dog agility training classes.
- The United States Dog Agility Association (USDAA) oversees recreational and competitive dog agility programs.

The Basics

There are many kinds of organized sports and activities that you can do with your dog. Dog agility is a competitive sport in which a person (handler) directs a dog through a timed obstacle course. Handlers and dogs race against the clock as the dogs jump hurdles, climb ramps, run through tunnels, cross a see-saw, and weave through a line of poles. Scoring is based on faults, similar to equestrian show jumping. Dog agility competition has become an exciting spectator event, and training for it is a great form of exercise for dogs and handlers, can harness a dog’s energy and boost his or her confidence, and can help improve the human–animal bond.

Dog agility is frequently referred to as a sport for all dogs because any type of dog, purebred or mixed breed, can compete. More than 150 dog breeds (including mixed breeds as a single group) have performed well in this sport. Dogs with high energy and good agility make good competitors.

Training Classes

Dog agility training is physically and mentally demanding for dogs. Your veterinarian can help you determine whether your dog is a good candidate for dog agility training. Always put your dog’s health and safety first during exercise. Never force your dog to perform a task that makes him or her anxious or scared. If your dog does not appear comfortable with an obstacle, he or she should be taken to another obstacle. A dog may need time to work up to a large or complicated obstacle.

Completion of an obedience class is required for enrollment in most dog agility training classes.

An average dog agility class may meet for about 1 hour weekly for 6 weeks. Classes often begin with playtime and warmups to accustom the dogs to their surroundings. Classes tend to be enjoyable for dogs, and they give handlers the opportunity to meet other dog owners in their community.

Competition
The United States Dog Agility Association (USDAA) has four basic height divisions within its two competitive programs (performance and championship). The jump heights have proven to be safe for properly trained dogs. Developed for recreational competition, the performance program involves lower jump heights and more generous time limits. As with any sport, considerable training time is required to be highly competitive. Dogs must be registered with the USDAA to compete in its events and are eligible to compete beginning at 18 months of age.

USDAA also promotes dog agility as a community sport, offering people a fun alternative for spending quality time with their dogs. Handlers and dogs can do reasonably well and have fun without the training time required in other competitive canine activities. USDAA has developed a junior handler program for school-age children and their pets to encourage their participation and teach responsible pet ownership.

**Getting Involved**

To get involved in dog agility, locate a group and/or attend an agility test or demonstration in your area. For more information, visit the USDAA Website: [www.usdaa.com](http://www.usdaa.com).
Alkaline Phosphatase Level

- Although alkaline phosphatase is considered a “liver enzyme,” it is produced by other cells, too.
- Alkaline phosphatase levels can be affected by many things, including certain medications and a variety of illnesses.
- If your pet’s alkaline phosphatase level is abnormal, additional tests may be recommended to determine the cause.

What Is Alkaline Phosphatase?

Alkaline phosphatase (ALKP) is an enzyme that is produced by many cell types. Although it is considered a “liver enzyme,” it is mostly made by the liver and bones.

The ALKP level is an important part of a blood screening test (known as a chemistry panel), so it is often evaluated during routine wellness checkups or pre-surgery screening in healthy pets.

Because a variety of illnesses can affect the ALKP level, your veterinarian may recommend testing your pet’s ALKP level if your pet has any of the following signs of illness:

- Vomiting
- Diarrhea
- Appetite loss
- Lethargy (tiredness)
- Increased drinking and/or urination
- Weight loss or weight gain
- Abdominal pain or enlargement

How Is the Alkaline Phosphatase Level Measured?

To test your pet’s ALKP level, your veterinary team must obtain a small blood sample. This procedure is usually very quick; it may take only a few seconds if the patient is well behaved. For patients that are very frightened or not well behaved, your veterinary team may want to use a muzzle, towel, or other gentle restraint device. In some cases, such as in patients with very thick fur, it may be necessary to shave the hair from the area where blood will be drawn. The hair will grow back, and this is often a good way to find the vein quickly.

Sometimes, blood can be drawn in the examination room because some pets are comforted and well behaved when their owners are present. However, some pets are more excited and unruly when their owners are present, so your veterinarian may recommend that your pet be taken into a separate treatment area for blood to be drawn.

Some veterinary offices have in-house blood analysis equipment, so they can perform the test for ALKP in the office and have results the same day. Other offices send blood samples to an outside laboratory for the test to be performed. If an outside laboratory is used, results are generally available within 1 to 2 days.
Because a recent meal changes the blood and may affect the ALKP level, your veterinarian may recommend that your pet not eat for 12 hours before drawing blood to perform the test. In most cases, you can still give your pet water. Please let your veterinarian know if this temporary fast will be a problem for you or for your pet.

Be sure to tell your veterinarian about any medications or supplements your pet may be receiving, as some products can alter the ALKP level.

**What Does the Alkaline Phosphatase Level Tell Your Veterinarian?**

Many factors can affect the ALKP level. Certain medications, such as steroids, can cause this level to increase. Additionally, a variety of medical conditions can affect the ALKP level.

There are no significant medical conditions that cause the ALKP level to be too low. Most of the conditions that affect this enzyme cause the blood level to become elevated. The following are a few conditions that cause an elevated ALKP level:

- Rapid growth (young animals)
- Pancreatitis (inflammation of the pancreas)
- Gall bladder disease
- Hepatitis (inflammation of the liver)
- Liver failure
- Cancer affecting the liver or bones
- Hyperadrenocorticism (Cushing’s disease)
- Diabetes
- Toxic injury to the liver

If your pet has an abnormal ALKP level, your veterinarian will combine that information with other vital information about your pet to decide if further diagnostic testing is recommended to investigate the abnormal result. Depending on your pet’s overall condition, your veterinarian may recommend medications, diet therapy, or other management.

If your pet has a history of having an elevated ALKP level (with or without signs of illness), your veterinarian may recommend rechecking the level at some point to monitor whether it is changing. Additional testing may be advised if the level does not return to normal.

**Are There Risks Associated With Testing the Alkaline Phosphatase Level?**

There are very few risks associated with testing the ALKP level. Drawing blood takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Once blood is obtained, all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.
Allergy Testing

- Allergy testing is most commonly performed to determine if a pet has atopy, also known as atopic dermatitis or allergic inhalant dermatitis.
- Allergy tests can help identify the specific allergens causing a pet’s allergy problem. Once a list of “problem” allergens is identified, a specialized serum containing small quantities of these allergens can be formulated specifically for your pet.
- Allergy testing poses minimal risk for your pet, and in many cases the information your veterinarian gains from this testing is invaluable.

What Allergies Can Pets Have?

The most common types of allergies in pets are flea allergy, food allergy, and a condition called atopy. Atopy is sometimes called atopic dermatitis or allergic inhalant dermatitis, and it occurs when allergens that are inhaled or that contact the skin cause an allergic reaction in the body. In dogs (and, less commonly, cats), this allergic reaction is focused largely in the skin. Animals with atopy become very itchy; the resultant scratching can lead to skin injuries and subsequent skin infections. Atopy is usually first noticed in dogs younger than 3 years of age, although older pets can also be affected. Unfortunately, some pets that develop atopy continue to have problems throughout their lives.

Many types of allergens can cause a pet to develop atopy. A wide variety of pollens, grasses, dander, insect proteins (such as in cockroaches), molds, and even house dust can cause animals to develop atopy. Animals can even develop allergies to multiple allergens at the same time. Once an animal develops atopy, the condition will continue as long as the animal is exposed to the allergen that is the source of the problem.

How Is Allergy Testing Performed?

Allergy testing is most commonly performed to determine if a pet has atopy. Allergy testing can also help diagnose flea allergy dermatitis. Most veterinarians do not use allergy testing to diagnose food allergies.

The two most common types of allergy tests used in pets are intradermal skin testing and serum allergy testing:

*Intradermal skin testing:* Intradermal skin testing can sometimes be performed at your veterinarian’s office. However, because the allergens used for this test are very specific (they vary depending on where you live), your veterinarian may refer you to a veterinary dermatologist for this test to be performed. Usually, an area of fur is shaved from your pet’s side or abdomen to expose enough skin to perform the test. Using very small needles, tiny amounts of each test allergen are injected just under your pet’s skin in different areas. After a brief waiting period, the injection sites are examined to measure the degree of local allergic response, such as redness or a small hive. Allergens that your pet is not allergic to will not cause a reaction, while allergens that your pet is allergic to will cause a reaction.
that corresponds to the severity of the allergy. Pets are monitored carefully during the
procedure in case a serious reaction occurs and treatment is required.

**Serum allergy testing:** Serum allergy testing is performed at a laboratory using a small
blood sample taken from your pet. Your veterinarian does not need to shave your pet or
have special allergens on hand to perform this test. As with intradermal skin testing, the
results of serum allergy testing can reveal which allergens are not causing an allergic
reaction in your pet, which ones are causing a mild reaction, and which ones are causing a
more serious reaction.

Depending on which type of allergy test is performed, you may need to discontinue your pet’s
allergy medications for a period of time before the test. Otherwise, the test results may be
affected. Your veterinarian will tell you which medications can be used and which ones may
need to be discontinued.

**What Does Allergy Testing Tell Your Veterinarian?**

Allergy tests can help identify the specific allergens that may be at the root of a pet’s atopic
dermatitis. Once a list of “problem” allergens is identified, a specialized serum containing small
quantities of these allergens can be formulated specifically for your pet. Through injection of
small amounts of the allergy serum over time, many pets experience a reduced response to the
allergens. This treatment, called *immunotherapy*, generally must be continued for several months
to years to achieve results. With immunotherapy, the pet owner usually administers the allergy
serum injections at home. If you are uncomfortable giving the injections, ask your veterinary
care team if the injections can be given at your veterinarian’s office. The first injections are more
diluted, containing only tiny amounts of the problem allergens; each subsequent injection
solution contains a slightly higher concentration of the allergens. Your veterinarian will schedule
the injections according to specific guidelines—more frequently in the beginning, and eventually
tapering to one injection every few weeks. Many pets respond to this program. Others may not,
especially if they have other underlying conditions.

**Is Allergy Testing Safe?**

Very few risks are associated with performing allergy testing. If serum allergy testing is
performed, drawing blood takes only a few seconds, and your veterinary team will take
precautions to ensure that your pet is not injured during this procedure. Once blood is obtained,
all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so
there is no risk of harm to your pet.

If intradermal skin testing is performed, there is a slight risk of an allergic reaction if your pet
responds seriously to some of the allergens being tested. However, pets are monitored very
closely during the testing procedure, and if a reaction occurs, medications can quickly be
administered to treat the problem.

In general, allergy testing poses minimal risks for your pet, and in many cases, the information
your veterinarian gains from this testing is very valuable.
Alopecia

- Alopecia (hair loss) can occur when hair fails to grow at a normal rate or when hair is lost more quickly than it can grow back.
- Alopecia can result from a variety of medical conditions, including skin infections, hormonal diseases, and infestations with fleas or mites.
- Many causes of alopecia are treatable. If the hair follicle has not been permanently damaged or destroyed, the hair will grow back over time.

What Is Alopecia?

Alopecia is the medical term used to describe hair loss. Alopecia can occur when hair fails to grow at a normal rate, or when hair is lost more quickly than it can grow back. Alopecia should not be confused with increased shedding. Shedding (even year-round shedding in some pets) is a normal process and is not an illness. Shedding should only be a cause for concern if it is heavy enough to create areas of thinning hair or baldness consistent with alopecia.

What Causes Alopecia?

Hair growth occurs in a cycle and depends on a healthy, functioning hair follicle. Once a hair grows, it is maintained within a hair follicle until a new hair grows to replace it. When this occurs, the old hair is shed and the new hair is held within the hair follicle until it is shed and replaced in its turn. If hair follicles are damaged, destroyed, or affected by inflammation or infection, hair loss can occur and hair regrowth can be hindered. When this happens over a large enough area, alopecia or baldness can be observed. Alopecia can be caused by a variety of conditions. Conditions that can affect the hair follicle directly include the following:

- Demodectic mange (caused by microscopic Demodex mites living in the hair follicle)
- Ringworm (a fungal infection that causes skin flakes/cells and fungal organisms to clog the hair follicle)
- Pyoderma (a bacterial skin infection in which skin debris, bacteria, and inflammatory cells clog and damage the hair follicle)
- Seborrhea (a skin condition in which excessive flaking of skin cells causes clogging of the hair follicle)
- Glandular or hormonal diseases (such as thyroid disease and adrenal gland disease, in which the hair growth cycle is disrupted because of hormonal changes; secondary skin infections or seborrhea can also occur)

Alopecia can result when a pet damages its skin or pulls out its hair. Fleas, for example, can cause itchy pets to pull out their hair and create bald patches. Pets that are allergic to fleas experience even more intense itching and can remove their hair, create wounds on their skin, and develop secondary bacterial infections from repetitive scratching and biting.

Cats can experience psychogenic alopecia, which is a compulsive grooming behavior often caused by stress or changes in the household. Cats with this condition may groom the hair on their flanks and back limbs until bald areas are created.
There are rare cases of congenital alopecia (meaning the pet was born with abnormally functioning hair follicles), and some breeds, such as dachshunds, can develop pattern baldness on their ears or elsewhere on the body.

**What Are the Clinical Signs of Alopecia?**

The most obvious clinical sign of alopecia is thinning of an area of hair, or hair loss significant enough to create bald spots. Other changes on the skin may help your veterinarian determine the cause of the alopecia. These include scabs, redness of the skin, excessive crusting or discharge, dandruff, or wounds. In some cases, such as with thyroid disease or other glandular conditions, the skin may look relatively normal except for hair thinning or hair loss.

Pets with alopecia may or may not have itching. In some cases, the hair may pull out very easily when the pet is touched.

**How Is Alopecia Diagnosed?**

A medical history and physical examination findings can provide valuable information for your veterinarian. The medical history may include trying to determine how long the hair loss has been going on and whether any other signs of illness have been observed. Physical examination findings may reveal evidence of underlying illness. For example, a dog with thyroid disease may be overweight and have a slower than normal heart rate, or your veterinarian may find fleas or “flea dirt” (flea feces) on a pet that has a flea infestation.

A diagnosis of alopecia means trying to identify an underlying cause. Your veterinarian may recommend specific tests to obtain more information about the condition of your pet’s skin:

- **Fungal culture:** If ringworm is suspected, your veterinarian can pluck a few hairs from several areas on your pet’s skin and place the hair samples on a culture medium (a substance that is used to grow microscopic organisms). This can be tested to confirm a diagnosis of ringworm.
- **Skin scraping:** If your veterinarian suspects demodectic mange, samples of skin associated with the hair follicle can be tested. This involves using a scalpel blade to gently scrape several hairless areas of skin. Because these mites live deep inside the hair follicle, the skin scraping must be deep enough to cause minor bleeding in order to capture samples that contain mites. These samples can be examined under a microscope to check for mites.
- **Cytology:** Using a swab, or by gently touching the flat surface of microscope slide to the skin, samples of skin flakes and debris can be obtained for examination under a microscope to determine what types of inflammatory cells, skin cells, or bacteria may be present.
- **Bacterial culture:** If the skin is infected or wounds are present, your veterinarian may collect some of this material to identify specific bacteria.
- **Skin biopsy:** Using local anesthesia (or possibly sedation or general anesthesia) your veterinarian may want to obtain a small sample of skin tissue. This can be submitted to a
diagnostic laboratory for examination of the skin cells, hair follicles, and other structures within the skin.

If your veterinarian suspects that alopecia may be caused by skin allergies, he or she may recommend a test to determine what the pet may be allergic to. Similarly, if an illness such as thyroid disease is suspected, blood testing or other specific diagnostic tests may be recommended.

**How Is Alopecia Treated?**

Treatment for alopecia should involve treating the underlying cause. Fortunately, flea infestation, mange, pyoderma, and many other causes of alopecia are treatable conditions. Medications given by mouth (such as antibiotics or antifungal medications), medicated shampoos, and products to control fleas may be recommended.

Once the underlying problem has been addressed, the hair follicles recover over time. If the hair follicles have not been permanently damaged or destroyed, the hair will grow back. However, if a skin infection or other skin trauma has been severe enough to damage or destroy hair follicles, areas of baldness may remain.
Anal Sac Disease

- All dogs and cats have two anal glands located beside their anus. These glands are often called anal sacs.
- Most animals express their anal sacs when they defecate.
- Some animals experience a build up of fluid in their anal sacs, which can lead to discomfort and itching.
- Anal sacs can become infected or abscessed (pus-filled and inflamed), which can require medical treatment or surgery.

What Are Anal Sacs?

Anal sacs are a set of glands that are just under the skin near your pet’s anus. The two glands are located at the 4:00 and 8:00 o’clock positions from the anus. The anal sacs fill with a foul-smelling fluid that is normally expressed through a tiny duct when animals defecate. Animals may use their anal glands to mark territory or repell aggressors, although a nervous dog or cat may accidentally express these glands when frightened.

If an animal cannot naturally empty an anal sac during defecation, the sac fills with fluid, becoming increasingly swollen. This is called an impacted anal sac, which can become painful and irritating to the animal. Some pets drag or “scoot” on their rear end to try to relieve pain and empty the glands. Pets may also lick the area to relieve discomfort.

If impacted anal sacs are not emptied, they continue to swell with fluid, leading to inflammation. Eventually, the area becomes infected, and an abscess (pus-filled inflammation) can form. In some cases, the abscess can rupture through the skin. This condition can be extremely painful to the pet and requires immediate medical treatment. In some cases, particularly if the problem happens several times to the same animal, surgical treatment may be recommended.

Anal sacs can also develop tumors that can be malignant (cancerous), which means that the cancer can spread to other areas of the body.

Signs of Disease

- Scooting on the rear end
- Licking, chewing, or “chasing” the anal area
- A foul odor around the anal area
- Swelling or bleeding around the anus
- Straining to defecate
- Pain during defecation

Diagnosis

Your veterinarian can diagnose many anal gland issues by examining the area and feeling the glands. For pets that are in a lot of pain, sedation may be recommended so that a thorough examination can be performed. During the examination, your veterinarian will look for redness,
signs of pain, swelling, or the presence of pus, which indicates infection. If a thickening, lump, or growth is present, your veterinarian may recommend a biopsy (collecting and testing a small sample of tissue) to help determine whether the tissue is cancerous.

**Treatment**

*Expressing the anal sacs* describes the manual removal of fluid that has accumulated in the anal glands. This can be performed at the veterinary hospital or even at home by a pet owner after careful instruction. Some groomers routinely express anal sacs before bathing pets. If a pet is having any type of problem with the anal sacs, it is best to let a veterinarian examine the pet and express the sacs if necessary.

Examination gloves should be worn when attempting to express anal sacs. The technique involves placing a paper towel over the anal area and gently squeezing with the thumb and index finger to remove the fluid. Care must be taken to avoid rupturing the sac or otherwise injuring the pet’s rectum or anus. If you are unsure of whether or how to express your pet’s anal sacs, ask your veterinarian to perform this procedure on your pet.

If the anal glands are infected or abscessed, your veterinarian will empty the glands to remove the fluid. Your veterinarian may also flush out the sacs with antiseptic solution and insert ointment to relieve pain and inflammation. Antibiotics, pain medication, and medication to relieve inflammation may also be prescribed.

Surgical removal of the anal glands may be recommended for animals that have had repeated anal gland issues or infections. Your veterinarian will talk to you about the benefits and risks of this procedure and whether it may be a good option for your pet.

**Prevention**

The best way to prevent anal sac issues is to frequently express the anal sacs if they are not emptying on their own. This helps prevent the sacs from filling with fluid. Some experts recommend adding fiber to the pet's diet, which helps naturally express fluid from the anal sacs.
Anemia in Dogs

- Anemia in dogs has many possible causes, and it can range in severity from mild to severe. Severe anemia is life threatening and requires immediate veterinary care.
- Anemia results from a loss or destruction of red blood cells or from a failure of the body to produce enough red blood cells. Red blood cells carry oxygen throughout the body; therefore, anemia can cause lethargy (tiredness) and exercise intolerance (difficulty exercising).
- Anemia is not contagious. However, anemia can be caused by infectious diseases, such as ehrlichiosis, which is transmitted through a tick bite.
- Immediate treatment of severe anemia may require a blood transfusion to replace lost red blood cells. Treatment is based on the diagnosis of the underlying cause of the anemia.
- Certain causes of anemia may be preventable. For example, to reduce the risk of tick-borne diseases that may cause anemia, regular flea and tick prevention, as recommended by your veterinarian, is advisable.

What Is Anemia?

Anemia develops when number of red blood cells in the bloodstream is reduced. Red blood cells carry oxygen throughout the body.

There are many different causes and types of anemia. Anemia may result from blood loss, the destruction of red blood cells within the body, or the inability of the body to produce enough red blood cells. The type of anemia depends on its cause. For instance, a severe injury that causes bleeding externally or internally can result in blood loss that causes anemia. Other causes of anemia include:

- Immune-mediated disease (a condition in which the body’s immune system attacks its own red blood cells)
- Bleeding into the gastrointestinal tract as a result of disease or severe inflammation
- Reaction to certain medications, such as nonsteroidal antiinflammatory drugs (NSAIDs)
- Infectious diseases, including certain diseases that are spread by ticks
- Blood loss from severe flea infestations (especially in very small dogs and puppies)
- Exposure to toxins such as lead, resulting in lead poisoning
- Cancer (may lead to bleeding into the gastrointestinal tract or bleeding from a tumor)

Sometimes, anemia is caused by a lack of red blood cell production as a result of chronic diseases (such as certain types of cancer or kidney disease) or exposure to certain medications that may interfere with red blood cell production.

Signs of Anemia in Dogs

- Lethargy (tiredness)
- Pale mucous membranes (gums, inner eyelids)
- Decreased appetite
- Exercise intolerance (difficulty exercising)
**How Is Anemia Diagnosed and Treated?**

A simple blood test can diagnose anemia. Most veterinarians can perform a quick blood test called a packed cell volume (PCV) in the hospital. The PCV indicates the volume of red blood cells in the bloodstream. If your dog’s PCV is lower than the normal range, anemia is diagnosed. Your veterinarian will also take a complete history and consider the physical exam findings, including whether your dog has a fever.

Other blood tests can offer more detailed information regarding the anemia, such as whether the body is producing new red blood cells to replace the lost or destroyed red blood cells. Another test looks at the structure of the red blood cells to help determine suspected causes of the anemia. A CBC (complete blood cell count) is also an important test when evaluating a dog for anemia. This test looks at red blood cells, white blood cells (which fight infection and contribute to inflammation), and platelets (which help with proper blood clotting.)

It is extremely important to identify the cause of the anemia so that proper and effective treatment may be given. Therefore, your veterinarian may recommend other diagnostic tests, including other blood tests, radiographs (x-rays) of the abdomen to check for masses that may be bleeding, or an ultrasound of the abdomen to check for masses and fluid (blood) in the abdomen.

In cases of anemia resulting from sudden loss of a large amount of blood, or severe anemia from blood loss over time, a blood transfusion may be recommended (or required) for survival. Severe anemia results in a significantly reduced ability of the blood to deliver oxygen throughout the body and, most importantly, to vital organs such as the brain. Therefore, a blood transfusion is necessary to help deliver oxygen and nutrients to major organs and other parts of the body. Occasionally, multiple transfusions are required before the dog’s body can produce enough red blood cells on its own.

Other treatments for anemia are determined based on the diagnosis of the underlying cause.

**How Can I Prevent Anemia?**

Prevention of certain causes of anemia may be aided by basic care and maintenance. For instance, you can reduce the risk of tick-borne diseases by using veterinarian-approved flea and tick control products. Talk with your veterinarian about the best plan for flea and tick prevention.

If your veterinarian prescribes any medication, ask about the most common side effects so you can monitor your dog for any signs of these side effects. If you notice any change in your dog’s behavior while he or she is taking a medication, such as vomiting or decreased appetite, call your veterinarian right away to notify him or her of the changes and to check if you should continue giving the medication.
Antibiotic Therapy for Ear Infections

- Any pet can develop an ear infection; underlying allergies or other illnesses are often the cause.
- Bacterial infection generally occurs secondary to the inflammation and unhealthy environment in the ear.
- A typical course of antibiotics can be as brief as 5 to 7 days, or as long as several months. It is best to give all medications as directed for the full course of treatment, even if the ears look better right away.

What Is an Ear Infection?

The medical term for an ear infection is *otitis*. Ear infections generally begin as inflammation of the skin inside the outer ear canal (the tube-shaped part of the ear visible under the ear flap). Once inflammation is present, discharge, redness, and other characteristics of an ear infection become established. Inflammation of the canal leads to the overgrowth of normal bacteria and yeast that live in the ear; other “opportunistic” bacteria can also take advantage of the inflammation and unhealthy environment inside the ear to establish infection. The overgrowth of these organisms causes more inflammation and other unhealthy changes inside the ear. In some cases, ear infections that start in the outer ear canal can progress to involve the middle ear and inner ear. Deep infections can lead to deafness and other complications.

What Causes Ear Infections?

Any pet can develop otitis regardless of ear shape, exposure to water (swimming), or the amount of hair inside the ear canal. Ear infections in dogs and cats are most often the result of an underlying problem. Many conditions can predispose a pet to developing an ear infection, including the following:

- Allergies (food allergy or inhalant allergy)
- Ear mites
- Polyps or other growths in the ear canal
- Systemic illnesses such as thyroid disease and adrenal gland disease (in dogs)
- Foreign material in the ears, including dirt, sand, or plant material

Ear infections are painful. Some pets with this condition may even try to bite people who try to touch their ears or head (including their owners). The clinical signs of otitis can vary depending on the severity of the inflammation, but can include the following:

- Shaking the head or rubbing the head and ears on the floor or on furniture
- Scratching the ears
- Discharge from the ears (can sometimes have a very bad odor)
- Redness of the ear canal and ear flap; the ears may also feel warm when touched

Some pets with severe otitis may cry or groan as they rub and scratch their ears. Some pets scratch so severely that their nails create wounds on the skin around their face, neck, and ears. If
the otitis is severe or chronic, the outer ear canal can begin to thicken and become deformed. This thickening can make the ear opening very narrow, so cleaning the ears becomes more difficult. Ulcerations on the inside of the ear canal can also result from infection and trauma.

If a chronic or severe otitis progresses to involve the middle or inner ear, more severe clinical signs can occur, including development of a head tilt, incoordination, inability to stand or walk, and increased pain.

**Why Are Antibiotics Necessary to Treat Ear Infections?**

Once the inflammation associated with an ear infection is established, bacteria (and yeast) can create secondary infections. These infections can be relatively straightforward to diagnose and treat with antibiotics or antifungal medications. Still, the underlying reason for the inflammation must be addressed, or the secondary infections are likely to recur. Diagnosing the underlying cause can be challenging and may require additional testing.

During a physical examination, your veterinarian may use a cotton swab to collect some debris from your pet’s ear. This material can be placed on a slide and examined under a microscope to determine if the infection is due to yeast, bacteria, or mites. Your veterinarian may also recommend bacterial culture and sensitivity testing of the debris found inside your pet’s ear. This information can help determine the best medications to treat the infection.

Your veterinarian will also likely clean your pet’s ears to remove as much debris as possible before treatment begins. Cleaning begins creating a healthier environment inside the ear—an environment that will not continue to support bacterial overgrowth.

**How Are Antibiotics Given?**

In many cases, antibiotic medication for an ear infection can be applied (usually as an ointment or drops) directly into your pet’s ear. Sometimes, oral antibiotics or antifungal medication (for yeast) may also be recommended. Your veterinarian may also administer an injection of antibiotics in the office to start treating the infection quickly (while oral or topical medication is taking effect). Oral or topical steroids may also be prescribed to help reduce swelling and inflammation and to make your pet more comfortable with having his or her ears handled.

Antibiotics for ear infections are available in many formulations, so notify your veterinarian if you are having problems medicating your pet, because there may be other options available. You should also notify your veterinarian right away if your pet seems to be experiencing any side effects from medication.

A typical course of antibiotics for treating an ear infection can be as brief as 5 to 7 days or as long as several months. In many cases, the ears may start looking better after only a few applications of medication or after only a few doses of oral medication. However, it is advised to give all medications as directed for the full course of treatment. Your veterinarian may recommend recheck exams during the course of treatment, to monitor how well the condition is responding to therapy. Notify your veterinarian right away if your pet’s ears begin to look worse,
if the problem seems to return after treatment is completed, or if other signs of illness are observed.

**How Can Future Ear Infections Be Prevented?**

Once an infection has resolved, regular cleaning helps prevent recurrence by promoting a healthy environment inside the outer ear canal. Never insert a cotton swab into your pet’s ear canal; these swabs can rupture the eardrum, which could lead to additional complications. If you are uncomfortable cleaning your pet’s ears, ask your veterinary team to review ear cleaning procedures with you.

Underlying conditions, such as allergies, should also be addressed to help prevent recurrence of ear infections.

Returning for regular check-ups with your veterinarian is also an important way to track your pet’s progress and catch ear infections early before they have a chance to get firmly reestablished.
**Antifreeze Toxicosis**

- Antifreeze poisoning occurs when pets drink antifreeze containing ethylene glycol.
- The liver quickly breaks down ethylene glycol into toxic products that can lead to kidney failure and death.
- Even a small amount of antifreeze can be fatal to dogs and cats.
- Antifreeze poisoning is a medical emergency, and early treatment is crucial.
- Signs include: staggering, vomiting, increased drinking and urination, and seizures.
- Diagnosis is generally based on the results of blood and urine tests.
- Treatment may include the induction of vomiting, medications to prevent the absorption and metabolism of ethylene glycol, and fluid therapy.

**What Is Antifreeze Poisoning?**

Most antifreeze solutions contain high levels of ethylene glycol, an ingredient that, once metabolized, is extremely toxic to dogs and cats. Pets are often attracted to the liquid because of its sweet taste. Even small amounts can be lethal to animals. A cat that walks through spilled antifreeze and then licks its paws may ingest enough to be fatal. As little as 2.5 tablespoons of antifreeze could kill a 20-pound dog.

Once ingested, ethylene glycol is quickly broken down in the liver to other substances that can lead to kidney failure and death within 12 hours to a few days. That’s why antifreeze ingestion is a medical emergency. If you suspect that your pet has consumed antifreeze, contact your veterinarian immediately.

**What Are The Signs Of Antifreeze Poisoning?**

The signs of antifreeze poisoning vary, depending on the amount of antifreeze the pet drank and length of time since ingestion. Initially, pets may stagger or walk like they are drunk. Other signs include:

- Lethargy (tiredness), depression
- Nausea, salivation (drooling)
- Vomiting (often the fluorescent green color of antifreeze)
- Increased drinking
- Increased urination

As time progresses, signs may include:

- Rapid breathing
- Seizures
- Little or no urination
- Coma
How Is Antifreeze Poisoning Diagnosed?

Antifreeze poisoning is generally diagnosed based on the results of blood and urine tests. However, as kidney failure sets in, these tests may be less accurate. Free-roaming pets that have signs consistent with antifreeze ingestion should be treated as soon as possible.

How Is This Condition Treated?

To be effective, treatment needs to be initiated as soon as possible after antifreeze ingestion. If your pet is seen within an hour of consuming antifreeze, the veterinarian may induce vomiting and possibly anesthetize the animal to flush out the contents of the stomach. They may also administer a liquid solution of activated charcoal to help prevent further absorption of the ethylene glycol.

If it has been longer than an hour since ingestion, the veterinarian will most likely give your pet a medication to help prevent the liver from metabolizing the ethylene glycol. The pet may also be placed on intravenous fluids and other medications to encourage excretion of the toxic substances produced during metabolism of ethylene glycol.

Once kidney failure has begun, it may be difficult to save the animal because the damage from antifreeze is often irreversible.

How Can I Protect My Pet From Antifreeze Poisoning?

There are a number of steps you can take to prevent your pet from drinking antifreeze:

- Do not allow your pet to roam the neighborhood freely.
- Use antifreeze containing propylene glycol, which is less toxic than ethylene glycol.
- Do not allow your pet access to the area when you are draining radiator fluid.
- Clean up all antifreeze spills immediately.
- Store antifreeze containers out of the reach of pets.
- Check your car for antifreeze leaks frequently.
Aspirin Toxicosis

- High doses of aspirin can be poisonous (toxic) to dogs and cats; cats are more susceptible to aspirin toxicosis than dogs are.
- Toxic effects can occur within hours of the pet swallowing aspirin or may take a few days.
- Never administer a medication intended for humans to your pet unless instructed to do so by your veterinarian.

What Is Aspirin Toxicosis?

Aspirin has been considered a safe and reliable over-the-counter fever and pain medication for decades. Because aspirin is considered very safe, some pet owners give aspirin to their pets. There are also aspirin formulations specifically for dogs. However, high doses of aspirin can be dangerous for dogs and even more hazardous for cats. Aspirin toxicosis occurs when a cat or dog swallows enough of the drug to cause damaging effects in the body.

Aspirin is broken down primarily by the liver, and some of the resulting substances are later eliminated by the kidneys through urine. Because cats lack certain proteins that are needed for the liver to safely break aspirin down, aspirin’s effects last longer in cats than in dogs (5 to 6 times longer). The risk of aspirin toxicosis is also higher in cats.

How Does Aspirin Toxicosis Occur?

Many cases of aspirin toxicosis in dogs and cats are accidental. A pet may find and chew on a bottle of pills or eat a pill that has fallen on the floor. Sadly, some cases occur because pet owners give medication intended for humans to their pet without being instructed to do so by a veterinarian. Some medications meant for humans, like Pepto-Bismol and oil of wintergreen, are related to aspirin and can cause aspirin-like side effects in pets.

There are situations in which your veterinarian may prescribe a specific dosage of aspirin for your dog or cat. Be sure to follow your veterinarian’s dosage directions very carefully, and report any vomiting or other problems right away.

What Are the Clinical Signs of Aspirin Toxicosis?

Signs of aspirin toxicosis can occur within a few hours; however, some signs can take a few days to appear. The most common side effect of aspirin toxicosis is stomach irritation. In mild cases, this may cause vomiting. In severe cases, it can cause the pet to vomit blood. The irritation can also be severe enough to cause stomach ulcers and stomach perforations (punctures in the stomach wall that allow stomach acid to leak into the abdomen). Aspirin also affects platelets—blood cells that help the body form blood clots and prevent bleeding. Aspirin toxicosis can cause such severe bleeding that blood transfusions can be necessary to save the patient. Aspirin toxicosis can also inhibit blood flow to the kidneys, which can cause kidney failure. Clinical signs associated with aspirin toxicosis can include the following:
• Vomiting (sometimes with blood)
• Diarrhea or black stools
• Dehydration
• Abdominal pain
• Increased respiratory rate
• Pale gums (secondary to blood loss)

Cats can develop anemia because of aspirin’s effects on their bone marrow. Severe liver damage can also occur in cats as a result of aspirin toxicosis.

**How Is Aspirin Toxicosis Diagnosed?**

Diagnosis of aspirin toxicosis is commonly based on a history of recently chewing or swallowing pills. Your veterinarian may recommend diagnostic testing, such as a chemistry panel and complete blood cell count (CBC), to assess the extent of the damage. If stomach perforation, liver damage, or kidney failure are suspected, additional diagnostic testing is warranted.

**What Is the Treatment and Outcome for Aspirin Toxicosis?**

If aspirin toxicosis is recognized right away, vomiting can be induced to remove the drug from the stomach before the body can absorb it. Another option may be to anesthetize the pet to flush out the contents of the stomach. Your veterinarian may also administer a special preparation of liquid activated charcoal to slow absorption of the drug from the stomach and intestines.

There is no specific antidote for aspirin toxicosis. Treatment may include blood transfusions, intravenous fluid therapy, medications to help protect or heal stomach damage, and other medications to help support and stabilize the patient.

Aspirin toxicosis can be fatal. However, pets can survive if the condition is recognized, diagnosed, and treated quickly.

Most cases of aspirin toxicosis are preventable. Never administer medications intended for humans to your pet unless instructed to do so by your veterinarian, and keep all medications in the home secured to help prevent accidental swallowing.
Atopy

- Atopy is a common cause of skin problems in dogs, but it is less common in cats.
- Atopy usually develops in animals younger than 3 years, but older pets can also be affected.
- Depending on the underlying cause, clinical signs may occur seasonally or year-round.
- Atopy may respond to medical management, but long-term treatment is often required.

What Is Atopy?

Atopy, or atopic dermatitis, is sometimes called *allergic inhalant dermatitis*. Atopy occurs when allergens that are inhaled or that contact the skin cause an allergic reaction in the body. In dogs (and less commonly, cats), this allergic reaction is focused largely in the skin. Animals with atopy become very itchy; the resultant scratching leads to skin injuries and secondary (subsequent) skin infections. Atopy is usually first noticed in dogs younger than 3 years, although older pets can also be affected. Unfortunately, pets that develop atopy are usually plagued by skin problems throughout their lives.

Many types of allergens can cause a pet to develop atopy. A wide variety of pollens, grasses, danders, insect proteins (such as in cockroaches), molds, and even house dust can cause animals to develop atopy. Animals can even develop allergies to multiple allergens at the same time. Once an animal develops atopy, the condition will continue as long as the animal is exposed to the allergen that is the source of the problem.

Signs of Atopy

Although atopy technically involves the entire body, clinical signs tend to involve the skin. Affected areas commonly include the face, armpits, groin, ears, and feet. Persistent itching causes the pet to lick, chew, scratch, and/or rub the skin, causing injury. Secondary bacterial or yeast skin infections are also common in pets with atopy. Clinical signs of atopy can include the following:

- Generalized scratching and rubbing
- Redness of the skin
- Hair loss from repeated biting, licking, chewing, and/or scratching
- Skin rash, infections, and irritation
- Scabs and bleeding
- Unusual odor
- Skin thickening and color changes
- Ear infections
- Scales and crusts on the skin

Some animals may have several of these clinical signs, whereas others may have only one—perhaps an ear infection.

Diagnosis and Treatment
Diagnosing atopy can be complicated, partly because other skin problems (such as flea allergy dermatitis) can look very similar. Your veterinarian will likely ask you questions about your pet’s medical history to try to determine how long the problem has been going on and whether the problem seems to be seasonal or year-round. Your veterinarian may also want to discuss your pet’s diet and any products that you may be using on your pet or in your home that could be involved. By considering your pet’s medical history, physical examination findings, and medical test results to help rule out other skin conditions (such as skin mites or flea allergy), your veterinarian may be able to make a tentative diagnosis of atopy.

**Allergy Testing and Immunotherapy**

Allergy tests can help identify the specific allergens that may be at the root of a pet’s atopic dermatitis. The two types of tests are an intradermal skin test and a serum allergy test.

**Intradermal Skin Testing**

Intradermal skin testing can sometimes be performed at your veterinarian’s office. However, because the allergens used for this test are very specific (they vary depending on your region of the country), your veterinarian may refer you to a veterinary dermatologist for this test to be performed. Usually, an area of fur is shaved from your pet to expose enough skin to perform the test. Tiny amounts of each test allergen are injected using very small needles just under your pet’s skin in different areas. After a brief waiting period, your veterinarian will examine the injection sites to measure the degree of local allergic response (redness or a small hive). Allergens that your pet is not allergic to will not cause a reaction, and allergens that your pet is allergic to will cause a reaction that corresponds to the severity of the allergy. Pets are monitored carefully during the procedure in case a serious reaction occurs and treatment is required.

**Serum Allergy Testing**

The other type of allergy testing, serum allergy testing, is becoming more popular. The test is performed at a laboratory using a small blood sample taken from your pet so that your veterinarian does not need to shave your pet or have special allergens on hand. As with intradermal skin testing, the results of serum allergy testing can reveal which allergens are not causing an allergic reaction in your pet, which ones are causing a mild reaction, and which ones are causing a more serious reaction.

Depending on which type of allergy test is performed, you may need to discontinue your pet’s allergy medications for a period of time before the test. Otherwise, the test results may be affected. Your veterinarian will tell you which medications can be used and which ones may need to be discontinued.

Once a list of “problem” allergens is identified, a specialized serum containing small quantities of these allergens can be formulated specifically for your pet. Through injection of small amounts of the allergy serum over time, many pets experience a reduced response to the allergens. This treatment, called immunotherapy, generally must be continued for several months to years to achieve results. With immunotherapy, the pet owner generally administers the allergy
serum injections at home. If you are uncomfortable with giving the injections, ask your veterinary care team if the injections can be given at your veterinarian’s office. The first injections are more diluted, and each following injection has a slightly higher concentration of the allergens. Your veterinarian will schedule the injections according to specific guidelines—more frequently in the beginning, and eventually tapering to one injection every few weeks. Many pets respond to this program. Others may not, especially if they have other underlying conditions.

Other Treatments

Atopic dermatitis tends to be a long-term condition. Often, a combination of therapies is needed to provide comfort for pets with this condition.

Removing Allergens From the Environment

Ideally, if your pet is allergic to a specific item, such as wool, removing this item from your pet’s environment may be enough to resolve the allergy. Unfortunately, this is not always possible or practical, as some grasses and trees may be so common where you live that there is no way to reduce or eliminate your pet’s exposure to them. However, in many cases, helpful steps can be taken. For example, if your pet has a dust mite allergy, you should make your home environment as clean and dust free as possible. Some air filters can also help remove dust, pollens, and other airborne allergens from the home. Controlling other factors that can aggravate allergies is also recommended, such as consistent use of flea control products to reduce your pet’s exposure to flea bites.

Treating the Symptoms

For pets with atopic dermatitis, the itching can be relentless. Immunotherapy and other management options take time to work, so pets need relief in the meantime. Your veterinarian may want to discuss using the following medications to help control your pet’s itching:

- **Steroids**—Drugs like prednisone or dexamethasone, which are called corticosteroids, are often used as the first line of defense to relieve itchy skin because they tend to be very effective and safe for short-term use. These medications can be given by injection, by mouth, or as topical ointments or shampoos. Corticosteroids can provide immediate relief but may have undesirable side effects, such as increased appetite, thirst, and urination. In some cases, repeated or long-term use of steroids can be associated with an increased risk of medical problems such as liver problems, adrenal gland problems, and diabetes. For pets with atopy, steroids can often provide excellent short-term relief, but be sure to speak with your veterinarian about long-term options for your pet.
- **Antihistamines**—Drugs like diphenhydramine (Benadryl, Johnson & Johnson) have few side effects compared with corticosteroids. However, some pets will not respond to Antihistamines alone.
- **Fatty acid supplements**—Special fatty acid supplements may help reduce skin inflammation and are often used in combination with other medications.
• **Topical treatments**—Medicated shampoos, leave-on conditioners, and ointments can relieve your pet’s itching or help with secondary conditions such as fungal infections, bacterial infections, and scaling. Treatment should be repeated frequently for best results, but be sure to follow all label directions carefully. Avoid the use of human products on pets unless they are recommended by your veterinarian.

**Specific Treatment**

Cyclosporine can be used to control atopic dermatitis in dogs and allergic dermatitis (including atopy) in cats. The medication is given once a day for 4 weeks (4 to 6 weeks in cats, based on response). After that, the dose can be tapered to every other day or twice weekly, as needed to maintain effectiveness. Researchers estimate that over 70% of dogs and cats respond to this treatment; however, cyclosporine can be costly, and its side effects may include stomach upset and diarrhea. Ask your veterinarian if cyclosporine may be a good choice for your pet.
Avoiding Injury: Tips for Interpreting Signs of Aggression in Dogs

- Occasionally dogs will become fractious during handling; however, steps can be taken to minimize this potential problem.
- Minimizing dogs’ exposure to sudden changes in the environment and acclimating them slowly to changes is important.
- Proper restraint of your dog is crucial to avoid injury when handling dogs.
- Wear protective clothing such as sturdy shoes.
- Always have an exit strategy when working with dogs; occasionally, dogs will not tolerate handling and should be placed in a secure environment until they adjust to a new situation and calm down.

The Basics

While dogs have been domesticated by people for a long time, it is important to remember that they are still animals with a very strong instinct for “fight or flight” when danger is present. When presented with a threat, many dogs will try to escape; however, some dogs will choose to fight against the danger and may bite in response to the threat. It is important to follow certain safety guidelines when working with dogs to avoid injury for you and your dog. Remember, an adult large breed dog may weigh as much as a person, and all sizes of dogs have sharp teeth that can easily injure a person with minimal effort. In fact, small breed dogs weighing less than 25 pounds are more likely to bite than larger breed dogs.

Common steps to avoid injury include using proper restraint. This can vary depending on the dog, but at minimum, a strong collar and leash in good condition should be used when handling dogs. It is vital to have the dog in a secure environment (e.g. a room with a closed door or a fenced yard) and ensure that the dog’s collar is secure or the dog may be able to remove the collar and run away. In some cases, additional restraint such as a muzzle may be necessary.

Separating certain dogs such as non-neutered males and females or female dogs with puppies from other dogs on the property and using separate housing or crates is important. This will avoid exposing male dogs to female dogs in heat and the potential problems associated with their interaction. Female dogs with puppies are often very protective and may injure a person trying to interact with their puppies. In addition, only experienced people should handle non-neutered males or females with puppies. It also is important to approach dogs carefully and slowly, not staring at them because some dogs may bite when they feel threatened by someone approaching. It also is imperative to wear protective clothing around dogs, such as sturdy shoes, and avoid loose-fitting clothing that they can bite.

What to Do

Introduce dogs slowly to a new situation or to new dogs to avoid agitating them. However, it is not always possible to avoid new situations, so it is important to recognize the signs of an agitated dog, which can include barking, growling, a tail held in an erect position and waving
back and forth, pacing and erect hair around their shoulders. The dog’s ears may be erect or flattened against his/her head. An agitated dog may try to bite other dogs nearby, and if you approach, the dog may try to bite you.

Some dogs will show signs of fear such as avoiding your gaze, backing up as you approach, and hunching their back in a submissive position, but then lunge to bite you as you approach. This is called “fear biting” or “fear aggression.” If you notice this behavior, back slowly away from the dog to avoid escalating the situation. Then, try to determine what stimulus is causing the dog to appear fractious or agitated. Once you are able to identify the stimulus (e.g. a new dog in the area), remove the stimulus or wait a few minutes to see if the dog calms down. Most dogs will calm down once they adjust to the change in the environment, if given a few minutes to adjust. If the stimulus can’t be removed, it may help to distract the dog with dog food or a treat.

Sometimes the dog needs to be walked away to another location. Do not stand in front of the dog; stand to the side if possible, out of the way of the dog’s head. If the dog is confined, it may help to leave him/her alone for a few minutes; many dogs will calm down after they adjust.

Prevention

Preventing dangerous situations is much easier than handling a dangerous situation, especially if you are a novice dog owner or handler. Working with an experienced dog owner or handler to learn precautions that are necessary for handling dogs is invaluable. Also, ask your veterinarian for tips. He/she is accustomed to handling dogs in difficult situations, such as when a dog is in pain. Many dogs will adapt to a new situation if given time; however, if your dog is highly fractious or dangerous to handle, it is important to contact your veterinarian for aid. Sometimes dogs can have diseases or pain that is causing the dangerous behavior.

Tips To Remember When Working With Dogs

- Introduce dogs slowly to a new situation or to other dogs to avoid agitating them.
- When introducing dogs to new people or to other dogs, all of the dogs should be kept on leashes. This facilitates separating them if they try to fight or attack.
- Recognize signs of an agitated dog (e.g. frequent barking or growling, tail held in an erect position and waving back and forth, pacing and erect hair around their shoulders, erect or flattened ears). Back away if possible; then identify the stimulus, and either remove it if possible or wait a few minutes to see if the dog acclimates to the stimulus.
- Ask your veterinarian for tips and work with an experienced dog owner or handler to learn precautions that are necessary for handling dogs; keep certain groups of dogs such as non-neutered males and females or female dogs with puppies separated.
- It is important to contact your veterinarian if your dog is highly fractious or dangerous to handle. There may be an underlying disease that is causing this behavior.
Barking

- Before attempting to resolve your dog’s barking problem, have your veterinarian examine your dog to rule out medical causes.
- Determine why your dog is barking before attempting to address a barking problem.
- It takes time to teach a dog to bark less, so don’t expect a quick fix or that your dog will stop barking completely.
- Never use a muzzle to keep your dog quiet for long periods of time or when you’re not supervising him or her.

Barking is one of several types of vocal communication by dogs. You may appreciate your dog’s barking when it signals that someone is at your door or that your dog needs something. However, dogs sometimes bark excessively or at inappropriate times. Because barking serves many purposes, determine why your dog is doing it before attempting to address a barking problem. Does your dog use barking to get what he or she wants? For example, dogs that get attention for barking often learn to bark for food, play, and walks as well. Therefore, training your dog to be quiet on command is important so that you can teach your dog a different behavior (such as “sit” or “down”) for getting what he or she wants. Dogs of certain breeds and dogs that aren’t spayed or neutered may bark more than other dogs; therefore, it can be more difficult to reduce barking in these dogs.

Types of Barking

In **territorial barking**, dogs bark excessively at people, dogs, or other animals within or approaching their territory. Your dog’s territory includes the area around your home and anywhere your dog has spent time or associates strongly with you, including your car and the places you walk together.

In **alarm barking**, dogs bark at any noise or sight regardless of the context. When barking, these dogs usually have a stiff body and move or pounce forward 1 or 2 inches with each bark. These dogs might bark at sights or sounds anywhere, not just when defending familiar areas.

In **attention-seeking barking**, dogs bark at people or other animals for attention or rewards, such as food, toys, or play.

In **greeting barking**, dogs bark when they see people or other dogs, but they are excited, have relaxed bodies and wagging tails, and might also whine.

In **compulsive barking**, dogs bark excessively and repetitively. These dogs often move repetitively as well. For example, a compulsive barker might run back and forth along a fence or pace when indoors.

In **socially facilitated barking**, dogs bark excessively only when they hear other dogs barking.
In **frustration-induced barking**, dogs bark excessively only when they’re in a frustrating situation, such as when their activity or movement is restricted.

In **illness or injury barking**, dogs bark in response to pain.

In **separation-anxiety barking**, dogs bark excessively only when left alone or when their caretaker is gone. This barking is usually accompanied by at least one other sign of separation anxiety, such as pacing, destruction, elimination, or depression.

**Reducing Your Dog’s Barking**

It takes time to teach a dog to bark less, so don’t expect a quick fix or that your dog will stop barking completely. Before attempting to resolve your dog’s barking problem, have your veterinarian examine your dog to rule out medical causes. If you need help with reducing your dog’s barking, consider working with a board-certified veterinary behaviorist or a certified applied animal behaviorist or hiring a certified professional dog trainer in your area.

The veterinary behaviorist will help you identify your dog’s type of barking. Answering the following questions can help you:

- When and where does your dog bark?
- Who or what triggers your dog’s barking?
- Why is your dog barking?

The following suggestions/guidelines may be recommended by the veterinary behaviorist. Please consult with your veterinary professional.

To manage **territorial or alarm barking**, block your dog’s view of areas that he or she guards. Block windows that your dog uses, and put a solid barrier or fence around your dog’s outdoor area. In addition, don’t allow your dog to greet people at the front door, yard gate, or property line. Instead, train your dog to go to another location (e.g., a crate or mat) and remain quiet until you invite him or her to greet someone appropriately.

To manage **attention-seeking barking**, you must consistently not reward your dog for barking. Dog owners often unknowingly reinforce attention-seeking barking by looking at, touching, scolding, or talking to their pets; to dogs, all of these human behaviors are rewards. When your dog starts to bark for attention, stare at the ceiling, turn away from your dog, or leave the room. As soon as your dog stops barking, ask him or her to sit, and then give your dog what he or she wants (e.g., attention, play, treats). To be successful, try to never reward your dog for barking at you.

It might help to teach your dog an alternative behavior. For example, if you don’t want your dog to bark when he or she needs to go out or come in, install a doggy door or teach your dog to ring a hanging bell by touching it with his or her nose or paw. If your dog barks when he or she wants to play, teach your dog to bring a toy to you. If your dog barks when you’re talking on the
telephone or working on the computer, give your dog a tasty chew toy to occupy him or her before the barking starts.

In addition, teaching your dog to be silent on command can help strengthen the connection between quiet behavior and attention or rewards. Regularly give your dog attention (e.g., praise, petting, a treat) when he or she isn’t barking.

To manage **greeting barking**, try to keep greetings low key. Teach your dog to sit and stay when meeting people at the door. First, teach your dog to sit and stay when people aren’t at the door; this will help your dog practice the behavior before being asked to perform it when people arrive. Keep a favorite toy near the front door, and encourage your dog to pick it up before greeting you or guests. (Your dog is less likely to bark with a toy in his or her mouth.) On walks, distract your dog with special treats (e.g., bits of chicken, cheese, or hot dogs) before he or she begins to bark at passersby. Some dogs do best if they are asked to sit as people or dogs pass. Other dogs prefer to keep moving. Praise and reward your dog with treats anytime he or she chooses not to bark. Putting a head halter on your dog when he or she is likely to bark may decrease the likelihood of barking. For safety, use a head halter only when your dog is supervised. Please seek guidance from your veterinary professional about the use of head halters.

To manage **compulsive barking**, try changing how you confine your dog. If your dog is alone for long periods of time, increase his or her exercise, mental stimulation, and/or social interaction. For managing compulsive barking, it is recommended to seek guidance from a certified applied animal behaviorist or a veterinary behaviorist.

To manage **socially facilitated barking**, keep your dog indoors when other dogs are barking, play music to drown out the sound of other dogs, or distract your dog with treats or play when other dogs are barking.

To manage **frustration-induced barking**, teach your dog to control his or her impulses through obedience training. Teach your dog to wait, sit, and stay, and reward him or her with fun activities such as walks or play with other dogs. This might require the help of a veterinary behaviorist or certified professional dog trainer. You can discourage the presence of animals in your yard by installing motion-activated devices that scare them away.

To manage **separation-anxiety barking**, your dog must be treated for separation anxiety. Please contact your veterinarian.

**Anti-bark Collars**

Anti-bark collars deliver an unpleasant deterrent (e.g., a loud or ultrasonic noise, a spray of citronella, a brief electric shock) when a dog barks. Anti-bark collars are punishment devices and are not recommended as a first choice for managing a barking problem. This is especially true for barking that is motivated by fear, anxiety, or compulsion. Before using any anti-bark device, please seek the advice and guidance of your veterinarian, a board-certified veterinary behaviorist, a certified applied animal behaviorist, or a qualified certified professional dog trainer.
What Not to Do

- Don’t encourage your dog to bark at sounds, people, or animals outside your home by asking “Who’s there?” or looking out the windows.
- Don’t punish your dog for barking at certain sounds while encouraging him or her to bark at other sounds, such as people at the door. You must be consistent in training your dog.
- Do not use punishment techniques, which could worsen your dog’s barking problem.
- Do not use a muzzle to keep your dog quiet for long periods of time or when you’re not supervising him or her. Dogs can’t eat, drink, or pant to cool themselves while wearing muzzles, so making your dog wear one for a long period of time is dangerous
**BATHING YOUR DOG**

- Regular bathing can help keep your dog’s skin and haircoat healthy.
- Medicated shampoo may be prescribed by your veterinarian.
- Try to make bathing a pleasant experience for your dog.

**Good Reasons to Bathe Your Dog**

Regular bathing can help keep your dog’s skin and haircoat healthy, and if you can teach your dog to enjoy being bathed, it can be another way to strengthen your relationship with your dog. The ASPCA recommends bathing your dog about every 3 months; however, certain breeds and dogs that spend a lot of time outside may need to be bathed more often. Some medical conditions may benefit from medicated shampoo products that your veterinarian can prescribe or recommend.

**Preparing for a Bath**

Mats and tangles are easier to remove by brushing before bathing. Try to make bathing a pleasant experience for your dog: use warm water and a mild shampoo made for dogs or a veterinarian-prescribed medicated shampoo; provide toys, treats, and calm praise as rewards for good behavior. You can bathe your dog indoors in a tub or outdoors. If necessary, place a rubber bath mat under your dog to keep him or her from slipping. Wear old clothes, and have plenty of large, absorbent towels and/or a blow dryer on hand. You’ll also need a spray hose or a large plastic pitcher or unbreakable cup.

**The Bath**

1. Use a spray hose to thoroughly wet your dog, being careful not to spray directly in his or her eyes, ears, or nose. If you don’t have a spray hose, use a large plastic pitcher or unbreakable cup.
2. Gently massage the shampoo into your dog’s haircoat from head to tail. Follow your veterinarian’s instructions.
3. Thoroughly rinse your dog with a spray hose, pitcher, or cup, taking care to avoid the ears, eyes, and nose.
4. Dry your dog with large towels or a blow dryer. If you use a blow dryer, you may need to slowly introduce your dog to the sound of the dryer. Also, make sure that the blow dryer doesn’t get too hot for your dog. Your veterinarian can answer any questions you may have.
5. Give your dog a toy, treat, and/or calm praise as a reward for good behavior.

**Caution!**

If you use a blow dryer to dry your dog, make sure the dryer does not get too hot.
Bee Stings in Dogs

- Just like in people, a bee sting can be serious; dogs are more likely to be stung because of their natural curiosity and playful nature.
- If a dog is stung by a bee or shows signs of a bee sting, remove the stinger if possible and seek professional help from your veterinarian.
- Bee stings can be successfully treated and sometimes prevented.

What You Need to Know

Bee stings can be a serious event and even life threatening in some cases. Dogs are at greater risk for bee stings than people, as they tend to chase or play with things that move. Dogs are likely to get stung in the mouth or on the nose, face, or feet by several different insects, including bees, wasps, and hornets.

If your dog suffers a bee sting, seek veterinary assistance. If you wait for an allergic reaction to occur you may already be too late; your dog could become very ill very quickly.

Signs of Bee Stings

- Crying out, running in circles, salivating
- Mild signs include swelling of the area; scratching, rubbing, licking, or chewing at the sting
- Severe signs include profound swelling of the face, throat, or neck; hives; vomiting; difficulty breathing; collapse

Types of Bee Stings

- A bee sting reaction may be as mild as slight burning or itching for several minutes
- More venomous insect stings may cause profound swelling, pain, itching, and redness
- In the most extreme situation a dog may have anaphylactic shock (a life-threatening, severe, allergic reaction) as a result of exposure to the insect venom. These signs can include difficulty breathing, collapse, and death.

What to Do

If your dog is stung by an insect, the most important thing to remember is to remain calm. If you think you can remove the stinger, doing so may reduce the amount of venom injected. You can try to remove the stinger by scraping a credit card across the dog’s skin to flick the stinger out. Do not try to remove the stinger by pinching/pulling it (as you might remove a splinter); this may actually increase the amount of venom that is injected.

Severe allergic reactions can happen very quickly and can become life threatening within minutes. If your pet suffers an insect sting, seek veterinary care as soon as possible. If you wait for signs of an allergic reaction to be apparent, you may be losing precious time.
Although there is no antidote for bee stings, your veterinarian can assess your dog and administer medications to treat an allergic reaction. If you were not able to remove the stinger or it is in the mouth or is otherwise hard to reach, your veterinarian can assist with this. Medication to ease the pain and itching associated with stings can be administered by your veterinarian. In the case of a severe reaction or anaphylaxis, hospitalization for observation and more intensive care may be recommended.

Prevention

To minimize exposure to bee stings, try to help your pet avoid flower beds, a favorite habitat of bees. Bees also may build nests in eaves of houses and in trees. Some hornets and wasps build their nests in the ground, so pay careful attention to where your dog may be digging when he is outside.

It is always a good idea to monitor your property for nests and have them removed when detected. Bees abound in the spring and summer, and “bee proofing” your dog’s environment is a big job. It is a good idea to have the phone numbers for your veterinarian and local veterinary emergency clinic on hand in case your dog is stung.
Biopsy

- A biopsy allows your veterinarian to determine the types of cells in a tissue sample.
- Biopsies are commonly used to determine if growths are cancerous but can also help determine the severity of a disease.
- The tissue removed during a biopsy is examined under a microscope by a veterinary pathologist, a specialist in examining cells and tissue samples.
- Some form of anesthesia is generally required to perform a biopsy.

What Is a Biopsy?

A biopsy is a surgical procedure in which a tissue sample is removed from the body and examined under a microscope. In some cases, only a small sample is removed for analysis. In other cases, several samples may be removed, or an entire growth may be removed and examined.

What Is a Biopsy Used For?

Dogs and cats commonly develop lumps and growths on their skin. Sometimes these lumps are cancerous, but in other cases, they are simply warts or other noncancerous (benign) growths. Examining a lump does not always give your veterinarian enough information to tell whether it is cancerous or not. A biopsy may be recommended to obtain more information about a suspicious lump.

A biopsy can also be used to diagnose a condition or determine the severity of a disease. For example, if an animal has liver disease, a sample of the liver can be removed (during a biopsy) and examined under a microscope to help determine the cause and extent of the liver damage.

How Is a Biopsy Performed?

Some form of anesthesia is generally required to perform a biopsy. Depending on several factors, including where the tissue sample(s) is/are located and how many areas need to be sampled, your veterinarian will decide whether to use local anesthesia, sedation, or general anesthesia. Local anesthesia usually involves injecting a medication in and around an area of the body to make it numb. If local anesthesia is used, your pet will likely be awake during the biopsy. In contrast, if sedation or general anesthesia is used, the patient is heavily sedated or completely asleep during the procedure. Sometimes, if a growth is on the surface of the skin and is very small, your veterinarian may be able to perform a biopsy using local anesthesia. However, if the area to be biopsied is within the abdomen, for example, or if multiple areas will be biopsied, general anesthesia is usually recommended.

Your veterinarian has a few options when deciding how to perform a biopsy and how much tissue to remove. In an incisional biopsy, a small sample of tissue is removed from a larger mass. In an excisional biopsy, the entire growth is removed and submitted for biopsy.
Once the tissue is removed, your veterinarian will submit it to a diagnostic laboratory. There, a veterinary pathologist (a specialist at examining cells and tissue samples) will examine the tissue under a microscope to make a diagnosis. Results are generally available within several days.

**What Are the Benefits and Risks of a Biopsy?**

Biopsies are very important for helping to confirm a diagnosis. With many types of cancers, early diagnosis is helpful for determining the course of treatment and can help increase the chance of survival. Biopsies can also help to confirm causes of other conditions, including skin lesions as well as diseases of the kidneys, liver, or bone marrow.

Your veterinarian will take many precautions to help ensure that your pet is safe during the biopsy and fully recovers afterward. To help reduce the risk of complications associated with surgery or anesthesia, your veterinarian may give your pet a full physical examination and check your pet’s blood work before the biopsy.

Biopsies are very safe, routine procedures. The risks associated with a biopsy depend on several factors, including the overall health of the patient, the location of the area to be biopsied, and how many samples are taken. Be sure to discuss any questions or concerns with your veterinarian.
Bladder Stones and Kidney Stones

- Urinary stones are made of minerals and can form anywhere in the urinary tract of dogs and cats.
- These stones can irritate the bladder lining and obstruct urine flow from the kidney to the bladder or from the bladder out of the body.
- Signs may include more frequent urination, blood in the urine, urinary accidents, or recurring urinary tract infections.
- Pets with a blockage may be unable to urinate, may strain or vocalize (whimper or yelp) while urinating, or may vomit and seem tired, and should be seen by a veterinarian immediately.
- Stones may be caused by certain diets, urinary tract infections, or metabolic disorders; some breeds of animals are more likely to have stones.
- Stones are usually diagnosed with an abdominal radiograph (x-ray) or with an abdominal ultrasound.
- Some stones may be dissolved with special diets, but others may require removal with surgery or other methods.
- Pets with a history of stones may require special diets to help prevent recurrence.

What Are Bladder and Kidney Stones?

Bladder and kidney stones are hardened accumulations of minerals found in urine. Common minerals involved include struvite, calcium oxalate, and urate. Dogs and cats can develop stones anywhere in the urinary tract. Stones can form in many different shapes and sizes.

Certain breeds of animals may be more likely to form certain kinds of stones. Dalmatians, for example, are more likely to develop urate stones.

Stones can have sharp edges. They can irritate or become embedded in the lining of the bladder, causing the tissue to become thickened and inflamed. They can also form inside the kidneys.

Stones can cause serious problems when they lodge in the ureters (the thin tubes connecting each kidney to the bladder) or the urethra (the narrow tube that allows urine to flow from the bladder out of the body). When the normal flow of urine from the kidney to the bladder is obstructed, urine (and pressure) can build up in the kidney, potentially causing kidney infections or kidney failure.

If a stone obstructs the urethra, the pet is unable to urinate, and the urine builds up inside the urinary tract. This occurs more commonly in male pets because, compared with females, they have a longer and very narrow urethra. When pets are unable to urinate, it’s a medical emergency, and a veterinarian should see the pet immediately.

What Causes These Stones?
Stones are often caused by a change in the normal pH of the urine, making it too acidic (low pH) or too basic (high pH), or by diseases that alter the mineral balance in the body. Factors that can lead to the formation of stones include:

- Type of food the pet is eating
- Urinary tract infections
- Vitamin supplements
- Metabolic diseases
- Genetic predisposition (breed of animal)

**What Are the Signs of Bladder and Kidney Stones?**

Most stones are found in the bladder. Pets with bladder stones may show no signs at all or may exhibit signs such as the following:

- More frequent urination
- Blood in the urine
- Urinary accidents
- Recurring urinary tract infections

Signs of a possible urinary blockage include:

- Straining to urinate
- Inability to urinate
- Crying in the litterbox (cats)
- Vomiting
- Anorexia
- Painful abdomen
- Lethargy (tiredness)

Pets with kidney stones may show no signs or may have persistent blood in the urine. If a blockage affects the kidneys, the pet may have pain near the middle of the spine (where the kidneys are located) or may drink and urinate more.

**How Are Urinary Stones Diagnosed?**

Some veterinarians may be able to feel stones in the bladder by applying gentle pressure with their hands. In most cases, an abdominal radiograph (x-ray) is required. Since some stones do not appear on regular radiographs, contrast medium (a sterile solution that appears bright on radiographs) may need to be injected into the urinary tract to help make the stones more visible. An abdominal ultrasound may also be helpful to visualize stones.

If the urethra is obstructed with a stone, the veterinarian will usually be able to feel a firm bladder, and the pet may have signs of pain.
Testing the urine is helpful to determine if a urinary tract infection is present and if the urinary pH is normal. Sometimes crystals may be found in the urine, which may provide a clue as to the type of stone involved. Still, the only way to identify the type of stone with certainty is to send sample stones to a laboratory for analysis. This is important because treatment will vary depending on the stone.

**How Are Bladder and Kidney Stones Treated?**

In pets with blockages, emergency surgery is usually required. If the pet is not blocked, some stones can be dissolved by feeding the pet a special diet. This food, available only through veterinarians, will help modify the urine pH and dissolve the stones.

Some types of stones cannot be dissolved by diet and must be removed from the bladder using other methods, including:

- **Voiding urohydropropulsion:** While the pet is sedated, small stones may be flushed out by filling the bladder with fluid and applying pressure to empty it (only works for small stones)
- **Basket retrieval:** A small scope (a long, thin device with a tiny camera) is inserted into the urethra while the animal is under anesthesia, and stones are found and removed (not possible in male cats)
- **Laser lithotripsy:** A small scope is inserted into the urethra, and a laser is used to break up the stones into smaller pieces which then may pass through the urethra (not possible in male cats)
- **Surgery:** The bladder is opened through the abdomen, and the stones are removed

While kidney stones may be removed by surgery, this procedure may affect kidney function. Another alternative, which is usually only available at universities, is called *extracorporeal shock wave lithotripsy*. In this procedure, shock waves are used to break up stones in the kidneys and ureter so that they become small enough to pass in the urine.

Once stones are removed, they are generally submitted to a diagnostic laboratory so their type/composition can be determined. Once the stone composition has been determined by lab analysis, pets may need to be fed a special diet and/or given medication for the rest of their lives to help prevent recurrence.
Blood Pressure Test

- An (indirect) blood pressure test measures the pressure of blood against the walls of large arteries.
- It is a noninvasive, painless procedure that can be performed on an outpatient basis.
- Your veterinarian may recommend a blood pressure test if your pet shows signs of high blood pressure or has been diagnosed with a disease associated with high blood pressure.
- High blood pressure is usually treated by identifying and treating the underlying disease. Prescription medications may be necessary.

What Is a Blood Pressure Test?

A blood pressure test measures the pressure of blood against arterial walls as the blood is pumped through the body. As a general rule of thumb, blood pressure should not exceed about 160/100 mm Hg in dogs and cats. The first number is the systolic blood pressure, or the pressure when the heart contracts. The second reading is the diastolic blood pressure, which is lower because it is the pressure when the heart relaxes between contractions. Blood pressure is measured in millimeters of mercury (mm Hg).

Which Pets Should Have a Blood Pressure Test?

In most cases, a blood pressure test is performed to determine if your pet’s blood pressure is too high. When blood pressure is too high, bleeding may occur, which can damage internal organs. The organs that are most vulnerable to damage are the eyes, kidneys, heart, and brain. The most common sign of high blood pressure is sudden or gradual blindness. Blindness caused by high blood pressure may be reversible, if caught early. Other signs of high blood pressure include dilated pupils, disorientation, and, less commonly, seizures.

In dogs and cats, high blood pressure is typically caused by another disease or condition, such as:

- Hyperthyroidism (too much thyroid hormone)
- Kidney disease
- Cushing disease, or hyperadrenocorticism (too much adrenal hormone)
- Diabetes mellitus (too much blood sugar)

Your veterinarian may recommend a blood pressure test if your pet shows signs of high blood pressure or has been diagnosed with a disease associated with high blood pressure. Because cats older than 10 years are at high risk for kidney disease and hyperthyroidism, veterinarians often recommend screening them for high blood pressure.

Pets that are critically ill or under general anesthesia are often monitored to ensure that their blood pressure doesn’t become too low. Maintaining normal blood pressure is important so that organs receive the oxygen necessary to maintain proper function.

How Is Blood Pressure Measured?
In most cases, a blood pressure test is noninvasive and painless for your pet and can be performed during a regular office visit. Anxiety and stress can raise your pet’s blood pressure, so the test should be done in a quiet, relaxed environment and should be performed several times to ensure the results are not influenced by stress.

With the most common technique, a blood pressure cuff is placed around one of the pet’s limbs or around the base of the tail. The cuff is inflated to a pressure above the systolic pressure, so it momentarily presses against the artery and stops the blood flow. The cuff is then slowly deflated, and a machine determines the systolic and diastolic blood pressures. This method is called the indirect method and is fairly accurate. The most accurate blood pressure measurement is accomplished by placing a catheter directly into an artery. This type of monitoring is more painful and typically only done for patients that are critically ill and/or under general anesthesia and need constant blood pressure monitoring.

**How Is High Blood Pressure Treated?**

Because high blood pressure is usually caused by another disease, identifying and treating that disease can help return blood pressure closer to normal.

Occasionally, additional medications that dilate the blood vessels are required to help reduce blood pressure. If your pet has been diagnosed with high blood pressure, a blood pressure test should be done every few months to make sure the condition is properly controlled.
Bordetella bronchiseptica

- *Bordetella bronchiseptica* is a bacterium associated with a highly contagious respiratory disease in dogs.
- It is one of the leading bacterial causes of “kennel cough” in dogs.
- The disease is spread through direct contact and airborne transmission.
- Signs of infection are typically mild, requiring little treatment other than supportive care. However, in certain situations, kennel cough can cause serious illness and even death.
- Risk of illness can be reduced by avoiding high-risk environments. Your veterinarian may recommend vaccination for your dog.

What Is It?

*Bordetella bronchiseptica* (*B. bronchiseptica*) is a bacterium that is commonly associated with respiratory disease in dogs. It can also infect cats, rabbits, and, in rare cases, humans. It is one of the most common bacterial causes of canine infectious tracheobronchitis, which is also sometimes called **kennel cough**. *B. bronchiseptica* is highly contagious, easily transmitted through direct contact or the air, and resistant to destruction in the environment.

Signs of Illness

Signs of canine infectious tracheobronchitis typically develop 2 to 14 days after exposure to *B. bronchiseptica*. In mild cases, signs typically resolve within 10 to 14 days. More severe cases, particularly when a subsequent infection has occurred, can require a much longer recovery. Infected animals can continue to shed (spread) the bacterium for months after recovery.

Signs include:

- A dry, “honking” or gagging cough
- Nasal discharge
- Lethargy
- Fever

In healthy adult dogs, *B. bronchiseptica* typically causes no more than a mild illness. In puppies or in dogs with other underlying health issues, however, it can cause severe illness or even death in rare cases.

Diagnosis and Treatment

Although sophisticated testing is available, diagnosis is generally based on a history of exposure to infected dogs or a recent visit to a kennel, combined with the presence of signs of illness.

In mild cases, treatment is generally supportive, as the disease typically resolves on its own unless a subsequent infection occurs. Precautionary antibiotics to prevent subsequent infection
may be prescribed. In severe cases, treatment may consist of administration of antibiotics as well as medications to help your pet breathe more easily. Cough medication may also be prescribed if appropriate.

A harness, rather than a collar, is recommended for leash walking of ill dogs. A traditional collar puts pressure on already sensitive and irritated tracheal tissues and can induce coughing episodes.

**Prevention**

The term *kennel cough* is a misnomer, as dogs don’t necessarily contract the disease as a result of being kenneled. Rather, they become ill because kennels can be stressful environments for some dogs, and stress can suppress the immune system, increasing susceptibility to disease. Also, kennel conditions (such as group housing) can make it easier to spread infectious organisms, such as *B. bronchiseptica*. Any place where large numbers of dogs gather together increases the risk of disease transmission.

Vaccination is the best way to protect your dog from illness associated with canine infectious tracheobronchitis, particularly if your dog frequents kennels, groomers, dog shows, or dog sporting events. Although the *B. bronchiseptica* vaccination is not mandatory for every dog, it may be recommended in dogs whose lifestyle increases their risk of exposure to this organism. An intranasal *B. bronchiseptica* vaccine is available in addition to the traditional injectable vaccine. Ask your veterinarian whether vaccination is recommended for your pet and, if so, which type is best for your pet.

**To reduce the risk of disease transmission, many boarding facilities require dogs to be vaccinated for kennel cough before entry.**
Breast Cancer in Dogs and Cats

- Breast cancer is the uncontrolled growth of abnormal mammary gland (breast) cells.
- Tumors occur most frequently in older, female pets that have not been spayed.
- Most (80% to 90%) mammary tumors in cats are malignant (cancerous), while 50% of mammary masses in dogs are malignant.
- While the cause of breast cancer is unknown, hormones are thought to play a role.
- Signs of breast cancer include firm nodules in the tissue around the nipples, ulcerated skin, and swollen, inflamed nipples with or without discharge.
- Breast cancer is best diagnosed with a surgical biopsy.
- Blood work and radiographs (x-rays) are usually recommended to help determine if the cancerous cells have spread to other parts of the body.
- Tumors are treated with surgical removal and possibly radiation therapy and/or chemotherapy.
- Spaying female pets before their first heat cycle is the best way to prevent breast cancer.

What Is Breast Cancer?

Breast cancer is the uncontrolled growth of abnormal mammary gland (breast) cells. If left untreated, certain types of breast cancer can metastasize (spread) to other mammary glands, lymph nodes, the lungs, and other organs throughout the body.

While any pet can develop mammary tumors, these masses occur most often in older, female dogs and cats that have not been spayed. Siamese cats have a higher risk for breast cancer than other feline breeds.

In cats, 80% to 90% of these tumors are malignant (cancerous). Dogs fare a little better: 50% of mammary tumors are malignant. Any suspicious lump in the mammary area should be examined by a veterinarian as soon as possible.

What Causes Breast Cancer?

The exact cause of mammary gland cancer is unknown. However, dogs and cats that are spayed before their first heat cycle are less likely to have breast cancer, so hormones may play a role.

Treatment with hormones for other conditions may increase the risk for this type of cancer. In the past, hormones were used to treat some behavior and skin problems in cats, but this has generally fallen out of favor. Some hormone treatments are still being used in dogs, such as estrogen in the treatment of urinary incontinence, but other alternatives are usually available.

Genetics may also play a role in canine breast cancer. Recent findings show that certain genes are overexpressed in dogs with this condition.

What Are the Signs of Breast Cancer?
There’s no way to determine if a lump is cancerous simply by feeling it. But since any lump in the mammary area has the potential to be cancerous, it’s a good idea to check your pet regularly.

Mammary tumors tend to be firm, nodular masses that feel like BB pellets under the skin. Tumors may be located in a single mammary gland (the area around one nipple), or they may be in several mammary glands at once. The skin covering the tumor may be ulcerated or infected. Nipples may be swollen or red, and there may be discharge from the nipple itself.

**How Is Breast Cancer Diagnosed?**

The best way to diagnose breast cancer is with a surgical biopsy (tissue sample) of the mass. In dogs with large masses, it may be possible to obtain a fine needle aspirate of the tumor, which involves placing a needle into the mass and extracting cells for examination under the microscope. This procedure may be more difficult with smaller masses or in cats. Since a biopsy usually provides a larger tissue sample (likely to yield a more definitive diagnosis), this is the best option. Biopsies generally require some form of anesthesia or sedation, so your veterinarian may recommend a preanesthetic evaluation and/or blood work.

**How Is Breast Cancer Treated?**

Early detection and surgical removal of the masses is the best treatment option. Before performing surgery, your veterinarian will most likely recommend blood work and radiographs (x-rays). Chest radiographs are important to check for metastases to the lungs, and abdominal radiographs may show signs of enlarged lymph nodes. If the radiographs show no evidence of metastasis, the pet has a better prognosis.

Because of the high rate of malignancy in cats and the fact that cancer often invades several mammary glands along the same side of the body, a radical mastectomy with removal of all mammary glands on the same side is often recommended. For cats with masses on both sides, two separate surgeries several weeks apart may need to be performed.

Unless dogs have multiple tumors, they may not need to have as much tissue removed as cats. Submission of the tissue for microscopic examination will determine if the tumors have been completely removed.

If your pet still has her ovaries and uterus, your veterinarian may recommend spaying your pet at the time of mammary surgery.

Following surgery, your veterinarian may recommend radiation therapy or chemotherapy. Radiation therapy is designed to kill any potentially cancerous cells in a focused area. Chemotherapy involves systemic drugs that treat cancerous cells that may have travelled to other parts of the body.

**Can Breast Cancer Be Prevented?**
The best way to prevent breast cancer is to have your pet spayed before her first heat cycle. Even spaying your pet by 1 year of age can help reduce breast cancer risk. Pets that are spayed later in life will be at higher risk for breast cancer.
Breeding Your Dog

- There are currently more dogs in the United States than there are homes for them. As a result, millions of dogs are surrendered to shelters and euthanized each year.
- Breeding should only be done to improve the breed, which requires a strong knowledge of the pedigrees and health histories of both the female and male dogs.
- Responsible breeding requires a tremendous amount of time and money, as well as a commitment to socialization, training, and ensuring that the puppies have good homes for a lifetime.
- Dogs that are not spayed or neutered are more likely to experience potential health problems.

Should I Breed My Dog?

Most shelters and rescue organizations are overflowing with mixed breed and purebred dogs that are perfectly friendly and adoptable, but there simply aren’t enough homes for them. As a result, approximately three to four million unwanted dogs and cats are euthanized each year, according to the Humane Society of the United States. Producing more puppies, for any other reason than to improve the breed, just exacerbates the problem.

Dogs that have temperament problems, such as aggression or excessively submissive behavior, should not be bred. Dogs that have inherited medical conditions, such as hip dysplasia, also should not be bred.

What’s Involved in Raising a Litter?

Before you breed your dog, honestly consider if you have the time, commitment, and finances required to raise a litter. Ask yourself the following questions:

- Can I afford to raise a litter? Before breeding, both the female and male dogs should be tested for brucellosis, a kind of venereal disease. They should also be screened for genetic problems they could pass to their offspring, including joint problems such as hip dysplasia, as well as eye and heart conditions. The female dog should be vaccinated and dewormed before she is bred. Once she is pregnant, she will require prenatal exams, and possibly radiographs (X-rays) or an abdominal ultrasound. If there is a problem during birth, she may need an emergency Caesarean section. After birth, the puppies will require veterinary exams, vaccinations, dewormers, and heartworm medication before they are sent to new homes.
- Can I deal with the birthing process? Can you be there to assist with the birthing process? Do you know what to do if there’s a problem? If there are complications, the mother dog and/or some of the puppies may not survive. Remember, if you want your children to learn from the birthing process, it can be a difficult experience for them if things don’t go smoothly.
- Do I have the time to care for the puppies? Some mothers reject their litters, or develop mastitis (a breast infection that can happen after giving birth), so they are unable to nurse the puppies. If that happens, will you have time to feed each puppy several times a day
and provide other care at this critical stage? You will also spend a considerable amount of
time cleaning up after the puppies that aren’t housebroken, and working to make sure
they are housebroken before they go to their new homes.

What Are My Responsibilities as a Breeder?

Good breeders take responsibility for their puppies not just until they find a new home, but for a
lifetime. Reputable breeders:

- Mate purebred dogs only to improve the breed. They follow breeding standards and
  belong to breed organizations. They make sure that both the mother and the father dogs
  are screened for genetic defects, and have the papers to prove their health and genetic
  backgrounds.
- Provide each puppy with individual attention to assure that it is properly socialized. They
  want a puppy that’s not only physically healthy, but enjoys interacting with people and
  other dogs.
- Interview potential owners to find the best homes for their puppies. These breeders make
  sure the owners are financially prepared and committed to keeping the puppies for a
  lifetime, which can be 10 years or more.
- Require new owners to sign a contract. The contract may require that the owners spay or
  neuter the puppy, and that they return the dog to the breeder, should they be unable to
  keep it. Both of these measures are designed to prevent dogs from being surrendered to
  shelters.
- Provide a health guarantee. The breeder provides paperwork showing that a veterinarian
  has examined the puppy and found no inherited problems or diseases, and that early
  vaccination and deworming have been performed.
- Are available to offer advice and guidance over the months and years ahead. Good
  breeders are knowledgeable about the breed, and make themselves available to educate
  and advise the new owners.

Are There Any Health Risks Involved With Breeding?

There are always potential risks associated with pregnancy and birth, especially with very young
or very old dogs.

Whether you breed your dog or not, spaying or neutering can help eliminate some potential
health problems. Female dogs that are spayed are less likely to develop breast cancer and
pyometra, an infection of the uterus that requires emergency surgery. Male dogs that are neutered
are less likely to develop testicular cancer. Certain types of aggression are also less likely to
occur in dogs that are spayed or neutered.
The liver and kidneys are both involved in maintaining the body’s BUN (blood urea nitrogen) level.

The BUN level can be affected by many things, including certain medications and various illnesses.

If your pet’s BUN level is abnormal, additional tests may be recommended to determine the cause.

What Is BUN?

BUN stands for *blood urea nitrogen*. The BUN level is a measurement that represents the level of urea in the blood. Urea is considered one of the body’s waste products. It is produced when the liver participates in protein metabolism, and it is usually eliminated from the body by the kidneys. Therefore, both the liver and kidneys must be functioning properly for the body to maintain a normal level of urea in the blood.

The BUN level is an important part of a blood test known as a *chemistry panel*, so it is often evaluated during routine wellness checkups or pre-surgery screening in healthy pets. Often, it is evaluated along with other blood tests that screen for abnormalities involving the kidneys or liver. Because various illnesses can affect the BUN level, your veterinarian may recommend testing your pet’s BUN level if your pet has any of the following signs of illness:

- Vomiting
- Appetite loss
- Lethargy (tiredness)
- Anemia
- Increased drinking and/or urination
- Weight loss
- Dehydration

How Is the BUN Level Measured?

To test your pet’s BUN level, your veterinary team must obtain a small blood sample. This procedure is usually very quick; it may take only a few seconds if the patient is well behaved. For patients that are very frightened or not well behaved, your veterinary team may want to use a muzzle, towel, or other gentle restraint device. In some cases, such as in patients with very thick fur, it may be necessary to shave the hair from the area where blood will be drawn. The hair will grow back, and this is often a good way to find the vein quickly.

Some veterinary offices have in-house blood analysis equipment, so they can perform the BUN level test in the office and have results the same day. Other offices send blood samples to an outside laboratory for the test to be performed. If an outside laboratory is used, results are generally available within 1 to 2 days.
Be sure to tell your veterinarian about any medications or supplements your pet may be receiving, as some products can alter the BUN level in the blood.

**What Does the BUN Level Tell Your Veterinarian?**

Although changes in the BUN level are commonly associated with kidney disease or inadequate liver function, many other factors can affect the BUN level. Some antibiotics, for example, can cause this level to increase. Additionally, various medical conditions, such as dehydration or stomach bleeding, can affect the BUN level.

An abnormal BUN level (whether too low or too high) can indicate medical problems. The following are a few conditions that cause an abnormal BUN level:

- Decreased liver function
- Kidney infection
- Kidney failure
- Urinary blockage
- Hemorrhage (bleeding) of the stomach or intestines
- Severe burns or severe infection
- Starvation
- Shock

If your pet has an abnormal BUN level, your veterinarian will combine that information with other vital information about your pet to decide if further diagnostic testing is recommended to investigate the abnormal result. Additional tests may include a urinalysis (a screening test to evaluate components in the urine), radiographs (“x-rays”), or additional blood testing. Depending on your pet’s overall condition, your veterinarian may recommend medications or other management.

**Are There Risks Associated With Measuring the BUN Level?**

Very few risks are associated with measuring the BUN level. Drawing blood takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Once blood is obtained, all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.
BUN and Creatinine Levels

- Taken together, the blood urea nitrogen (BUN) and creatinine levels can provide useful information about kidney function.
- The BUN and creatinine levels can be affected by many things, including certain medications and various illnesses.
- If your pet’s BUN or creatinine level is abnormal, additional tests may be recommended to determine the cause.

What Are BUN and Creatinine?

BUN stands for blood urea nitrogen. The BUN is a measurement that represents the level of urea in the blood. Urea is considered one of the body’s waste products. It is produced when the liver participates in protein metabolism, and it is usually eliminated from the body by the kidneys. Therefore, both the liver and kidneys must be functioning properly for the body to maintain a normal level of urea in the blood.

Creatinine is a substance that the body produces during normal metabolism. The body eliminates creatinine almost exclusively through the kidneys’ filtration process, so measurement of creatinine is an accurate estimation of how well the kidney filtration processes are working. Anything that alters the ability of the kidneys to filter efficiently (such as dehydration) can cause changes in the level of creatinine in the blood.

Taken together, and usually combined with results of a urinalysis (a screening test to evaluate components in the urine), the BUN and creatinine levels provide a very accurate estimation of how well the kidneys are working. The BUN and creatinine levels are frequently part of a blood test known as a chemistry panel, so they are often evaluated during routine wellness checkups or pre-surgery screening in healthy pets.

Often, the BUN and creatinine levels are evaluated along with other blood tests that screen for abnormalities involving the kidneys. Because various illnesses can affect the BUN and creatinine levels, your veterinarian may recommend testing your pet’s blood if your pet has any of the following signs of illness:

- Vomiting
- Appetite loss
- Lethargy (tiredness)
- Anemia
- Increased drinking and/or urination
- Weight loss
- Dehydration

How Are the BUN and Creatinine Levels Measured?

To measure your pet’s BUN and creatinine levels, your veterinary team must obtain a small blood sample. This procedure is usually very quick; it may take only a few seconds if the patient
is well behaved. For patients that are very frightened or not well behaved, your veterinary team may want to use a muzzle, towel, or other gentle restraint device. In some cases, such as in patients with very thick fur, it may be necessary to shave the hair from the area where blood will be drawn. The hair will grow back, and this is often a good way to find the vein quickly.

Some veterinary offices have in-house blood analysis equipment, so they can perform the tests for BUN and creatinine in the office and have results the same day. Other offices send blood samples to an outside laboratory for the tests to be performed. If an outside laboratory is used, results are generally available within 1 to 2 days.

Be sure to tell your veterinarian about any medications or supplements your pet may be receiving, as some products can alter the BUN and creatinine levels in the blood.

**What Do the BUN and Creatinine Levels Tell Your Veterinarian?**

Although changes in the BUN and creatinine levels are commonly associated with kidney disease, many factors can affect these levels. Some antibiotics, for example, can cause these levels to increase.

The following are a few conditions that can cause abnormal BUN and creatinine levels:

- Dehydration
- Kidney infection
- Kidney failure
- Toxic injury to the kidneys
- Urinary blockage
- Shock
- Severe heart disease
- Muscle wasting or severe weight loss

Sometimes, the BUN and creatinine levels are both abnormal, but many times, one level is normal and the other is not. If your pet has abnormal test results, your veterinarian will combine that information with other vital information about your pet to decide if further diagnostic testing is recommended to investigate the abnormal result. Additional tests may include a urinalysis, radiographs (“x-rays”), or additional blood testing. Depending on your pet’s overall condition, your veterinarian may recommend medications or other management.

**Are There Risks Associated With Measuring the BUN and Creatinine Levels?**

Very few risks are associated with measuring the BUN and creatinine levels. Drawing blood takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Once blood is obtained, all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.


**Calcium Level**

- The body’s normal calcium level is maintained through a very complex interaction involving many of the body’s organs.
- Calcium level can be affected by many things, including certain medications and a variety of illnesses.
- If the calcium level is dangerously low or high, hospitalization may be recommended while the problem is being corrected.
- If your pet’s calcium level is abnormal, additional tests may be recommended to determine the cause.

**What Is the Calcium Level?**

Calcium is an important nutrient that the body needs to maintain many of its organs. Bones, the heart, intestines, and muscles are just a few of the organs that rely on a healthy blood calcium level in order to function properly. If the calcium level in the blood drops too low or goes up too high, serious illness can result.

The calcium level is an important part of a blood test known as a chemistry panel, so it is often evaluated during routine wellness checkups or pre-surgery screening in healthy pets. Because a variety of medical conditions can affect the calcium level, your veterinarian may recommend testing your pet’s calcium level if your pet has any of the following signs of illness:

- Vomiting
- Appetite loss
- Lethargy (tiredness)
- Increased drinking and/or urination
- Restlessness
- Muscle twitching
- Seizures
- Irregular heart rate
- Constipation
- Weakness or difficulty walking

**How Is the Calcium Level Measured?**

To test your pet’s calcium level, your veterinary team must obtain a small blood sample. This procedure is usually very quick; it may take only a few seconds if the patient is well behaved. For patients that are very frightened or not well behaved, your veterinary team may want to use a muzzle, towel, or other gentle restraint device. In some cases, such as in patients with very thick fur, it may be necessary to shave the hair from the area where blood will be drawn. The hair will grow back, and this is often a good way to find the vein quickly.

Some veterinary offices have in-house blood analysis equipment, so they can perform the test for the calcium level in the office and have results the same day. Other offices send blood samples to
an outside laboratory for the test to be performed. If an outside laboratory is used, results are generally available within 1 to 2 days.

Because a recent meal changes the blood and may affect the calcium level, your veterinarian may recommend that your pet not receive any food for 12 hours before drawing blood to perform the test. In most cases, water can still be offered. Please let your veterinarian know if this temporary fast will be a problem for you or for your pet.

Be sure to tell your veterinarian about any medications or supplements your pet may be receiving, as some products can alter the calcium level in the blood.

**What Does the Calcium Level Tell Your Veterinarian?**

Supplementing a pet’s diet with too much calcium or administering certain medications (such as steroids) can affect the results of a calcium level test. However, an abnormal calcium level (whether too low or too high) can also indicate a serious medical problem. Because so many of the body’s organs depend on calcium or are involved in maintaining normal blood calcium levels, abnormalities in the blood calcium level can affect the body in a variety of ways. The following are a few conditions that can cause an abnormal calcium level:

- Kidney failure
- Bone infection
- Dehydration
- Pancreatitis (inflammation of the pancreas)
- Cancer
- Addison’s disease (a disease of the adrenal glands)
- Young or growing dog (usually large-breed dogs)
- Ingestion of rat poison or antifreeze

If your pet has an abnormal calcium level, your veterinarian will combine that information with other vital information about your pet to decide if further diagnostic testing is recommended to investigate the abnormal result. Additional tests may include a urinalysis (a screening test to evaluate components in the urine), radiographs (“x-rays”), or additional blood testing.

Depending on your pet’s overall condition, your veterinarian may recommend medications or other management. If the blood calcium level is dangerously low or high, hospitalization may be recommended while the problem is being corrected through fluid therapy and medications.

**Are There Risks Associated With Testing the Calcium Level?**

There are very few risks associated with testing the calcium level. Drawing blood usually takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Once blood is obtained, all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.
Canine Adenovirus Type 2

- Canine adenovirus type 2 (CAV-2) causes respiratory disease and is one of the infectious agents commonly associated with “kennel cough” in dogs.
- Dogs with CAV-2 typically exhibit a dry, hacking cough and retching.
- Treatment is typically limited to supportive care and administration of antibiotics to prevent secondary infection.
- A vaccine is available to help prevent disease associated with CAV-2.

What Is Canine Adenovirus Type 2?

Canine adenovirus type 2 (CAV-2) causes respiratory disease in dogs and is one of the infectious agents commonly associated with canine infectious tracheobronchitis, which is also known as kennel cough. Canine infectious tracheobronchitis is usually spread from dog to dog through coughing. Dogs that are around other dogs, such as at boarding facilities, grooming salons, or dog parks, are at increased risk for exposure.

After CAV-2 has been transmitted to a dog, the incubation (development) period of the disease is approximately 3 to 10 days. The infection is typically self-limiting (resolving without treatment); however, in some cases, it can lead to pneumonia.

Signs of Canine Adenovirus Type 2 Infection

Common signs of CAV-2 infection include:

- A dry, hacking cough
- Retching and gagging
- Coughing up a white, foamy discharge
- Fever
- Nasal discharge
- In some cases, conjunctivitis (inflammation of the inner eyelids and tissues around the eyes)

Diagnosis and Treatment

Infectious canine tracheobronchitis is usually diagnosed based on clinical signs and a history of possible exposure (such as a recent trip to a grooming salon or boarding facility).

Treatment of CAV-2 infection is typically limited to supportive care, which may consist of fluids, rest, and antibiotics to treat secondary infections that may develop.

Prevention

A vaccine is available to prevent CAV-2 infection. However, it is important to realize that the vaccine does not completely prevent a dog from contracting CAV-2. Rather, the vaccine limits
the severity of infection so that vaccinated dogs typically experience a milder form of the disease.

The CAV-2 vaccine also protects against infection with canine adenovirus type 1 (CAV-1). CAV-1 causes infectious canine hepatitis—a dangerous and potentially fatal infection. Because CAV-2 is common and the CAV-2 vaccine cross-protects against CAV-1, the CAV-2 vaccine is considered a core vaccine by organized veterinary medicine, meaning that all dogs should receive this vaccine. The CAV-2 vaccine is typically given in a combination vaccine that also protects against other serious diseases, such as canine distemper and canine parvovirus infection. Your veterinarian will recommend a vaccination schedule for your pet.

Other preventive measures include:

- Keep puppies away from other dogs until the puppy vaccination series is complete.
- Avoid exposing your dog to unvaccinated and sick animals.
- Keep your dog out of facilities where animals have been known to be infected with kennel cough.

Dogs with kennel cough should wear a harness rather than a neck collar when taken for walks during recovery. Collars can place pressure on the trachea (the large airway that runs from the back of the throat into the lungs), which can contribute to coughing.
Canine Anesthesia

- Anesthesia is useful for many things, including performing surgery or biopsy procedures, taking x-rays, and performing dental procedures.
- Your veterinarian may select local anesthesia, injectable general anesthesia, or inhaled general anesthesia to keep your pet pain-free during surgical or diagnostic procedures.
- Your veterinarian is extensively trained in performing anesthesia and will take every possible precaution to help ensure that your pet awakens safely.

What Is Anesthesia?

Anesthesia is defined as the loss of ability to feel pain. However, the term anesthesia is more commonly used to refer to a state of deep sedation or unconsciousness during which a patient is unable to feel pain.

Two forms of anesthesia are used in dogs. For some patients, local anesthesia is an option. This involves injecting the medication into a specific place in the skin (or applying it onto an area of the skin) to induce temporary localized numbness, allowing the veterinarian to perform a brief procedure. The affected area can include the skin, underlying muscles, and nerves. The medication used for local anesthesia does not cause the patient to fall asleep; when deep sedation or unconsciousness is required, general anesthesia is a better option. Medications used for general anesthesia are available in many forms. Some are administered by injection, whereas other forms are inhaled through an anesthetic mask or breathing tube that is connected to an anesthesia machine.

When Is Anesthesia Used?

Anesthesia has many uses in dogs. Local anesthesia may be an option if your veterinarian needs to remove a small growth on your dog’s skin, perform a biopsy of a growth or an area of skin, use stitches to close a small cut or wound, or perform any type of minimally painful procedure during which unconsciousness is not required.

General anesthesia is used for more invasive types of surgeries or for procedures likely to be very painful. Examples include repairing a broken bone or performing surgery involving the abdominal or chest cavities.

Surgery is not the only time when anesthesia is recommended. Dogs generally require anesthesia or very heavy sedation before dental cleanings, dental x-rays, or complete dental examinations. Anesthesia is sometimes used for taking x-rays of other areas of the body, especially if the patient is painful and positioning for x-rays would result in more pain. General anesthesia tends to cause muscle relaxation, which has additional advantages when x-rays of the body are required.

Sometimes, local anesthesia and general anesthesia are used together for the same procedure. For example, some veterinarians use general anesthesia to place the patient into a state of unconsciousness, then inject a local anesthetic agent into the skin and underlying tissues where
surgery will be performed. The numbing effect of the local anesthetic can reduce the amount of pain that the patient experiences when he or she eventually wakes up from general anesthesia.

How Is Anesthesia Performed?

Pre-anesthetic Evaluation

Your veterinarian may recommend a pre-anesthetic evaluation before placing your pet under general anesthesia. This process is generally not necessary for local anesthesia. The pre-anesthetic evaluation may include a physical examination to ensure that your pet is healthy enough for anesthesia. Pre-anesthetic blood work may also be recommended to help identify medical problems that may increase the risks associated with surgery or anesthesia. Pre-anesthetic blood work can help identify medical conditions such as infection, anemia (a low number of red blood cells), low blood sugar, inadequate blood-clotting ability, liver disease, or kidney disease.

If your pet has any pre-existing medical issues, such as a heart problem, your veterinarian may recommend additional testing to determine if any precautions are recommended or if anesthesia should be postponed or cancelled due to health reasons.

Some practices perform the pre-anesthetic evaluation on the day of anesthesia. However, some veterinarians perform this testing a few days or weeks before the procedure is scheduled. This is a common practice before performing an elective surgical procedure such as a dental cleaning, spay surgery, or castration surgery.

Inducing and Maintaining General Anesthesia

The process of sedating a patient and preparing him or her for entering general anesthesia is called induction. Once induction is accomplished, the patient is maintained under general anesthesia until the procedure (surgery, x-rays, biopsy, dental cleaning, or other procedure) is completed and the patient is permitted to awaken.

Induction generally begins with administration of a sedative. This helps relax the patient so that the rest of the induction activities can proceed. During this time, an intravenous catheter may be placed to begin administration of intravenous fluids. Once the patient is relaxed, additional medications are given to induce a deeper level of sedation, leading to general anesthesia. If injectable anesthetic medication is used, this medication is continued until the patient is permitted to wake up. If inhalant anesthesia is chosen, a breathing tube is inserted into the patient’s main airway (or sometimes an anesthetic mask is placed over the mouth and nose) and connected to a machine that delivers a carefully calculated mixture of oxygen and inhalant anesthetic. The patient inhales this mixture until the procedure is completed and the patient is permitted to awaken.

Both methods of general anesthesia (injectable or inhaled) will safely keep your pet asleep and pain-free. Whichever method of anesthesia is chosen, your veterinarian will take every precaution to help ensure that your pet remains healthy and awakens safely from anesthesia.
Veterinary technicians observe and monitor patients that are under general anesthesia. Additionally, monitoring equipment is generally used to constantly measure heart rate, breathing, oxygen use, and blood pressure.

When the procedure is completed, the anesthetic agent is discontinued and the patient is monitored until he or she is fully awake and recovered from anesthesia.

**What Are the Benefits and Risks of Anesthesia?**

Keeping patients pain-free during surgery is an important goal of anesthesia, but there are many other purposes for anesthesia. If a dog has an injury that is too painful to be examined while the dog is awake, anesthesia may be the best way to facilitate a thorough examination. Additional procedures, such as placing a splint or cast on a broken leg, taking x-rays of a painful injury, or cleaning and dressing a serious wound can frequently be accomplished more efficiently if the patient is under anesthesia.

Many dental procedures, including dental cleaning, extracting an infected or broken tooth, taking dental x-rays, or performing dental restoration, are generally not possible without anesthesia.

As with any medical procedure, anesthesia is not without its risks. Some patients may react negatively to the anesthetic medication or experience fluctuations in heart rate, breathing, or blood pressure. Your veterinarian is extensively trained in performing anesthesia, and your veterinary care team will take every possible precaution to help ensure that your pet awakens safely. Be sure to address any questions or concerns with your veterinarian.
Canine Arthritis

- Osteoarthritis affects one of every five dogs.
- Thinning of joint cartilage can lead to a vicious cycle of joint deterioration, reduced mobility, and pain.
- Supportive care is important, and treatment may include pain medication, NSAIDs, corticosteroids, supplements, massage, acupuncture, warm compresses, and/or surgery.
- Regular, moderate exercise may help delay canine arthritis.

What Is It?

Arthritis is a joint problem that can reduce mobility and cause pain. Often seen in older dogs, arthritis can be caused by injury, infection, the body’s own immune system, or developmental problems. The most common form of arthritis is called osteoarthritis (osteo = bone; arthr = joint; itis = disease) or degenerative joint disease. Normally, joints form smooth connections between bones. Osteoarthritis involves thinning of joint cartilage (a protective cushioning between bones), buildup of fluid within the joint, and the formation of bony growths within the joint. Over time, this can lead to reduced joint mobility as well as pain. Osteoarthritis affects one of every five dogs.

Signs and Diagnosis

- Signs of arthritis include the following:
  - Stiffness after exercise
  - Wasting away of muscle
  - Limited movement
  - Joint swelling
  - Trouble getting up, laying down, walking, climbing stairs, or jumping
  - A grating sound in a joint

Recognizing arthritis in dogs can be difficult because the condition progresses slowly and dogs don't complain about their aching joints. Also, some owners assume that signs of arthritis are “normal” in older animals.

Bringing your dog in for an annual checkup can help your veterinarian identify clinical signs early. Radiography (x-rays) can reveal bony growths and joint abnormalities.

Treatment

- Getting or keeping your dog slim can help by decreasing the load on his or her joints.
- Feeding your dog the right amount of high-quality food should help with weight control.
- Carefully monitored exercise on soft surfaces can help affected dogs. Ask your veterinarian for more details.
- Because arthritis is aggravated by cold and damp, keep your dog warm and dry. Padded dog beds can help.
- Warm compresses can soothe affected joints.
• Massage can increase your dog’s flexibility, circulation, and sense of well-being. Professional animal massage therapists are available.
• Pain medication, including nonsteroidal antiinflammatory drugs (commonly called NSAIDs), may help relieve signs, but you should never give your dog a drug without your veterinarian’s recommendation.
• NSAIDs are commonly prescribed by veterinarians to reduce pain and inflammation associated with arthritis.
• Corticosteroids can be used to suppress inflammation, but they are usually used for short periods.
• Disease-modifying osteoarthritis drugs (DMOADs) can be an important part of managing osteoarthritis.
• Glucosamine and chondroitin have been used to help manage arthritis in dogs and other animals.
• Acupuncture isn’t just for people. It’s painless and has shown some success in animals.
• Surgery may be a good choice in advanced cases of canine arthritis. Your veterinarian can tell you more.
• A low-stress environment, plenty of affection, and supportive care can help improve your dog’s quality of life.

Prevention

Regular, moderate exercise and a high-quality diet can help delay aging, manage body weight, and keep your dog’s musculoskeletal system in good shape. Ask your veterinarian to recommend an exercise program and a diet that are appropriate for your dog.

Many human and canine pain relievers are poisonous to cats.

Aids for Arthritic Dogs

• Slip-free flooring
• Soft bedding
• Ramps (instead of steps)
• A warm, dry environment
• Help with grooming
Canine Bladder Infections

- A bladder infection occurs when microbes (usually bacteria) get into the bladder and proliferate.
- Bladder infections are more common in females than in males; however, any dog can have a bladder infection.
- Frequent squatting or straining without producing much urine is the most common sign of bladder infection.
- Treatment for the infection includes a course of antibiotics.
- Bladder stones must be removed through surgery, broken up by sound waves, or eliminated using a special diet.

What Is a Bladder Infection?

The bladder is an expandable sac, like a balloon, that lies toward the back of the abdomen and is part of the system that removes waste from the body. Urine flows from the kidneys through the tube-shaped ureters and into the bladder, where it is stored before being eliminated from the body through a tube called the urethra.

Urine in the bladder is normally sterile unless microbes (usually bacteria) travel up the urethra and proliferate, causing an infection. These bacteria may come from the nearby rectal area or from the genital tract. Conditions such as diabetes can increase the risk of developing bladder infections, as can medications that depress the immune system, including high-dose or long-term corticosteroids.

In long-standing infections, the bladder tissue can thicken and scar, creating more places for bacteria to grow. Long-term infection also increases the chances that infection will spread upstream to the kidneys or cause bladder stones to form.

What Are the Signs of a Bladder Infection?

Urinary infections irritate the walls of the bladder, so pets with bladder infections have the urge to go even when there is little urine present. They frequently pass small amounts of urine that are often tinged with blood. Constant squatting and straining without passing much urine and having urinary accidents in the house are typical signs of potential bladder infection. Bladder infections are more common in females than in males; however, any dog can have a bladder infection.

Bladder infections change the chemical makeup of the urine, which makes it easier for minerals in the urine to crystallize and form stones. Bladder stones add to the irritation and create places for bacteria to hide from bodily defenses and antibiotics.

On some occasions, bladder stones can block the outflow of urine, which is a serious emergency situation. Pets with urinary obstruction can have a swollen, painful abdomen and strain repeatedly without passing urine. This is a medical emergency!

How Is a Bladder Infection Diagnosed?
Your veterinarian can usually diagnose an uncomplicated bladder infection based on your pet’s history and a urinalysis. In some cases, a urine sample might be sent to a laboratory to determine the specific bacteria involved (through a culture and sensitivity test) as well as an effective antibiotic for treatment. Abdominal radiography (x-rays) or ultrasound imaging is sometimes needed to look for stones, tumors, or other abnormalities involving the bladder.

**How Are Bladder Infections Treated?**

Treatment for a simple bladder infection usually consists of 1 or 2 weeks of antibiotics. Chronic or severe infections may require longer treatment. Infections that clear up and then come back may suggest an underlying problem requiring additional diagnostic testing and treatment.

If bladder stones are present, there are several options for eliminating them:

- A veterinarian can perform surgery to open the bladder and remove the stones.
- A veterinarian can use a sterile probe inserted through the urethra to crush the stones using sound waves and flush out the resulting stone fragments. This is a specialized procedure that may require referral to a specialty practice.
- Your veterinarian may recommend a specialized, prescription diet that changes the chemical makeup of the urine and causes the stones to dissolve. This is the least invasive technique, but it takes more time and commitment and is not effective for all bladder stones. Specialized, prescription diets are also used to help prevent bladder stone recurrence in pets.
Canine Chronic Otitis

- Canine chronic otitis involves inflammation and possibly infection in one or both ears. If left untreated, scar tissue will form and further damage to structures of the ear may result in deafness.
- Inflammation often leads to an ear infection. Otitis is a painful condition; signs of otitis include a red ear (or ears), head shaking, and scratching at the ears.
- Chronic otitis is generally not contagious to other dogs.
- A variety of ear medications and ear cleaners are available through your veterinarian for application into the ears. Sometimes antibiotics and/or anti-inflammatory oral medications are also required. Treatment may be long-term. It is also important to try and identify the underlying cause of the ear disease. Allergies are often implicated.
- Prevention of chronic otitis may involve identification of specific allergies. When possible, avoidance of identified allergens may help prevent recurrence. Regular ear cleaning with a good quality ear cleanser can also help prevent infections.

What Is Canine Otitis?

Canine chronic otitis is recurrent or persistent inflammation of the ear. One or both ears may be affected. Inflammation of the ear often leads to secondary infection caused by yeast or bacterial overgrowth. This condition can be quite painful.

Chronic otitis is most often caused by allergies to fleas, certain foods, or substances in the environment. Sometimes medical problems like thyroid disease can cause a dog to develop otitis. Certain breeds such as cocker spaniels and golden retrievers are more prone to ear infections.

Signs of Canine Chronic Otitis

Signs of otitis include head shaking, scratching, and even head rubbing against floors and furniture. The normally pink skin of the ear appears very red, and dark debris or yellow to brown discharge may be present, along with a foul odor. In dogs with dark pigmented skin, the redness may not be apparent, but debris, discharge, odor, and discomfort will be evident. This condition will persist or get progressively worse if left untreated.

Signs of Canine Chronic Otitis

- Head shaking
- Face/head rubbing
- Scratching at ears/head
- Redness inside the ear(s)
- Yellow to brown discharge from the ear(s)
- Foul odor
- Dark debris in the ear(s)
- Painful or uncomfortable ear(s)

Diagnosis and Treatment
Diagnosis is based on history, clinical signs, swabs of samples taken from inside the ear canal, and physical examination, including examination with an otoscope (a special tool with a light and a cone for viewing the inside of the ear canal). Your veterinarian may perform cytology, which is an examination of the swab sample from the ear specially prepared on a slide for evaluation under a microscope. The slide is examined for the presence of yeast, bacteria, and white blood cells (which fight infection). Ear mites (microscopic mites that can live inside the ear canal) can cause ear infections and also can be identified when your veterinarian looks under the microscope.

Another test commonly used to help diagnose chronic otitis is a bacterial culture and sensitivity test. For this test, your veterinarian will use a sterile swab to obtain a sample of material from inside the ear. This swab is then placed in a special tube and sent to the lab for specific identification of bacteria and yeast. The test result also lists the most effective antibiotics against the identified bacteria.

Treatment of chronic otitis most commonly includes medicated eardrops or cream along with a prescribed ear-cleaning regimen. Most ear medications contain a steroid to reduce inflammation, an antifungal medication, and an antibacterial medication. Sometimes your veterinarian will recommend pill or liquid medication to be given by mouth to help treat otitis. If your veterinarian performs a bacterial culture and sensitivity test, the results of this test will guide in the choice of antibacterial and/or antifungal medication. It is very important to follow the prescribed treatment, since failure to complete treatment may result in recurrence and even bacterial or fungal resistance to treatment.

Another important element of diagnosis and treatment is to identify underlying allergies. Common allergies in dogs include flea allergies, food allergies, and environmental allergies (allergy to dust, mold, pollen, and other common particles found in the environment). Your veterinarian can guide you through the identification process, which includes regular flea prevention, possibly a “hypoallergenic” food trial, and allergy-testing using specialized skin and blood tests.

Because medical problems, such as thyroid disease, can sometimes cause otitis, your veterinarian may recommend specific blood tests to look for evidence of underlying illness.

Most cases of chronic otitis are treated or managed with medication. In some extreme cases, surgery may be recommended.

**Prevention**

Identification of underlying allergies is very important for successful long-term management and preventing “flare ups” in the future. If food allergies are identified, a special diet may be recommended to avoid offending foods. Sometimes this involves a prescription diet or a good quality store-bought diet that does not contain any of the identified allergens. If environmental allergies are identified using skin and blood tests, allergy shots may be recommended to help reduce sensitivity to the named allergens. In the case of flea allergies, regular flea prevention with a product recommended by your veterinarian is very important.
Other forms of prevention include regular ear cleaning with an ear cleanser that will help to inhibit fungal and bacterial overgrowth. Most ear cleansers also break up and flush out wax and debris that accumulate in the ear. Your veterinarian can guide you in the appropriate choice of ear cleanser, and discuss frequency of cleaning along with proper technique.
Canine Clothing

- Outerwear can help short-haired dogs stay comfortable longer in the cold.
- Don’t force your dog to wear something if he or she protests.
- If your dog seems to be reacting poorly to cold temperatures (such as prolonged shivering), contact your veterinarian right away.

The Basics

In cold weather, some dogs may be more comfortable in outerwear (sweaters or coats). Some dog breeds (like malamutes, huskies, Newfoundlands, and other breeds with thick coats) thrive in cold temperatures, so these dogs don’t need outerwear. However, outerwear can help short-haired dogs (like boxers, greyhounds, and vizslas) stay comfortable longer in the cold, allowing them to conserve body heat as well as energy for walking and running. When it’s cold, outerwear is recommended for dogs recovering from surgery (anesthesia can disrupt a dog’s ability to regulate his or her body temperature). If your dog seems to be reacting poorly to cold temperatures (such as prolonged shivering), contact your veterinarian right away.

Dog boots are recommended if your dog will be outdoors for a long time or will be walking on ice, which can injure paws.

Dogs of any breed can benefit from canine raincoats, which can help keep your dog and house dry. Many canine raincoats have the added benefit of reflective material for safety.

Tips for Dressing Your Dog

- Don’t force your dog to wear something if he or she protests. You might have to gradually introduce outerwear to your dog. For example, first, show your dog the clothing and offer a treat. The next day, offer a treat, loosely set the outerwear on your dog’s back, and then remove it. The next day, offer a treat and try securing the outerwear to your dog. It’s important to keep each experience brief and stress-free for you and your dog.
- Outerwear should fit snugly but not restrict movement.
- Don’t use outerwear with small parts that your dog could eat.
- Use outerwear and boots that are easy to put on and remove. Note that Velcro can trap fur and become ineffective in wet, snowy conditions.
- To prevent your dog from becoming overheated, make sure to remove his or her outerwear and boots when he or she goes indoors.
- If the outerwear has a sewn-in D-ring, ensure that it is secure enough to hold your dog. If you are not sure that the D-ring will hold, use outerwear with a harness opening instead.
Canine Coronavirus Infection

- Canine coronavirus infection is a highly contagious disease.
- In dogs, the virus typically attacks the intestinal tract; clinical signs include diarrhea and vomiting.
- The disease is typically mild and self-limiting (resolving without treatment).
- A vaccine is available.

What Is Canine Coronavirus?

Coronavirus infection is a highly contagious infection of puppies and older dogs that primarily attacks the intestinal tract. The disease is spread from dog to dog through contact with feces. After coronavirus has been transmitted to a dog, the incubation (development) period of the disease can be as short as 1 to 4 days.

Signs of Coronavirus Infection

Coronavirus infections are typically mild and self-limiting (resolving without treatment), and infected dogs may have several days of diarrhea that resolves without treatment. Other signs may include:

- Depression
- Fever
- Loss of appetite
- Vomiting

Diagnosis and Treatment

Coronavirus infection is typically diagnosed based on clinical signs, although definitive laboratory testing is available. Because the clinical signs can be similar to those of more serious diseases (such as parvovirus infection), your veterinarian may recommend testing to rule out other illnesses.

Because coronavirus infection is caused by a virus, there is no cure. Treatment is typically limited to supportive care, such as fluid therapy, rest, and antibiotics to prevent secondary infections. If vomiting or diarrhea is severe, medications may be prescribed to manage the problem.

Prevention

Coronavirus is spread through contact with fecal material from infected dogs, so separating sick dogs from healthy ones can help reduce disease spread. Coronavirus can be killed by many types of household disinfectants (including diluted bleach solution), so cleaning contaminated areas and bedding can also help reduce disease spread.
A vaccine is available to prevent canine coronavirus infection. The coronavirus vaccine is not required for all dogs, but it may sometimes be included in combination vaccines for other, more serious diseases, such as infections with canine distemper virus, canine parvovirus, and canine adenovirus type 2.
Canine Diabetes Mellitus

- Most diabetic dogs have diabetes mellitus type 1, meaning the body fails to make enough insulin to serve its needs.
- After treatment for diabetes begins, periodic blood and urine tests may be recommended to help ensure that the insulin dosage is right for your dog.
- Many dogs live active, happy lives once their diabetes is well regulated. However, insulin therapy and regular monitoring at home and by your veterinarian are necessary for the rest of your dog’s life.

What Is Diabetes Mellitus?

Diabetes mellitus is an illness caused by the body’s inability to either make or use insulin, which is a hormone produced and released by specialized cells in the pancreas. Insulin permits the body’s cells to take sugar (glucose) from the blood and use it for their metabolism and other functions. Diabetes mellitus develops when the pancreas doesn’t make enough insulin or when the body’s cells are unable to use available insulin to take glucose from the blood.

Type 1 diabetes mellitus (referred to as “insulin dependent” diabetes) occurs when the pancreas doesn’t make enough insulin. Type 2 diabetes (more common in cats and humans) has been called “relative insulin deficiency”; it occurs when the body’s cells develop “insulin resistance,” meaning that they are unable to effectively use available insulin, or when the pancreas is producing some insulin, but not enough to serve the body’s needs. Most diabetic dogs have type 1 diabetes mellitus. Lifelong administration of insulin is generally required to control this illness.

What Are the Clinical Signs of Diabetes in Dogs?

Diabetes can exist for a while before it begins to make an animal obviously ill. Clinical signs may vary depending on the stage of disease, but they can include the following:

- Increased drinking and urination
- Urinary accidents in the house
- Weight loss
- Vomiting
- Dehydration
- Lethargy (tiredness)
- Increase or decrease in appetite

How Is Diabetes Diagnosed?

Your veterinarian may suspect that your dog has diabetes if any suspicious clinical signs, such as increased drinking and/or urinating, have been observed at home. After performing a thorough physical examination, your veterinarian may recommend some of these tests to help confirm a diagnosis:
• **CBC (complete blood count) and chemistry profile:** When a pet is ill, these tests are commonly performed together during initial blood testing to provide information about the pet’s organ systems. The CBC and chemistry profile may show dehydration, an elevated blood sugar level, or other changes that can occur with diabetes.

• **Urinalysis:** Evaluation of a urine sample may show the presence of sugar (glucose) in the urine if a dog has diabetes.

• **Fructosamine:** Fructosamine is a protein in the blood that binds very securely to glucose. The fructosamine level is therefore a close estimation of the blood glucose level, but it is less likely to change due to stress and other factors that affect the blood glucose level. Additionally, the fructosamine level indicates where the blood sugar levels have been during the previous 2 to 3 weeks. In a dog with diabetes, the blood sugar levels are usually high for long periods of time, which would be reflected by an increased fructosamine level.

**How Is Diabetes Treated?**

Because dogs tend to have type 1 diabetes mellitus, insulin injections are generally started at diagnosis and continued for the rest of the pet’s life. Your veterinarian may also recommend dietary changes to help control your dog’s diabetes. It is very helpful to write a medication schedule for your pet on the calendar, including the date and time that the medication needs to be administered, and to maintain accurate records. This will help you to avoid forgetting to give insulin to your pet and allows you to track your pet’s treatment.

After treatment begins, periodic blood and urine tests are generally recommended. This helps ensure that the insulin dosage is right for your dog. Your dog’s weight, appetite, drinking and urination, and attitude at home can all provide useful information that helps determine if his or her diabetes is being well managed. Your veterinarian will consider all of these factors when making recommendations for continued management.

Many dogs live active, happy lives once their diabetes is well regulated. However, insulin therapy and regular monitoring at home and by your veterinarian are necessary for the rest of your dog’s life.
Canine Distemper

- Canine distemper is a serious, contagious disease with a death rate that can reach 50%.
- Canine distemper attacks the respiratory, stomach/intestinal, and brain/nervous systems of dogs.
- Canine distemper is spread through contact with body fluids such as saliva and respiratory droplets.
- There is no effective treatment for canine distemper; however, supportive care can be given, and vaccination is recommended for prevention of disease due to canine distemper virus (CDV).
- Every dog should be vaccinated against CDV.

What Is It?

Canine distemper is a serious contagious disease caused by canine distemper virus (CDV), which attacks the respiratory, stomach/intestinal, and brain/nervous systems of dogs. It can also infect ferrets and many wild animals, including raccoons, skunks, minks, weasels, foxes, and coyotes. The death rate can reach 50%, and animals that do recover are often left with permanent disabilities. There is no effective treatment, but virus-associated disease is largely preventable through vaccination.

While the disease is less common than it was before the first effective vaccines became available in the 1960s, it is still present in wildlife populations that might have contact with domestic animals.

The incubation period of CDV is typically 1 to 2 weeks but can last up to 5 weeks. CDV is shed (spread) through all body secretions. It can also be carried on the hands and feet. Warm, dry, or sunny conditions will kill CDV, but it is resistant to cold and can survive in near-freezing, shady environments.

Signs of Distemper

The first sign in infected dogs typically is a watery or pus-like eye discharge. Additional initial signs include:

- Fever
- Nasal discharge
- Coughing
- Lethargy (tiredness)
- Reduced appetite
- Vomiting
- Diarrhea

In later stages, the disease affects the brain and nerves, and dogs may show the following signs:
- Twitching, or “chewing gum” fits, in which repetitive twitching of the dog’s jaw appears as if the dog is chewing gum
- Seizures
- Agitated behavior
- Paralysis

**Prevention**

Because of the importance of canine distemper and its severity, the CDV vaccine is considered a “core” vaccine by organized veterinary medicine, meaning that all dogs should be protected from this disease. Vaccination is the most effective way to prevent illness and death associated with CDV infection. The CDV vaccine is typically given in a combination vaccine that also protects against other serious diseases, such as canine parvovirus and canine adenovirus-2 infections.

Your veterinarian will advise you of what vaccination schedule you should follow for your pet, but in general, all puppies should receive the CDV vaccine every 3 to 4 weeks between the ages of 6 and 16 weeks, followed by a booster 1 year after the last dose. Thereafter, booster vaccinations are typically recommended every 1 to 3 years.

It is important to remember that a vaccination, even a routine one like a CDV vaccine, is a medical procedure, and you should follow your veterinarian’s instructions on how to monitor your pet for signs of a reaction. Vaccine reactions are rare, but knowing the associated signs is important.

Other forms of prevention include the following:

- Keep puppies away from other dogs until the puppy vaccination series is complete (16 weeks).
- Avoid unvaccinated and sick animals.
- Keep your pet away from wildlife and stray animals.

**Diagnosis and Treatment**

Diagnosis of CDV infection is difficult because there are few reliable tests for the disease and, in the initial stages, clinical signs can mimic those of other conditions, such as kennel cough. Diagnosis is generally based on clinical signs.

Treatment is limited to supportive care: providing fluids, administering medications to reduce vomiting and diarrhea, and administering antibiotics to prevent subsequent infections, such as pneumonia.

**Caution:** Some of the clinical signs of both rabies and canine distemper can be similar, so use caution when handling sick animals.
Canine Heartworm Testing

- Heartworm testing is performed to determine if a pet is infected with heartworms (*Dirofilaria immitis*).
- Many veterinarians use a popular test called a “SNAP” test, which can be run in just a few minutes at your veterinarian’s office.
- Sometimes, additional testing is performed to gain more information about the extent of heartworm infection for a particular patient.
- Heartworm testing is recommended for most dogs before beginning a heartworm preventive program. Periodic testing is also recommended for dogs already on heartworm preventive medication.

What Is Canine Heartworm Disease?

Heartworm disease is a serious and potentially fatal condition that affects dogs, cats, and up to 30 other species of animals. It is caused by parasitic worms (heartworms) living in the major blood vessels of the lungs and, occasionally, in the heart. These worms are transmitted (as microscopic larvae) through the bite of an infected mosquito. The scientific name for the heartworm parasite is *Dirofilaria immitis*.

Heartworm disease can cause a variety of medical problems affecting the lungs, heart, liver, and/or kidneys. Any of these problems, alone or in combination, can lead to death. Although safe and effective treatment is available, it can be a costly and complicated process depending on how long the dog has been infected and how severe the infection is.

How Is Heartworm Testing Performed?

Heartworms are spread through the bite of a mosquito. When a mosquito bites an infected dog, it withdraws blood that contains immature heartworms (called *microfilariae* [pronounced *micro-fill-air-ee-ay*]). These microfilariae mature inside the mosquito to become infective larvae. When the mosquito bites another dog, the larvae enter the dog and (in many cases) mature to become adult heartworms, which produce more microfilariae and continue the heartworm’s life cycle. Current testing practices can detect several stages of heartworm infection:

- **Testing blood for microfilariae**: Using a small blood sample, your veterinarian can detect heartworm microfilariae in your dog’s blood.
- **Antigen testing**: “Antigens” are proteins that the body can recognize as belonging to a foreign organism. By identifying certain antigens that are found in adult female heartworms, researchers have developed tests that can detect these antigens to tell if a dog is infected with adult heartworms. Many veterinarians use a rapid-result test called a “SNAP” test to diagnose heartworm disease in dogs. The SNAP test is very accurate, can be performed in your veterinarian’s office using a very small amount of blood, and takes only a few minutes to complete. There is even a combination SNAP test that can detect heartworm disease as well as three tick-associated diseases (Lyme disease, anaplasmosis, and ehrlichiosis) at the same time. If your veterinarian obtains a questionable result on the SNAP test, additional testing may be recommended.
Other tests: Over time, heartworms can start to cause damage to the heart, lungs, and associated blood vessels. If this damage has occurred, your veterinarian may recommend additional testing to determine the extent of your dog’s illness. Additional tests may include radiographs (x-rays) to check your dog’s heart and lungs for evidence of damage; ultrasound studies to check for specific injuries to the heart; and additional blood work to check the liver, kidneys, and other major body systems for evidence of damage.

No test is accurate 100% of the time, and sometimes your veterinarian may recommend performing tests more than once, or performing additional tests to learn more about your dog’s overall health.

When Should My Dog Be Tested for Heartworm Disease?

Dogs should be tested for heartworms before beginning a heartworm prevention program, or when changing from one heartworm preventive to another. Dogs that are already on heartworm preventive medication should also be tested periodically.

The “prepatent period” for heartworm disease (the amount of time it takes for microfilariae to be produced) is approximately 6 months in a dog. During this time, heartworm tests will be negative even if a dog is actually infected. Therefore, puppies younger than 7 months old are generally not tested for heartworms. Instead, puppies should be started on heartworm preventive medication (usually during their puppy checkup visits) and tested when they are older than 7 months.

Ask your veterinarian about the recommended heartworm testing schedule for your dog.

What Are the Benefits and Risks of Canine Heartworm Testing?

There are very few risks associated with heartworm testing. Drawing blood takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Once blood is obtained, all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.

The benefits of heartworm testing are enormous. If your dog is infected with heartworms, early diagnosis and treatment are the best ways to help ensure that the infection is cleared before permanent damage is done to the heart, lungs, or associated blood vessels. Heartworm disease can be fatal if left untreated, so early diagnosis and treatment can literally save your dog’s life! Be sure to keep your dog on heartworm preventive medication and follow your veterinarian’s recommendations regarding heartworm testing.
Canine Hip Dysplasia

- Canine hip dysplasia is a painful disease that can lead to debilitating arthritis.
- It affects the “ball and socket” joint of the hip.
- Canine hip dysplasia is a hereditary problem that can be influenced by lifestyle factors. Certain breeds are predisposed.
- Hip dysplasia can sometimes be treated medically, but surgery is often required.
- Early recognition and a program of weight management and regular exercise can sometimes slow disease progression.

What Is Canine Hip Dysplasia?

Canine hip dysplasia is a painful disease that affects millions of dogs each year. It is an inherited developmental disorder of the hip joint and can lead to debilitating arthritis. Its progression can be influenced by environmental factors, such as weight gain, nutrition, and exercise. Certain breeds, especially larger ones, are particularly prone to hip dysplasia, but the disease can affect dogs of any size and breed.

Just as in humans, the hip joint in dogs is a “ball and socket” joint. In healthy dogs, the ball and socket fit together tightly. In dogs suffering from hip dysplasia, the joint is “loose,” and the ball part of the joint may even rotate partially out of its socket. In time, this looseness causes wear and tear on the joint cartilage, leading to osteoarthritis.

Canine hip dysplasia is an inherited problem, meaning that certain breeds or families of dogs may be prone to it. For this reason, when purchasing or adopting a puppy, especially if it is a breed that is known to be predisposed to hip dysplasia, make sure the parents (if known) do not have hip problems and that the puppy has been screened by a veterinarian for any early signs of the disease.

What Are the Signs?

The disease is painful and progressive and can affect one or both hips. It can affect very young dogs (many are less than 1 year old), but dogs of any age can be affected. Clinical signs include:

- Decreased activity level
- Difficulty rising
- Stiffness or lameness upon waking or after exercise
- Running with a “bunny hopping” gait
- Difficulty climbing stairs or getting in and out of vehicles
- Discomfort in a sitting or lying position
- Lameness
- Muscle atrophy (wasting) in the hip area

Breeds that are most commonly affected include:

- German shepherd
Labrador retriever
Rottweiler
Great Dane
Golden retriever
Saint Bernard

**Diagnosis**

A diagnosis of hip dysplasia is made based on clinical signs, physical examination, and radiographs (x-rays). Two systems have also been developed for screening and/or diagnosing dogs with hip dysplasia. Responsible breeders use at least one of these systems before including a dog in their breeding program:

**The OFA System:** The Orthopedic Foundation for Animals (OFA) oversees a multibreed hip registry database. The OFA’s system, which has been in use since 1966, has developed a standardized evaluation system and radiographic test to help breeders and owners assess the hip health of prospective parents as well as any puppies they may produce. Dogs must be 24 months of age or older to be included in the registry.

**The PennHIP System:** The PennHIP system, which was developed at the University of Pennsylvania School of Veterinary Medicine, has been in use since 1993. It uses a series of three radiographs to assess a “distraction index”—or DI—for each dog. The greater the DI, the higher the chances that the dog has or will develop hip dysplasia. The PennHIP analysis can be performed in puppies as young as 4 months of age.

**Treatment**

Canine hip dysplasia is a serious, progressive disease, and better outcomes are typically achieved when it is diagnosed as early as possible and management and treatment measures are initiated promptly. Risk factors for the development of hip dysplasia in dogs that are genetically prone to the disease include obesity and overfeeding large-breed puppies during growth phases.

A proper diet that helps maintain an ideal weight, combined with a veterinarian-approved, regular exercise plan, can help slow the progression of hip dysplasia for some dogs. In less severe cases, medical management can also include providing pain medications as needed under veterinary supervision as well as administering oral or injectable joint supplements or medications. “Comfort care,” such as keeping dogs out of cold weather and performing massage or physical therapy, can also help keep affected dogs comfortable and slow progression of the disease for as long as possible.

In severe cases, surgery may be indicated. Surgical options include hip replacement surgery, reconstructing the hip joint, or removing the abnormal part of the joint and allowing the surrounding structures to form a “false joint” over time. Your veterinarian will discuss the best methods of management with you and whether surgery is an option for your dog.
NOTE: Canine hip dysplasia can be an expensive disease to manage and/or treat. Before purchasing or adopting a puppy, be sure to find out the hip “status” of the parents. If that is not possible, be sure to have your puppy’s hips evaluated by your veterinarian as soon as possible.
Canine Influenza

- Virtually all dogs exposed to canine influenza virus (CIV) become infected.
- As with human influenza, frequent hand washing and disinfection may help prevent the spread of CIV.
- If your dog has signs of a respiratory infection (sneezing, coughing, nasal discharge, fever), call your veterinarian.
- Ask your veterinarian whether your dog should be vaccinated against canine influenza.

Canine influenza virus (CIV) was first detected in 2004 in racing greyhounds in Florida. Investigators learned that this new canine influenza developed when an equine influenza virus adapted to infect dogs. This was the first time that an equine influenza virus had been found to “jump” from horses to dogs. According to Dr. Cynda Crawford of the University of Florida College of Veterinary Medicine, canine influenza does not infect people, and there is no documentation that cats have become infected by exposure to dogs with CIV.

CIV has caused localized disease outbreaks around the country. According to veterinary experts, CIV has been reported in more than 30 states plus the District of Columbia. Ask your veterinarian whether the disease has been reported in your area; if it has, please take steps to prevent your dog from contracting it. (See Prevention and Vaccination below.)

CIV is spread between dogs through direct contact (coughing, sneezing, facial licking) or indirect contact (contaminated bowls, leashes, collars, or the hands or clothing of people who handle ill dogs). Virtually all dogs exposed to CIV become infected; however, 20% of dogs don’t show signs but can still spread the virus. Infected dogs usually develop signs of illness within 2 to 4 days. If your dog has been to a place (kennel, hospital, pet or grooming shop, dog park) where the presence of CIV is suspected or confirmed, contact your veterinarian; your dog may need to be quarantined even if he or she doesn’t show signs of illness. If your dog shows signs of a respiratory infection (sneezing, coughing, nasal discharge, fever), you should keep him or her away from other dogs and contact your veterinarian.

Diagnosis

Canine influenza cannot be diagnosed by signs alone because the signs (coughing, sneezing, nasal discharge, fever) are similar to those of other respiratory illnesses in dogs. For dogs that have been sick for a short time, veterinarians swab the nose or throat and submit samples to a diagnostic laboratory for analysis. Specific blood testing can also be helpful in making a diagnosis.

Treatment

Because CIV is a virus, the treatment mostly involves supportive care recommended by your veterinarian. Seriously ill dogs may require fluid therapy, but most affected dogs only need to be quarantined at home or in a kennel for 2 weeks while potentially contagious. Antibiotics may be prescribed to prevent or treat a subsequent bacterial infection.
Prevention and Vaccination

Any time your dog spends with other dogs increases your dog’s risk of exposure to CIV, so if an outbreak is occurring in your area, don’t allow your dog to have contact with other dogs. Ask kennel owners, groomers, show event managers, and your veterinarian what their facilities’ policies are regarding disinfection, quarantine, and disease prevention. As with human influenza, frequent hand washing and disinfection may help prevent the spread of CIV. If you think your dog may have been exposed to CIV, isolate him or her and contact your veterinarian.

There are vaccines that can help protect dogs from CIV. The vaccine does not prevent infection, but vaccinated dogs usually don’t become as sick as unvaccinated dogs and do recover more quickly. The vaccine is useful for dogs that may be exposed to high-risk environments, such as kennels, boarding facilities, dog parks, or dog shows. Ask your veterinarian whether your dog should be vaccinated against canine influenza.

Canine Influenza Fast Facts

- Unlike most human influenzas, canine flu is not seasonal—it can occur at any time of the year.
- Virtually all dogs exposed to CIV become infected.
- Of CIV-infected dogs, 80% develop respiratory illness, while 20% don’t.
- Although most dogs recover from canine flu with supportive care within 2 weeks, a few dogs become very ill, and some die.
- Dogs of any age, breed, or size are susceptible to CIV infection.

More Information

www.cdc.gov/flu/canine (Centers for Disease Control and Prevention)

www.avma.org/public_health/influenza/canine_guidelines.asp (American Veterinary Medical Association)
Canine Nutrition

- A proper diet is necessary to ensure the health and longevity of your dog.
- Dogs are omnivores, meaning that they can eat meat and plants as their primary food sources.
- Look for a statement on the food’s label that says the food underwent AAFCO (Association of American Feed Control Officials) feeding trials.
- If you prefer to feed a homemade or raw diet, it’s best to do it under the guidance of a veterinary nutritionist.
- Table scraps and treats should be kept to a minimum to ensure that your dog receives balanced nutrition and does not become overweight or develop a problem (such as itchy, infected ears or a skin infection) due to a food allergy.

How Do I Choose a Dog Food?

A high-quality, complete and balanced diet is important for the health and longevity of your dog. Among other benefits, a proper diet helps build strong bones, promotes healthy gums and teeth, protects immune function, and results in a lustrous haircoat. Unlike cats, which are carnivores (meaning that they must eat meat), dogs are omnivores, meaning that they can eat meat and plants as their primary food sources.

A large number of dog foods are available at pet supply stores, so selecting a dog food can be daunting. How do you find a food that’s right for your dog? Start by asking your veterinarian the following: “Which food will meet the particular needs of my pet?” and “Which brand(s) do you recommend?”

Most pet foods are created for different life stages, including puppy, maintenance, or senior diets. Within these life stages are even more specific categories. For example, if you own a Saint Bernard puppy, you’ll need to feed a puppy food for large-breed dogs. Large-breed puppy foods are specially formulated to meet the special requirements of large-breed puppies (for example, these foods have higher amounts of calcium and phosphorus because large-breed puppies grow faster than small-breed puppies). As another example, an adult dog that is used for hunting or breeding will most likely require a maintenance diet with higher energy content.

Before purchasing a dog food, look for a statement on the label that verifies that the food underwent AAFCO feeding trials. This means that the food was tested on animals according to guidelines from the Association of American Feed Control Officials. A label that says the food meets AAFCO standards simply means that a chemical analysis of the food appears to be complete and balanced, but the food has not been tested on animals. Because some nutrients may not be digestible when fed to animals, the feeding trial statement is a better indication of the nutritional adequacy of the food.

With a complete and balanced commercial diet, vitamin supplements are usually not necessary; in fact, supplying too many nutrients can be dangerous. Consult your veterinarian before giving your pet any supplements.
Do Certain Diseases Require Special Foods?

Nutrition can help slow the progression, or manage the signs, of many diseases. For dogs with kidney disease, for example, diets lower in protein have been shown to help slow disease progression. Foods with limited or hydrolyzed proteins can help reduce the itching and scratching in many allergic dogs. For dogs with osteoarthritis, many diets now contain higher levels of glucosamine and antioxidants to help reduce pain and inflammation.

Most diets that are designed for a specific disease are prescription diets and are only available through veterinarians. If your pet has a disease or condition, consult your veterinarian for nutritional advice.

Is a Homemade or Raw Diet Okay to Feed?

The advantage of homemade diets is that they can be tailored to the specific needs of your dog. However, most homemade diets found in books or on the Internet can be too vague or too complex, and ingredient substitutions or alterations may result in a diet that is nutritionally deficient or unbalanced or is even toxic. If you really want to provide your dog with a homemade diet, it’s best to work under the guidance of a veterinary nutritionist to ensure that the diet you prepare is complete and balanced for your dog.

While the proponents of raw diets claim that meat and bones more closely resemble the diet that dogs would eat in the wild, there is a lack of scientific evidence to support this idea. Raw diets have the same potential drawbacks of homemade diets: raw diets can also be nutritionally deficient and unbalanced. What’s more, raw diets carry the risk of contamination with bacteria such as Salmonella, and bits of bone can break teeth and perforate the digestive tract. If you want to feed your dog a raw diet, consult your veterinarian for advice, and make sure to handle all the food and your dog’s feces with care to avoid transmitting bacteria to people in your household.

What Do I Need to Know About Table Scraps and Treats?

The biggest problem with table scraps and treats is that they add unnecessary calories that can make your pet overweight. Pet obesity often leads to diabetes, increased blood pressure, and orthopedic problems, all of which can reduce your dog’s life span. If your dog is overweight, consult your veterinarian about a diet and exercise plan to get your dog back to a healthy weight.

In addition, many dogs are allergic to common foods, such as wheat and chicken, resulting in problems such as itchy, infected ears and skin infections.

Table scraps and treats can also upset the bacterial balance in the digestive tract, resulting in vomiting and diarrhea. Fatty treats, especially, can lead to pancreatitis (inflammation of the pancreas), which can require hospitalization. Even if your dog is fed a balanced diet, additional treats can result in unbalanced nutrition. If you can’t refuse your dog’s begging, consider giving your dog healthy treats such as raw carrots and green beans.
Canine Obesity

- Obesity (the storage of excess fat) is usually caused by excessive food intake and insufficient exercise. According to estimates, 40% to 50% of dogs are overweight and 25% of dogs are obese.

- By examining your dog, your veterinarian can determine whether he or she is overweight or obese and help you create a weight-loss program.

- Dogs can develop many obesity-related health problems.

- The most effective weight-loss plans involve increasing activity and feeding fewer calories.

What You Need to Know

Obesity (the storage of excess fat) is usually caused by excessive food intake and insufficient exercise. According to estimates, 40% to 50% of dogs are overweight and 25% of dogs are obese. Obesity is more common in older, less active pets. Dogs that are fed homemade meals, table scraps, and snacks are more likely to be overweight than dogs that are fed only a commercial pet food.

There are many obesity-related health problems (see the box), and some medical conditions can lead to obesity, so it’s important to bring your dog in for annual veterinary checkups. By examining your dog, your veterinarian can tell you whether he or she is overweight or obese, what the cause is, and how to treat him or her.

Losing weight can help your dog live longer, avoid disease, and feel better, especially on hot days.

What to Do

Consult your veterinarian before changing your dog’s eating and exercise habits. Your veterinarian can recommend an appropriate diet and exercise program for safe weight loss.

When helping your dog lose weight, slower is safer. “Crash” diets or intense workouts aren’t appropriate for inactive dogs. If your dog gained the weight slowly, he or she can lose it slowly.

The most effective weight-loss plans involve increasing activity and feeding fewer calories. The more convenient you make it, the better the chance of sticking with it.

When on a weight-loss program, your dog should lose 2% or less of his or her initial body weight per week. For example, a 100-lb dog should lose no more than 2 lb every week. A weight-loss program may take 1 year or longer.

Diet

There are several dietary strategies for helping your dog lose weight. Your veterinarian may suggest one or more of the following (be sure to use a measuring cup to keep track of how much you’re feeding your dog):
• **Feed your dog smaller meals more often.** This helps your dog burn more calories and keeps him or her from begging for food. However, don’t feed more food per day. Instead, use a measuring cup to divide your dog’s daily ration into three or more feedings.

• **Feed your dog less of his or her regular food per day.** This strategy is most effective with increased activity. First check with your veterinarian to ensure that your dog will receive the right amount of nutrients.

• **Instead of feeding your dog less, gradually switch him or her to a low-calorie food recommended by your veterinarian.** The change should be slow because a sudden switch could upset your dog’s stomach. Combine the new food with your dog’s usual food in larger and larger proportions over several weeks until you are only providing the new food.

• **Give treats only on special occasions, such as birthdays, holidays, or good visits to the veterinarian.** Offer low-calorie treats (see the box) and eliminate or limit fattening ones.

**Exercise**

You can help your dog become more active and lose weight by scheduling regular playtimes and walks. Consult your veterinarian before beginning an exercise program for your dog. For walks, start out slow to give your dog a chance to adapt to an exercise routine. Work up to a brisk, 10- to 20-minute walk or jog once or twice a day. On hot or cold days, go easy or rest. If you don’t have time to walk your dog, hire a dog walker. Doggy day care centers can also help ensure that your dog gets plenty of exercise throughout the day.

Here are some calorie-burning activities for your dog:

• Fetch

• Keep away

• Playing with other pets

• Walking or jogging

• Running off leash

• Swimming (great for arthritic dogs)

• Tricks for low-calorie treats

• Tug of war

Consider adopting another pet so that your dog has a playmate that encourages activity. If you don’t want to commit to a new pet, try scheduling regular visits with the pet of a friend or relative.

**Obesity-Related Problems**
• Heart disease
• Reduced life span
• Ruptured ligaments
• Labored or difficult breathing
• Fatigue
• Greater risk for heatstroke
• Diabetes
• Joint problems, including arthritis
• Immune system problems
• Pancreas problems

**Low-Calories Dog Treats**

• Apple slices
• Banana slices
• Carrot slices
• Green beans
• Lean meat (cooked)
• Melon chunks
• Packaged treats (low-calorie or formulated for a smaller dog)
• Pear slices
• Popcorn (without butter or oil)
• Pretzels
• Rice cakes

Do not feed your dog (or cat) grapes or raisins because they have reportedly caused kidney problems in pets.
Canine Pancreatitis

- Pancreatitis is an inflammation of the pancreas, an organ in the abdomen that helps the body digest food.
- Acute pancreatitis can occur after a dog eats fatty food such as pork, beef, and some other human foods; dogs that get into garbage can develop pancreatitis.
- Treatment for pancreatitis is aimed at supporting the patient and minimizing the clinical signs until they resolve.
- After a dog recovers from pancreatitis, pet owners may be advised to feed a reduced-fat diet and discontinue any table food or other items that may contribute to future episodes of pancreatitis.

What Is Canine Pancreatitis?

The pancreas is an organ in the abdomen that is involved in helping the body digest food. The pancreas releases enzymes (proteins that are involved in chemical reactions in the body) into the digestive tract to help break down fats and promote digestion. When the pancreas becomes inflamed, the condition is referred to as pancreatitis.

When pancreatitis occurs, the pancreas releases enzymes and other substances into the surrounding area of the abdomen. These substances cause localized inflammation that damages the pancreas and nearby organs and can lead to life-threatening complications.

There are two forms of pancreatitis: acute (tends to occur suddenly) and chronic (tends to happen over time). Both forms can be mild or severe, and their clinical signs can be very similar. Although several types of events are known to cause pancreatitis, the underlying cause remains undetermined in many cases. Acute pancreatitis can occur after a dog eats a fatty food such as pork, beef, and some other human foods. Dogs that get into garbage can develop pancreatitis. Pancreatitis can also have other causes, including certain medications and some viral or bacterial infections. Dogs that are obese or have diabetes are at greater risk for developing pancreatitis. Miniature schnauzers may also be predisposed to the disease. Chronic pancreatitis can result from repeated episodes of acute pancreatitis, but in most cases it is not clear what causes chronic pancreatitis.

What Are the Clinical Signs of Canine Pancreatitis?

The clinical signs associated with pancreatitis can be mild or severe, and the acute and chronic forms of the disease can look very similar:

- Vomiting
- Appetite loss
- Depression and lethargy (tiredness)
- Abdominal pain
- Diarrhea
- Fever
Severely ill dogs may have a high fever, low blood pressure, and dehydration.

**How Is Canine Pancreatitis Diagnosed?**

Obtaining information about your pet’s medical history and performing a physical examination can provide your veterinarian with valuable information that can help determine if your dog may have pancreatitis. However, the diagnosis of pancreatitis can be complicated because there is no single test that can diagnose it in all cases. Initial diagnostic testing may include blood work such as a chemistry panel and complete blood cell count (CBC), radiographs (x-rays), and an abdominal ultrasound examination to look for any pancreatic abnormalities and rule out intestinal blockages and other causes for the clinical signs. There are also specific blood tests that, when combined with other supporting information, can help diagnose pancreatitis; your veterinarian may recommend specific testing if pancreatitis is suspected.

**Treatment and Outcome**

Canine pancreatitis can be challenging to treat. There is no treatment that reverses the condition, so therapy is aimed at supporting the patient and minimizing the clinical signs until they resolve. Antibiotics are commonly given (although not always), as well as medications to relieve vomiting and pain. Another aspect of treatment may involve “resting” the stomach and intestines to give them time to heal and rebound. Your veterinarian may recommend withholding food and water until the pet is no longer vomiting. During that time, the patient can receive fluids by injection; some veterinarians provide additional nutrition through intravenous feeding (directly into a vein) or placement of a feeding tube. If the pet does not respond to medical treatment, there are also surgical procedures to treat pancreatitis.

The long-term outcome for a dog with pancreatitis can be difficult to predict. Severe pancreatitis can cause life-threatening damage to the body, including causing kidney failure, diabetes, and intestinal obstruction. If a pet recovers from an episode of acute pancreatitis, there may be concern that the problem will recur and become chronic. Sometimes, a permanent diet change to a reduced-fat diet may be recommended. Pet owners may also be advised to discontinue any table food or other items that may contribute to future episodes of pancreatitis.
Canine Parvovirus

- Canine parvovirus is a highly contagious, serious disease with a mortality (death) rate of over 90% in untreated dogs.
- Canine parvovirus attacks the gastrointestinal tract and immune system of puppies and dogs.
- Canine parvovirus is spread by direct contact with other dogs or infected materials, such as feces, soil, and food dishes. There is no effective treatment other than supportive care, but disease can be prevented through vaccination.
- Every dog should be vaccinated against canine parvovirus.

What Is It?

Canine parvovirus is a deadly disease that is caused by the canine parvovirus type 2 (CPV-2) virus. The virus attacks the gastrointestinal tract and immune system of puppies and dogs. It can also attack the heart of very young puppies.

CPV-2 is highly contagious and is spread through direct contact with other infected dogs or with infected feces. It is easily carried on hands, food dishes, leashes, shoes, etc. The virus is very stable in the environment and can survive for over a year in feces and soil through extremes of heat, cold, drought, or humidity. While up to 85% to 90% of treated dogs survive, the disease requires extensive supportive patient care and can be expensive to treat. In untreated dogs, the mortality rate can exceed 90%.

Signs of Infection With CPV-2

- Lethargy (tiredness)
- Loss of appetite
- Fever
- Vomiting
- Severe diarrhea (often bloody)

Affected dogs often suffer from vomiting and diarrhea and can become extremely dehydrated. In acute cases, death can occur in 2 to 3 days.

Diagnosis and Treatment

Diagnosis is made based on history, signs of disease, physical examination, and laboratory tests performed on blood and feces. There is no effective treatment for CPV-2 other than supportive care, which consists of fluid therapy, medications to control vomiting and diarrhea, and prevention of secondary infections.

Prevention

Because of the prevalence of the disease and its severity, the CPV-2 vaccine is considered a core (essential) vaccine by organized veterinary medicine, meaning that all dogs should be protected
from this disease. Vaccination is the most effective way to prevent disease associated with CPV-2 infection. The CPV-2 vaccine is typically given in a combination vaccine that also protects against other serious diseases, such as canine distemper and canine adenovirus-2.

Your veterinarian will give you the vaccination schedule for your dog, but in general, all puppies should receive the CPV-2 vaccine every 3 to 4 weeks between 6 and 16 weeks of age, followed by a booster 1 year after the last dose. Thereafter, booster vaccinations are generally administered every 1 to 3 years.

Infected dogs should be kept isolated from other dogs until they have recovered and are no longer shedding (spreading) virus. The environment, bowls, etc. should be disinfected with a dilute bleach solution.

Keep puppies away from other dogs at dog parks, groomers, and pet stores until the puppy vaccination series has been completed.
Canine Senior Wellness

- As dogs grow older, their bodies become less able to cope with physical or environmental stress.
- Dogs are very good at hiding signs of illness, so health problems may seem to appear quickly.
- Most experts agree that healthy senior dogs should see their veterinarians every 6 months.

When Is a Dog “Senior”?

With many dogs living well into their teens, many owners wonder: When is a dog truly senior? The answer is that there is no specific age at which a dog becomes senior. Individual pets age at different rates. However, most dogs become senior at 7 to 10 years of age, and most large- and giant-breed dogs become seniors earlier than small-breed dogs.

Knowing the general age of your dog can help you monitor him or her for early signs of any problems.

Health Issues in Senior Dogs

As dogs grow older, their bodies become less able to cope with physical or environmental stress. Their immune systems become weaker, and they are more prone to developing certain diseases or conditions, including:

- Arthritis
- Cancer (especially testicular or breast cancer)
- Prostate disease
- Cognitive (brain) disorders
- Intestinal problems
- Deafness
- Dental disease
- Diabetes mellitus (“sugar” diabetes)
- Kidney disease
- Liver disease
- Vision problems

This is why regular senior wellness visits with your veterinarian are important for the long-term health of your dog.

The Senior Dog Wellness Exam

Just as with people, it’s important for dogs to see their doctors more often as they age. Most experts agree that healthy senior dogs should see their veterinarians every 6 months. A thorough senior wellness exam is designed to:

- Promote the longest and healthiest life possible
• Recognize and control known health risks for older dogs
• Detect any signs of disease at their earliest, when they are the most treatable

During a senior wellness exam, your veterinarian will ask you questions to obtain a complete medical history for your dog and to determine if there have been any changes in health or behavior since the last visit. During the physical examination, your veterinarian will assess your dog’s overall appearance and body condition by listening to his or her heart and lungs; feeling for signs of pain, tumors, or other unusual changes in the neck and abdomen; checking joints for signs of arthritis or muscle weakness; and examining the ears, eyes, and mouth for any signs of disease.

A routine senior wellness exam should also include the following tests to check your dog for signs of disease and to assess your dog’s kidney and liver function:

- Blood pressure
- CBC (complete blood count)
- CHEM screen (liver and kidney function)
- Urinalysis
- T4 (thyroid function)
- Heartworm blood test
- Fecal test (for intestinal parasites)

Most veterinarians recommend that this baseline laboratory testing be conducted at least once a year in adult dogs aged 2 to 7 years, and more frequently in senior dogs. Dogs that have an existing medical problem may need testing more often.

Additional tests may be required depending on the results of routine screening tests. Which tests are necessary and how often they are performed are different for each dog, but, in general, the ones listed above will provide your veterinarian with a good “snapshot” of your senior dog’s health. Over time, these test results can be tracked and compared to help your veterinarian detect any developing health trends.

**Monitoring Your Senior Dog**

Dogs age much more rapidly than people do. Therefore, they may appear healthy for a long time and then seem to become suddenly ill. You can help your veterinarian by keeping a close eye on your dog between exams. If you notice any unusual signs of trouble, don’t wait for your regularly scheduled checkup to see your veterinarian: call right away. Signs to watch for and quickly report include the following:

- Incontinence (unable to control urine/bowel movements, or having “accidents” in the house)
- Lumps
- Constipation or diarrhea
- Shortness of breath or other difficulty breathing
- Coughing
- Weakness
- Unusual discharges
- Changes in weight, appetite, urination, or water intake
- Stiffness or limping
- Increased vocalization
- Uncharacteristic aggression or other behavior changes

Unexplained weight loss or weight gain can be an early sign of underlying disease. Weight management itself can also be an issue: Many senior dogs are obese, and obesity can contribute to the development of diabetes, arthritis, and other conditions.

**Keeping Up With Basic Care**

Along with paying more attention to your dog’s health as he or she ages, you should continue routine wellness care such as parasite prevention, dental care, nutritional management, and appropriate vaccination. Maintaining proper routine care becomes even more important as your dog’s immune system ages.

Take steps to ensure your dog’s comfort, such as making sure that food and water bowls are still easily accessible to your old friend and that you give him or her plenty of attention and affection.

Foods for senior dogs should be lower in fat but not lower in protein. Ask your veterinarian for a recommendation. Size is used to determine when it’s time to feed your dog a senior diet:

- Small breeds (dogs weighing less than 20 lb)—7 years of age
- Medium breeds (dogs weighing 21 to 50 lb)—7 years of age
- Large breeds (dogs weighing 51 to 90 lb)—6 years of age
- Giant breeds (dogs weighing 91 lb or more)—5 years of age

Smaller, more frequent feedings are easier on a senior dog’s digestive system.

You might need to give your senior dog more opportunities to urinate and defecate.

Because senior dogs can’t regulate their body temperature as well as young dogs, senior dogs should be kept warm, dry, and indoors when not outside for exercise. Senior dogs are also more sensitive to heat and humidity, so they should be protected from conditions that could cause heatstroke.

Arthritic dogs may appreciate ramps instead of stairs, extra blankets on their beds, and an orthopedic bed.

If your dog is losing his or her sight or hearing, remove obstacles and reduce your dog’s anxiety by keeping floors free of clutter.

Regular toothbrushing (only with dog toothpaste) will help reduce plaque that can cause problems, but many senior dogs require professional cleanings under general anesthesia.
**Canine Urine Marking**

- Urine marking is a natural, instinctive behavior in dogs, but it becomes inappropriate when dogs urinate in the house to identify their territory.
- Urine marking is most common with sexually intact male dogs, but intact female dogs and neutered dogs may also mark.
- Underlying medical reasons for inappropriate urination, such as urinary tract infections, should be ruled out before a diagnosis of marking behavior is made.
- Neutering can often resolve the problem.
- Behavior modification, environmental treatment, and elimination of anxiety triggers can help to eliminate the behavior.

**What Is Canine Urine Marking?**

Canine urine marking is a natural, instinctive behavior in dogs, but it is not appropriate inside the house. Dogs, especially sexually intact male dogs, urinate on objects to mark their territory or to leave a message for other dogs. Urine marking behavior usually begins when the dog reaches sexual maturity.

**What Causes Canine Urine Marking?**

An intact male dog is most likely to mark when there is a female dog in heat nearby. Intact female dogs are also prone to marking when they are in heat. However, any dog may mark if another dog has urinated anywhere in the house. By urinating on the previous site of urination, the dog essentially “remarks” that location as its own territory. Unless the scent of the urine is completely removed, the dog is likely to keep urinating there.

In multi-dog households, dogs, especially of the same sex, may compete for dominance, which can result in urine marking. This same behavior can occur in a confident dog that feels dominant to the owner.

Any anxiety-producing situation can trigger urine marking as well. Workmen in the house, the arrival of a new baby, or visiting relatives can all produce anxiety in a dog. Even the addition of a new TV or a new computer may threaten a dog so that it feels compelled to mark the packing boxes. Rest assured, your dog is not trying to get back at you. It’s just doing what comes naturally.

**How Is Canine Urine Marking Diagnosed?**

Your veterinarian will start by discussing when, where, and how often the behavior occurs. A workup should be conducted to rule out medical disorders that may be causing the problem. If there are no medical causes, your veterinarian will need to determine if incomplete housetraining or other behavioral conditions are causing the problem.

**How Can It Be Treated?**
In most cases, overcoming urine marking requires multiple steps:

**Neutering.** If the dog is sexually intact, neutering is the first step. In many cases, male dogs that are neutered stop urine marking within weeks to months of the procedure. Female dogs that are spayed almost always stop the behavior. However, behavior modification is often needed as well.

**Scent elimination.** It is important to remove the scent of previous urine marks with a good enzymatic cleaner. Camouflaging the odor with another scent is not effective. An enzymatic cleaner can help neutralize the scent to prevent recurrences of the behavior. Many dogs won’t urinate where they eat, so you can also try feeding your dog in the location it used to mark.

**Positive reinforcement.** Never punish a dog for urine marking. Punishment can create more anxiety, which may only exacerbate the problem. Instead, you need to supervise your pet closely. If you see the dog starting to eliminate inside, interrupt him or her with a firm “No,” and bring the pet outside. When the dog urinates outside, reward him or her with praise and treats. Make sure to bring your dog outside frequently, always providing rewards for appropriate urination outdoors.

**Confinement.** During retraining, it helps to limit your dog’s access to frequently marked areas. You may need to confine your dog to a room or small area by shutting doors or by using baby gates or a crate. As your dog’s behavior improves, you can gradually increase his or her freedom in the house. Be careful to frequently exercise your dog outside, so your dog does not become agitated with long periods of confinement.

**Minimize anxieties.** If you can identify the factors that are causing your dog anxiety, remove them or minimize their importance. With a new baby, for example, you can desensitize your dog by gradually increasing the amount of time your dog is exposed to the new baby. At the same time, use counterconditioning tactics, such as praising, petting, and rewarding your pet for calm behaviors around the baby, so it has positive associations with the child.

You may also consult your veterinarian about a D.A.P. Dog Appeasing Pheromone diffuser. By mimicking the pheromones produced by a mother dog to give her puppies a sense of calm and well-being, this product can help ease anxieties in dogs.

**Establish dominance.** Some dogs need to be gently reminded that you are the boss and that they need to work for rewards. Ask your dog to sit or lay down, then provide a reward such as a treat or a walk and TLC!

**Medications.** As a last resort, you can consult your veterinarian for medications. In most cases, dogs are given a type of antidepressant. These drugs often take 4 to 6 weeks to make a difference. However, behavior modification is always the first choice and should continue, even with medications.
Canine Vaccine Recommendations

- Vaccines are an important weapon against infectious diseases.
- Over the years, the widespread use of vaccines has saved the lives of millions of dogs.
- Vaccines are safe and generally well tolerated by most dogs.
- Vaccine selection and scheduling should be an individualized choice that you and your veterinarian make together.

Companion animals today have the opportunity to live longer, healthier lives than ever before. One of the main reasons for this is the availability of vaccines that can protect pets from deadly viral and bacterial diseases. Over the past several decades, the widespread use of vaccines against canine distemper, parvovirus infection, rabies, and other diseases have saved the lives of millions of dogs and driven some of these diseases into relative obscurity. Unfortunately, these diseases still pose a significant threat to dogs that are unvaccinated; so, although vaccine programs have been highly successful, pet owners and veterinarians cannot afford to become complacent about the importance of keeping pets up-to-date on their vaccinations.

Why Does My Dog Need Vaccines?

Vaccines are one of our most important tools against infectious diseases. Some of these diseases, such as “kennel cough,” can be transmitted directly from dog to dog. If your dog is ever around other dogs, such as at a kennel, dog park, grooming salon, or day care facility, your dog is likely to be exposed to infectious diseases. Even dogs that look healthy may be sick, so keeping your dog’s vaccines up-to-date is a good way to protect your dog from illness.

Even if your dog doesn’t have contact with other dogs, some diseases can be transmitted indirectly. For example, parvovirus infection, which is potentially fatal, is spread through contact with feces from an infected dog. Even if your dog never has contact with a dog infected with parvovirus, your dog could be exposed to the virus through contact with feces from an infected dog, such as in a park or on a beach. Lyme disease—a dangerous infection that is carried by ticks—is another disease that your dog can be exposed to without coming into contact with other dogs.

So, even dogs that spend most of their lives indoors or have very limited contact with other animals are not completely safe from exposure to infectious diseases.

How Do Vaccines Work?

Although there are many types of vaccines, they tend to work through a similar principle. Most vaccines contain a very small portion of the virus or bacterium that is the infectious agent. Some vaccines contain small quantities of the entire virus or bacterium, whereas others contain particles that are part of the infectious organism. When this material is introduced into the body in a vaccine, the body’s immune system responds through a series of steps that include making antibodies and other cells that will recognize the target organism later. When the vaccinated individual encounters the “real” organism later, the body recognizes the organism and reacts to protect the vaccinated individual from becoming sick.
Are Vaccines Safe?

All of the available vaccines have been thoroughly tested and found to be safe when administered as directed. Most dogs tolerate vaccines very well, although reactions can occur in some cases. Some dogs can seem a little “tired” after receiving vaccines. Notify your veterinarian if your dog develops hives, redness on the skin, breathing problems, facial swelling, or vomiting. You should also tell your veterinarian if your dog has ever had a problem after receiving a vaccine.

What Vaccines Does My Dog Need?

Many vaccines are available for dogs, but every dog does not need to receive every available vaccine. So how do you know what vaccines your dog should have? The American Animal Hospital Association (AAHA) has developed a summary of vaccine recommendations to help veterinarians clarify how to best protect dogs through the use of vaccine programs. AAHA evaluated the available vaccines and categorized them to provide guidelines on how commonly they should be used. Vaccines are categorized as core, non-core, or not recommended. A core vaccine is one that all dogs should receive. The core vaccines for dogs are rabies, distemper, adenovirus-2, and parvovirus. Non-core vaccines are optional ones that dogs can benefit from based on their risk for exposure to the disease. Examples include the vaccines against Lyme disease and leptospirosis. Categorization of a vaccine as “not recommended” does not mean that the vaccine is bad or dangerous. This designation simply means that there is currently insufficient information to recommend the widespread use of the vaccine.

Because core vaccines are recommended for all dogs, your veterinarian will recommend keeping your dog’s vaccines against distemper, parvovirus, adenovirus-2, and rabies up-to-date at all times. The decision regarding non-core vaccines should be made after you and your veterinarian have discussed the vaccines in question and whether your dog might benefit from receiving them. Factors to consider include your dog’s lifestyle (how much time your dog spends outside), where you live, where you travel with your dog, and how often your dog has contact with other dogs. Bear in mind that vaccine recommendations can change: if your dog’s lifestyle changes, your veterinarian may want to discuss modifying the vaccine recommendations to ensure that your dog is well protected.

What Is the Recommended Schedule for Vaccines?

Puppies generally receive their first vaccines when they are around 6 to 8 weeks of age. Booster vaccines are generally given every 3 to 4 weeks until the puppy is 16 weeks of age. Your veterinarian can discuss with you which vaccines your puppy will receive at your “puppy checkup” visits. Vaccines are generally repeated a year later.

Although puppies are considered especially vulnerable to some diseases, it is also very important for adult dogs to be up-to-date on vaccines. Traditionally, many vaccines were repeated yearly, during regular annual checkup examinations. However, research has shown that some vaccines can protect dogs for longer than 1 year. In light of research findings, the AAHA guidelines note that some vaccines don't need to be repeated more often than every 3 years. The decision
regarding how often your dog needs vaccine boosters depends on several factors, including your
dog’s overall health status and risk for exposure to the diseases in question. Your veterinarian
may recommend annual boosters after considering your dog’s lifestyle and disease exposure risk.
The decision regarding how often to administer any vaccine (annually, every 3 years, or not at
all) should be an individualized choice that you and your veterinarian make together.

Vaccination remains one of the most important services your veterinarian offers, and although
vaccination is a routine procedure, it should not be taken for granted. It also allows a regular
opportunity for your veterinarian to perform a physical examination, which is very important for
keeping your dog healthy. Protecting patients is your veterinarian’s primary goal, and developing
an appropriate vaccine protocol for your pet is as important as any other area of medicine.
Cardiac Arrhythmias in Dogs

- An arrhythmia is an irregularity in the rate and/or pattern of the heartbeat.
- Dogs of any age or sex may experience arrhythmias.
- Rhythm disturbances may be caused by many factors, including diseases, drug reactions, and underlying heart conditions.
- Signs may include weakness, difficulty breathing, coughing, difficulty exercising, and fainting episodes.
- Diagnosis may require an electrocardiogram (ECG), blood work, chest radiographs (x-rays) and possibly an echocardiogram (ultrasound evaluation of the heart).
- Management of the arrhythmia may include treatment for the underlying disease, antiarrhythmia medications, and possibly a pacemaker.

What Is a Cardiac Arrhythmia?

A cardiac arrhythmia is an abnormality in a dog’s heartbeat. It may be associated with the rate (too fast or too slow), an irregularity in the heartbeat pattern, or a problem in the location where electrical signals are formed in the heart. Some arrhythmias may be harmless and do not require treatment, while others can be serious and life threatening.

Dogs of any age or sex may experience arrhythmias. Certain breeds are predisposed to specific types of heartbeat abnormalities. Boxers, German shepherds, and cocker spaniels are among the many breeds prone to heart conditions that can be associated with changes in heart rate and rhythm.

What Causes an Arrhythmia?

There are many types of heart rhythm disturbances, and just as many potential causes. While heart disease can cause an arrhythmia, an arrhythmia does not necessarily indicate that your dog has a heart condition. Other causes of heart arrhythmias include:

- Hypothyroidism (low thyroid hormone levels in the blood)
- Chocolate toxicity
- Imbalances in electrolytes (substances in the blood)
- Drug reactions
- Heartworm disease
- Tumors
- Trauma

What Are the Signs of an Arrhythmia?

Dogs with arrhythmias that are relatively harmless may show no outward signs. In many cases, however, an arrhythmia can lead to heart failure, changes in blood pressure, and alterations in blood flow to vital organs. Dogs with these types of arrhythmias may show signs such as:

- Weakness, depression
- Coughing or difficulty breathing
- Exercise intolerance (difficulty exercising)
- Fainting episodes
- Pale gums
- Sudden death

**How Is This Condition Diagnosed?**

Your veterinarian may note an irregularity in the heartbeat when listening to your pet’s heart with a stethoscope. An electrocardiogram (ECG) can provide additional information to further define the type of arrhythmia present.

If your veterinarian suspects that the abnormality is caused by a heart condition, he or she may recommend chest radiographs (x-rays) and/or an echocardiogram, which is an examination of the heart using ultrasound equipment. Depending on your pet’s condition, the veterinarian may refer your pet to a veterinary cardiologist (a heart specialist).

Since many other factors besides heart disease can cause arrhythmias, your veterinarian will probably also suggest doing blood work to look for underlying diseases or conditions.

**How Are Arrhythmias Treated?**

If the arrhythmia is caused by an underlying condition, such as hypothyroidism, treating the underlying disease may help resolve the arrhythmia. Otherwise, the goal of treatment is to eliminate or manage any discomfort your dog may have and prevent dangerous arrhythmias from leading to sudden death.

Numerous medications can help control arrhythmias. Many of these drugs may have side effects, so be sure to ask your veterinarian if there are signs you should watch for. In some cases, it is recommended that a pacemaker be implanted for long-term control of the arrhythmia.

Once your pet is diagnosed with an arrhythmia, your veterinarian may recommend periodic recheck examinations to evaluate your pet’s heart rate/rhythm and assess your pet’s response to treatment. Blood work, echocardiography, and other diagnostic tests sometimes need to be repeated periodically to help protect your pet’s health.
Cardiac Exam

- A cardiac exam evaluates the function of the cardiovascular system.
- The exam is performed by your veterinarian to determine the health of your pet's heart.
- The exam is especially important for older animals, pets with a history of heart problems, or breeds that are at increased risk for developing heart problems.
- Early diagnosis and treatment of heart disease are very important.

What Is a Cardiac Exam?

A cardiac examination is an evaluation of the cardiovascular system, which includes the heart, lungs, and blood vessels. Many elements of a cardiac exam are usually performed (to some extent) during a routine physical examination in pets of all ages. However, for older animals, pets with a history of heart problems, or pets that are at risk for developing heart disease, more extensive testing is sometimes recommended.

What Happens During a Cardiac Exam?

During your visit, your veterinarian will ask you specific questions about your pet's heart health and overall health. Signs of heart disease can be vague and may include coughing, breathing problems, weakness, fainting episodes, and exercise intolerance (getting tired easily or refusing to exercise). A thorough physical exam is usually performed in combination with a cardiac exam. Your pet’s vital signs, including blood pressure, heart rate, and respiratory rate, are checked to determine heart health. These signs may be checked by a veterinary technician, who reports the findings to your veterinarian. Your veterinarian will also check your pet’s capillary refill time by gently pressing on the gums with a fingertip and then removing the finger while counting the number of seconds it takes for the color of the gums to return to normal. This test can help determine how well your pet’s blood is circulating and whether your pet is dehydrated. Pale gums may indicate a heart problem, circulation problem, or anemia (low number of red blood cells). Dark or blue gums can also signal a problem.

Your pet’s pulse rate and quality are generally checked during a cardiac exam. If pulses are weak, irregular, or otherwise abnormal, your veterinarian will try to determine the cause.

What Tests Are Performed During a Cardiac Exam?

**Auscultation:** Your veterinarian will listen to your pet's heart and lungs using a stethoscope, which magnifies the sounds of the heart and lungs. The scientific term for this process is *auscultation*. As your veterinarian listens, he or she may detect irregular heartbeats or sounds, an abnormal rhythm, or a heart murmur, all of which can be associated with heart disease. Your veterinarian will use the stethoscope to listen to the lungs for abnormal sounds, such as sounds produced by fluid buildup, which can occur in certain types of heart disease.

**Blood testing:** Results of blood tests can provide your veterinarian with a large amount of information about your pet’s heart. For example, heartworm disease can damage your pet’s heart and lungs, so your veterinarian may recommend blood testing to check for this infection. Other
useful blood tests may include a chemistry profile and a complete blood count (or CBC). Many irregularities, such as dehydration, abnormal sodium or potassium levels in the blood, or anemia (a low number of red blood cells), can make it more difficult for your pet’s heart to perform efficiently.

**Electrocardiography:** Electrocardiography (also called an *ECG* or *EKG*) is used to check for abnormalities in the heart’s rhythm. An ECG can determine whether the heart is beating too slow or too fast or whether there are irregular beats. An ECG detects electrical changes associated with the beating of the heart. The electrical changes are recorded by the ECG machine and then interpreted by a veterinarian.

**X-rays:** Chest x-rays are used to determine the size, shape, and position of the heart. Because heart disease causes the heart to work too hard, the heart muscle can become thickened, and the heart can become enlarged. X-rays also show your veterinarian your pet’s lungs. Certain types of heart disease cause fluid to accumulate in the lungs. Other lung problems, such as asthma, can also be evaluated when your veterinarian looks at x-rays. The large vessels associated with your pet’s heart and lungs can also be examined using x-rays.

**Blood pressure:** Your veterinarian may have equipment that can measure your pet’s blood pressure during a cardiac exam. Blood pressure that is too low or too high may need to be treated with medication.

**Cardiac ultrasound:** Your veterinarian may have equipment that can perform a cardiac ultrasound examination (or echocardiogram). The ultrasound machine is connected to a small handheld probe that is held against your pet’s chest. The probe sends out painless sound waves that bounce off of structures in your pet’s chest (such as the heart and blood vessels) and return to a sensor inside the ultrasound machine. This creates an image on a screen that can tell your veterinarian a great deal of information about your pet’s heart.

**What Are the Benefits of a Cardiac Exam?**

A cardiac exam is important to assess the overall health of the heart and circulatory system. Your pet may have underlying heart issues that may not be obvious, and catching them early is important. Many heart conditions can be managed successfully, if caught early.
Caring for Orphaned Puppies

- Orphaned puppies should be taken to a veterinarian immediately. Your veterinarian can give you advice on caring for puppies and might be able to provide you with contact information for animal rescue groups.
- During the first few weeks of life, puppies have specific needs for nourishment, warmth, socialization, and excretion.
- Female puppies should be spayed around 6 months of age; male puppies should be neutered between 5 and 10 months of age. This helps to control pet overpopulation and reduces the chances of some behavior problems and medical conditions that can be costly to treat and difficult to cure (e.g., pyometra [uterine infection] or breast cancer in female dogs).

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Feeding

A mother dog’s milk provides all the nutrients that her puppies need during their first 4 weeks of life. If you find orphaned puppies, ask your veterinarian or an animal welfare group to help you find a mother dog with a small litter because she may be able to nurse the puppies. If you cannot find a foster mother dog, ask your veterinarian to teach you how to bottle-feed or tube feed the puppies with a commercial puppy formula milk replacer. Feeding newborn puppies incorrectly can cause harm, and feeding cow’s milk or an inappropriate milk replacer can cause diarrhea and other complications.

Many people prefer to bottle-feed puppies because they stop suckling when they are satisfied. Bottle-fed puppies require an appropriately sized bottle and nipple to prevent swallowing of the nipple. Nipple bottles made for orphaned puppies or premature human infants can be used.

Tube feeding is faster than bottle-feeding, especially with large litters. Tube feeding is useful for puppies younger than 10 days or puppies that are weak or that have poor suckle reflexes.

Newborn puppies should be tube fed four times daily or bottle-fed five or six times daily. At 2 weeks of age, four feedings per day are usually sufficient.

Follow all the manufacturer’s directions on formula preparations. Refrigerate milk formula between meals, but warm it to approximately 100°F before feeding. Prepare only a 48-hour supply of formula at a time. Cold formula, rapid feeding, and overfeeding can cause regurgitation, bloating, diarrhea, and/or aspiration (inhalation of formula or food). To help prevent diarrhea and aspiration, feed small amounts frequently rather than large amounts infrequently. Ask your veterinarian for additional information and recommendations.
At around 4 weeks of age, puppies can be transitioned from receiving milk replacer to eating solid food. During the transition, high-quality dry puppy kibble can be soaked with warm water and milk replacer and blended to the consistency of gruel. Use a shallow saucer in case the puppy falls into the food. This can be fed several times a day. Water can also be offered in a shallow saucer. Gradually, the amount of milk replacer mixed into the puppy food can be decreased until the puppies are eating dry kibble by about 7 to 8 weeks of age. Consult your veterinarian for the exact amount to feed and for help creating a long-term feeding schedule suited to the puppies’ needs.

When the puppies are ready for solid food, feed a name-brand puppy food with the American Association of Feed Control Officials (AAFCO) statement on the bag or label. This ensures that the food is nutritionally balanced for puppies.

Cleaning

Puppies tend to get messy during feedings, so they need to be cleaned regularly. Gently wipe them clean using a washcloth moistened with warm water. Dry them immediately with a towel or hair dryer set on low.

Weight

The average recommended birth weight for puppies depends on the breed. During the first weeks of life, a puppy’s weight may double or triple. Gaining 10% to 15% of birth weight daily is considered healthy. It is very helpful to weigh the puppy at the same time every day to ensure the puppy is steadily gaining weight.

Handling

Puppies should not be overhandled during the first 2 weeks of life, and they require a lot of sleep. Handle them only as much as necessary to keep them warm, clean, and fed. When puppies are 3 weeks of age, handle them in short sessions a few times a day. Children can be allowed to gently handle them under adult supervision. A content puppy will sleep for a period of time, wake up periodically to eat and urinate/defecate, then sleep again.

Providing Warmth

For the first 2 weeks of life, orphaned puppies must be kept warm. Ask your veterinarian about the ideal temperature of heat sources such as a heating pad or a hot water bottle wrapped in a towel. Be sure that the heat source is not too warm and that the puppies can move away from it to cool down. If you use a heating pad, monitor it to ensure that it is functioning properly and that the temperature is not too high.

Encouraging Excretion

During their first few weeks of life, puppies can’t urinate and defecate (excrete) on their own. After feeding, a mother dog grooms her puppies, especially in the anal area to stimulate urination and defecation. To encourage orphaned puppies to excrete, after each meal, dip a soft washcloth
or a cotton ball in warm water and gently massage the puppies’ anal and urinary areas; the warmth, texture, and movement mimic a mother dog’s tongue. Puppies begin excreting on their own at about 3 or 4 weeks of age.

**Veterinary Care**

A physical examination by your veterinarian should be scheduled as soon as you obtain an orphaned puppy. This examination can provide an opportunity to (1) identify birth defects and other health issues, (2) address questions about feeding and other home care, and (3) schedule a preventive health plan.

If puppies appear healthy, most veterinarians recommend that they receive their first round of standard vaccinations at around 6 weeks of age. Deworming can also begin at an early age.

Contact your veterinarian immediately if your puppy has any of the following:

- Lack of appetite
- Poor weight gain (the puppy’s weight doesn’t double in 8 to 10 days)
- Vomiting
- Swollen or painful abdomen
- Lack of activity
- Diarrhea
- Difficulty breathing
- Coughing or wheezing
- Constant crying
- Pale gums
- Swollen eyes or eye discharge
- Nasal discharge
- Inability to pass urine or stool

Female puppies should be spayed around 6 months of age; male puppies should be neutered between 5 and 10 months of age. This helps to control pet overpopulation and reduces the chance of some behavior problems and some medical conditions.
Caring for Your New Puppy

- Puppies should be fed a name-brand puppy food with the American Association of Feed Control Officials (AAFCO) statement on the bag or label.
- Puppy food should be fed until adulthood, which begins at 9 to 12 months of age for most dogs and 2 years of age for giant breeds.
- Female puppies should be spayed around 6 months of age; male puppies should be neutered between 5 and 10 months of age. This helps to control pet overpopulation and reduces the chances of some behavior problems and medical conditions that can be costly to treat and difficult to cure (e.g., pyometra [uterine infection] or breast cancer in female dogs).
- Punishment, such as rubbing a puppy’s nose in urine or feces, does not work and can negatively affect housetraining.

During the first 7 to 8 weeks of life, puppies have specific needs for nourishment, warmth, socialization, and excretion. If you find orphaned puppies younger than 7 to 8 weeks of age, take them to a veterinarian immediately. Your veterinarian can give you advice on caring for them and might be able to give you contact information for animal rescue groups. For more information, see the Care Guide titled “Caring for Orphaned Puppies.”

The following information pertains to caring for puppies that are at least 7 to 8 weeks of age, the time at which they can safely be taken from their mother and littermates.

Feeding

Puppies should be fed a name-brand puppy food with the American Association of Feed Control Officials (AAFCO) statement on the bag or label. This ensures that the food is nutritionally balanced for puppies. Puppy food should be fed until adulthood, which begins at 9 to 12 months of age for most dogs and 2 years of age for giant breeds. Consult your veterinarian for the exact amount to feed and for help creating a long-term feeding schedule suited to your puppy’s needs. Here’s a recommended feeding schedule for puppies:

**Age Meals per Day**

6–12 weeks 4

3–6 months 3

6–12 months 2

Water should be available at all times.

Veterinary Care
Puppies should have a physical examination by a veterinarian. This examination can provide an opportunity to (1) identify birth defects and other health issues, (2) address questions about feeding and other home care, and (3) schedule a preventive health plan.

If puppies appear healthy, most veterinarians recommend that they receive their first round of standard vaccinations at around 6 weeks of age. Deworming can also begin at an early age.

Contact your veterinarian immediately if your puppy has any of the following:

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- Poor weight gain
- Vomiting
- Swollen or painful abdomen
- Lack of activity
- Diarrhea
- Difficult breathing
- Coughing or wheezing
- Constant crying
- Pale gums
- Swollen eyes or eye discharge
- Nasal discharge
- Inability to pass urine or stool

Female puppies should be spayed around 6 months of age; male puppies should be neutered between 5 and 10 months of age. This helps to control pet overpopulation and reduces the chance of some behavior problems and medical conditions.

**Training and Socialization**

Puppies can usually be housetrained within a few weeks. To facilitate training, puppies should be taken outdoors when they naturally need to eliminate:

- When you get up in the morning
- Before you go to bed at night
- After they eat
- After they drink a lot of water
- After they wake from a nap
- During or after physical activity

Try to select an outdoor area that is inaccessible to other animals (especially dogs). This can help reduce the risk of exposing your puppy to viruses and other diseases. This becomes less of a concern after your puppy has received the necessary vaccinations against these diseases.

Praise your puppy when he or she eliminates outdoors. Don’t punish your puppy for having accidents in the house. Punishment, such as rubbing a puppy’s nose in urine or feces, does not work and can negatively affect housetraining.
Obedience training can help establish not only good behavior but also a strong bond with your dog. Puppies should be taught basic obedience commands, including sit, stay, down, come, and heel. Using positive reinforcement, such as a small treat, is more effective than using negative reinforcement, such as punishment for failing to obey. Learning to obey commands can help keep your puppy safe (for example, by preventing your puppy from running away or into traffic). Obedience classes often take puppies starting at 4 to 6 months of age.

Providing your puppy with positive socialization can help prevent behavior problems later in life. When puppies are approximately 2 to 4 months of age, they more easily learn to accept new animals, people, places, and experiences. Puppies can begin to attend socialization classes as early as 8 weeks of age.
CBC and Chemistry Profile

- A CBC (complete blood count) and chemistry profile is an important component of wellness blood work that your veterinarian may want to perform during your pet’s regular checkups.
- A CBC and chemistry profile can help determine the state of your pet’s health and diagnose illness or injury.
- Minimal risk is associated with performing a CBC and chemistry profile, and the information gained is invaluable.

What Is a CBC and Chemistry Profile?

Blood testing is commonly used to help diagnose disease or pinpoint injury in animals. It can also help determine the state of your pet’s health during regular physical exam visits. Although a CBC or a chemistry profile can be performed separately, these tests are frequently done at the same time; when the results are interpreted together, they provide a good overview of many of the body’s functions. As with any other diagnostic test, results of a CBC and chemistry profile are not interpreted in a vacuum. Your veterinarian will combine this information with physical exam findings, medical history, and other information to assess your pet’s health status and determine if additional testing should be recommended.

Complete blood count (CBC)

The CBC can help determine many things about your pet, including whether he or she is dehydrated, anemic (having inadequate numbers of red blood cells), or dealing with an infection. The CBC measures the quantity and quality of red blood cells, white blood cells, and platelets. The CBC results may list abbreviations for the various tests included in a CBC:

- **HCT** is the hematocrit, which indicates how many red blood cells are present. A low HCT might indicate anemia, and a high HCT could indicate dehydration.
- **Hgb** is the quantity of hemoglobin, which can help determine how well the red blood cells are carrying oxygen to the body’s tissues.
- **WBC** is the total white blood cell count. Certain types of white blood cells may increase in number when there is infection or inflammation in the body. If the total number is low, it could mean several things, including a severe infection that has overwhelmed the body, or a bone marrow problem that is limiting production of white blood cells. There are several different types of white blood cells, which respond to different events in the body. **EOS** (eosinophils) are white blood cells that tend to increase in number when the body is dealing with an allergy problem or various parasites.
- **PLT** is the quantity of platelets (also called the platelet count). Platelets are involved in the body’s blood clotting process, so if the platelet number is low, the patient may develop problems with the ability to form blood clots.

Chemistry Profile
The chemistry profile measures a variety of chemicals and enzymes (proteins that are involved in the body’s chemical reactions) in the blood to provide very general information about the status of organ health and function, especially of the liver, kidneys, and pancreas. The chemistry profile also shows the patient’s blood sugar level and the quantities of important electrolytes (molecules like sodium, calcium, and potassium) in the blood.

- Chemistry values that help provide information about the liver include the ALKP (alkaline phosphatase), ALT (alanine aminotransferase), AST (aspartate aminotransferase), and TBIL (total bilirubin).
- Chemistry values that help evaluate the kidneys include the BUN (blood urea nitrogen) and CREA (creatinine). Of these two values, the creatinine is a more sensitive indicator of kidney damage. There should be concern even if it’s only slightly elevated.
- AMYL (amylase) and LIP (lipase) are enzymes produced by the pancreas.
- Electrolytes are checked for quantity and for proportion to other electrolytes. They include Ca (calcium), Cl (chloride), K (potassium), Na (sodium), and PHOS (phosphorus). Electrolyte abnormalities can be associated with many types of health issues. For example, a low calcium level can result in muscle tremors or seizures.

How Is a CBC and Chemistry Profile Performed?

To perform a CBC and chemistry profile, your veterinary team must first obtain a small blood sample from your pet. This procedure is usually very quick; it may take only a few seconds if the patient is well behaved. For patients that are very frightened or not well behaved, your veterinary team may want to use a muzzle, towel, or other gentle restraint device. In some cases, such as in patients with very thick fur, it may be necessary to shave the hair from the area where blood will be drawn. This is often a good way to find the vein quickly, and the hair will grow back.

Some veterinary offices have in-house blood analysis equipment, so they can perform a CBC and chemistry profile in the office and have results the same day. Other offices send blood samples to an outside laboratory for these tests to be performed. If an outside laboratory is used, results are generally available within 1 to 2 days.

Because a recent meal changes the blood and may affect the results of a chemistry profile, your veterinarian may recommend that your pet not receive any food for 8 to 12 hours before blood is drawn. In most cases, water can still be offered. Please let your veterinarian know if this temporary fast will be a problem for you or your pet.

Also, be sure to tell your veterinarian about any medications or supplements that your pet is receiving, as some products can alter the results of a chemistry profile.

What Is a CBC and Chemistry Profile Used For?

A CBC and chemistry profile is an important component of wellness blood work. Your veterinarian may recommend wellness blood work during your pet’s regular exams. Even if your pet is young and healthy, performing this testing periodically helps establish “normal” values for your pet. The next time blood work is performed, your veterinarian can compare the results with
previous results to see if anything has changed. Depending on your pet’s age and health history, additional tests (such as thyroid testing or urinalysis) may also be recommended as part of wellness testing. For seniors or chronically ill pets, your veterinarian may recommend blood work more frequently. Wellness blood work screens for many medical conditions, including diabetes and kidney disease. In many cases, early diagnosis and management can improve quality of life and the long-term prognosis for pets with chronic illnesses.

When a pet presents with clinical signs indicating an illness, a CBC and chemistry profile is often performed very early during the diagnostic process. Even if results of this initial testing are all “normal,” this information can rule out a variety of medical conditions. If results of a CBC and chemistry profile are abnormal or inconclusive, your veterinarian may recommend additional testing to get closer to a diagnosis.

A CBC and chemistry profile is also part of routine blood work that is performed before a pet undergoes general anesthesia for a surgical procedure. If test results are abnormal, your veterinarian may recommend additional precautions to help ensure your pet’s safety during the procedure. Your veterinarian may also recommend postponing the procedure or choosing an alternative treatment option.

Performing a CBC and chemistry panel poses minimal risk for your pet, and in many cases, the information your veterinarian gains from this testing is invaluable.
Cherry Eye (prolapsed nictitans gland)

- Cherry eye is a condition in which the tear-producing gland of the eye appears as a red, round mass on the inside corner of the pet’s eye.
- The condition usually occurs in young dogs and, rarely, in cats.
- Surgical correction is usually required to secure the gland in place behind the third eyelid.

What Is Cherry Eye?

Like people, animals have upper and lower eyelids. However, they also have a third eyelid on the inside corner of each eye for extra protection of the eye’s surface. Tucked beneath this third eyelid is the nictitans gland, a small, pinkish mass of tissue that helps produce tears to lubricate the eye.

Occasionally, this gland can stick out from behind the third eyelid and become inflamed and swollen. This condition is called a prolapsed nictitans gland, or, more commonly, cherry eye, most likely because the gland appears as a red, round mass on the inside corner of the pet’s eye. Cherry eye may occur in only one eye or in both eyes.

What Causes Cherry Eye?

Normally, the nictitans gland is anchored into place. Weak attachments may cause it to become loose and protrude outside the third eyelid. Cherry eye usually occurs in young dogs under the age of 2 years and in breeds such as Boston terriers, cocker spaniels, beagles, and bulldogs. It is not common in cats.

What Are the Signs of Cherry Eye?

If your pet has cherry eye, you will notice a round, red swelling on the inside corner of the pet’s eye. The eye itself may appear to be red and inflamed, and your pet may produce more tears and blink more often.

How Is Cherry Eye Treated?

Surgical correction is generally required to secure the gland back in place. This surgery is preferred over removal of the gland, because the gland is an important source of tears to lubricate the eye. Removal of the gland may result in another condition, called dry eye, in which the eye does not produce enough tears.

After surgery, your pet may require topical medications to reduce swelling of the gland and an Elizabethan collar to prevent pawing at the eye.
Chest Radiography

- Chest radiography is painless, very safe, and noninvasive, and it can sometimes be performed during an outpatient visit while you wait.
- Chest radiography helps evaluate the size, shape, and position of the heart.
- Chest radiography helps evaluate the lungs for the presence of fluid or other abnormalities.
- Radiography can help your veterinarian diagnose numerous medical conditions involving the heart and lungs.

What Is a Radiograph?

A radiograph (sometimes called an x-ray) is a type of photograph that reveals the body’s bones and internal organs. The procedure for obtaining a radiograph is called radiography. Radiography is a very useful diagnostic tool for veterinarians because it can help obtain information about almost any organ in the body, including the heart, lungs, and abdominal organs, as well as the bones.

How Does Radiography Work?

Traditional radiography machines use very low doses of radiation delivered in a focused beam (an x-ray) that is aimed at a photographic plate containing specialized photographic film. The patient is positioned between the x-ray beam and the photographic plate. When the x-ray beam passes through the patient, an image is created on the specialized film. Structures that are very thick or dense, such as bone, do not allow much of the beam to penetrate and expose the film. These structures look very bright or white on a radiograph. In contrast, structures that are not dense (such as air in the lungs) allow the beam to penetrate more completely and expose the film. As a result, these structures appear relatively dark when the radiograph is viewed. Structures that are of medium density, such as fluid, appear in various shades of gray on the film.

Digital radiograph machines use a very similar principle, but the final image can be much sharper and can show greater detail than images obtained from traditional radiography machines.

How Is Chest Radiography Performed?

Chest radiography is painless, safe, and completely non-invasive. Your pet will be positioned on the x-ray table, and the width of the chest will be measured. This is necessary so that the intensity of the x-ray beam can be precisely adjusted to capture the most accurate information. Once the measurements are complete, the x-ray tube (which will generate a beam of low-level radiation) is aligned over the chest, and a button is pushed on the radiograph machine to take the “photograph.” This part of the procedure is very much like taking a photograph with a camera. In most cases, at least two pictures are taken from different angles to create a three-dimensional image of the heart and lungs.
Your veterinarian may recommend that your pet receives sedation before undergoing radiography. Patients that are sedated are much easier to position because they are completely relaxed. Sedation may also be recommended if the patient is in pain.

What Are Chest Radiographs Used For?

Chest radiography may be recommended to investigate a variety of clinical signs, including:

- Coughing
- Excessive panting
- Difficulty breathing
- Lethargy
- Weight loss

Chest radiography can evaluate the size, shape, and position of the heart. Heart enlargement, for example, may indicate heart disease.

Chest radiographs also evaluate the lungs for abnormalities. Normally, the lungs should be filled with air, so they should appear relatively dark on a radiograph. If there is other material in the lungs, such as fluid, blood, or scar tissue, the lungs will appear brighter than normal. Fluid in the lungs may suggest pneumonia, hemorrhage (bleeding), heart disease, or another illness. Other densities in the lungs may suggest a tumor, scar tissue, or other abnormality. Asthma and emphysema can also change the way the lungs appear on radiographs.

Chest radiographs also show the trachea (windpipe) and large airways. Diseases and conditions such as bronchitis and a collapsing trachea can change the appearance of these organs on radiographs. Tumors, depending on their size and position, can also be detected using radiography.

What Are the Benefits and Risks of Chest Radiography?

Radiography has many benefits and very minimal risks. It is very safe, completely painless, and non-invasive. It is available in most veterinary practices and can sometimes be performed during an outpatient visit while you wait. Depending on the type of radiographic study being performed, the procedure may take only a few minutes.

The risks of radiography are minimal. Because the level of radiation exposure needed to perform radiography is very low, even pregnant females and very young pets can undergo radiography. If a pet is very unstable, such as a pet with severe breathing difficulties, the stress of performing radiography may be a concern. In these cases, it may be necessary to stabilize the pet (with oxygen or other therapy) before attempting to perform radiography. In the vast majority of cases, the benefits of performing radiography far outweigh the possible risks. Radiography is a valuable tool for your veterinarian because it can provide critical information about many different illnesses and medical conditions.
Chocolate Toxicosis

- Toxicosis is disease due to poisoning.
- Chocolate toxicosis is a common problem in dogs, but less common in cats.
- Depending on how much chocolate is ingested, the signs can range from a simple stomach upset to life-threatening problems.
- The toxic ingredients in chocolate include caffeine and a chemical called theobromine.
- Dark chocolate and baking chocolate are more toxic than white chocolate, but all of these should be withheld from pets.
- Cacao bean mulch used in gardens can cause chocolate toxicosis if a large enough amount is eaten.

What Is Chocolate Toxicosis?

Toxicosis is disease due to poisoning. Chocolate contains two ingredients that can be toxic to pets—caffeine, and a chemical called theobromine. While dogs and cats are both very sensitive to the effects of caffeine and theobromine, cats are usually not attracted to chocolate, so chocolate toxicosis tends to be less common in cats.

The amount of caffeine and theobromine in chocolate varies with the type of chocolate. The general rule is the more bitter the chocolate, the more caffeine and theobromine it is likely to contain. For example, unsweetened baking chocolate contains almost seven times more theobromine than does milk chocolate. White chocolate is also potentially toxic but contains less caffeine and theobromine than milk chocolate does.

Cacao bean mulch contains enough theobromine to be toxic if a dog or cat eats large enough amounts of it. Other products that contain caffeine include coffee, tea, and cola soft drinks. These should be withheld from pets as well.

Signs of Chocolate Toxicosis

Clinical signs of chocolate toxicosis can begin to occur within an hour of ingestion. Caffeine and theobromine are both stimulants of the brain and heart, so the clinical signs can include hyperactivity, increased heart rate, muscle tremors, and potentially death. Other clinical signs include the following:

- Vomiting
- Diarrhea
- Chocolate smell on breath
- Lethargy (weakness/tiredness)
- Panting
- Anxiousness, restlessness, and pacing
- Seizures

Complications associated with chocolate toxicosis can lead to death within 24 hours of ingestion.
Diagnosis

Caffeine and theobromine can be detected in the stomach contents and blood of animals that have eaten chocolate, but diagnosis of chocolate toxicosis is usually based on evidence that the pet has eaten chocolate. Owners may find candy wrappers, an empty baked goods tray, or other evidence that the pet has eaten something.

If chocolate ingestion is suspected, call your veterinarian immediately! Based on your pet’s weight and an estimate of the amount of chocolate eaten, your veterinarian may be able to calculate the amount of caffeine and theobromine that was ingested and determine if your pet is at risk for a toxic reaction. For example, if a large dog eats a few small pieces of milk chocolate, the amount ingested may not be enough to cause a problem. However, if a small dog eats one or two squares of bittersweet baking chocolate, this could be an emergency. Don’t forget that chocolate can have other dangerous components. For example, macadamia nuts and raisins are also toxic to animals, so be sure to tell your veterinarian if the chocolate that your pet ate contained any other components.

Treatment

As soon as you discover that your pet has eaten chocolate, contact your veterinarian immediately. If your pet ingested enough chocolate to be dangerous, immediate treatment will be recommended. If the ingestion is detected early enough, your veterinarian may be able to induce vomiting to clear the chocolate from the stomach before it gets absorbed. Further care, including hospitalization for cardiovascular monitoring, may still be recommended. If ingestion occurred more than a few minutes ago, it may be too late to induce vomiting. Your veterinarian may administer activated charcoal to your pet. This is a liquid that is given by mouth and limits absorption of anything in the stomach and upper intestines. Your veterinarian may also recommend hospitalization for administration of intravenous fluids (to help remove the chemicals from your pet's system) and for monitoring. Because caffeine can be reabsorbed by the bladder wall, keeping your pet’s bladder empty can also help speed up recovery time. This is managed by frequent walking or by placing a urinary catheter.

Prevention

Dogs have a tremendous sense of smell and tend to be very curious about their surroundings. If there is chocolate in your home, there’s a good chance that your dog will find it and eat it. This means that leaving candy on a countertop or on a coffee table puts your pets at risk. Dogs will eat the entire contents of a “trick or treat” bag or an Easter basket if they have a chance. They will even knock trays of brownies or cookies off the stove and eat them. Make sure to keep all tempting chocolate treats away from your pets.

Other foods that can be dangerous to pets include raisins (which can cause kidney damage), macadamia nuts (which can cause muscle tremors and shaking), xylitol artificial sweeteners (which can cause low blood sugar, seizures, and liver failure), onions (which can cause anemia), and uncooked bread dough (which can expand in the stomach and require surgical removal).
Chronic Kidney Disease

- *Kidney disease* is a very general term used to describe several conditions that can affect the kidneys or damage kidney cells. Some types of kidney disease are reversible. Chronic kidney disease is a progressive disease that is not curable.
- Clinical signs associated with chronic kidney disease include increased drinking and urination, weight loss, and appetite loss.
- Pets can sometimes experience a good quality of life for many years after being diagnosed with chronic kidney disease. Your veterinarian will evaluate your pet and discuss the best methods of disease management with you.

What Is Kidney Disease?

*Kidney disease* is a very general term used to describe several conditions that can affect the kidneys or damage kidney cells. If kidney disease progresses, it can eventually lead to kidney failure and death. Here are just a few medical conditions that can be associated with kidney disease:

- Nephritis: infection of the kidneys, including the spread of systemic diseases (e.g., leptospirosis, Lyme disease) that can cause kidney damage
- Nephrotoxicosis: damage to kidney cells associated with a drug or poison (such as antifreeze)
- Polycystic kidney disease: a genetic condition in which kidney cells become cysts, losing their ability to function properly
- Kidney stones
- Heart failure (heart disease can decrease the blood supply to the kidneys, which can damage kidney cells)

The kidneys are responsible for several important functions in the body, including the following:

- Eliminating waste products through the urine
- Producing a hormone involved in the production of red blood cells
- Helping to maintain the body’s fluid balance/hydration
- Participating in the breakdown and elimination of many types of drugs
- Helping regulate levels of important electrolytes such as potassium and sodium

Kidney disease reduces the kidneys’ ability to carry out these functions, resulting in illness and (often) further progression of disease.

How Is Chronic Kidney Disease Different?

The term *kidney disease* describes many conditions that can affect the kidneys. *Kidney failure* describes a condition in which the kidneys cannot effectively eliminate waste products, maintain hydration, and help regulate the balance of electrolytes in the blood. Despite how the term may sound, *kidney failure* does not mean that the kidneys stop producing urine. In fact, because the kidneys can no longer concentrate urine, *increased* urine production is often one of the key
clinical signs associated with kidney failure. Urine production does not stop completely until kidney failure has progressed to the very end stage, which is fatal.

Kidney failure can be acute (occurring over a period of hours or days) or chronic (occurring over a period of weeks to months or longer). Antifreeze toxicosis is an example of a condition that can cause acute kidney failure. If diagnosed quickly and treated aggressively, acute kidney failure can be reversed in some cases, and the pet can go on to live a normal life.

In contrast, chronic kidney failure, or chronic kidney disease (CKD), is not reversible. CKD can be caused by conditions such as polycystic kidney disease or kidney stones, but in senior pets, it is commonly the result of an age-related decline in kidney function.

CKD tends to be progressive, meaning that it gets worse over time. Although CKD is not reversible, it is often possible to slow the progression of the disease and manage some clinical signs so that your pet is more comfortable.

What Are the Clinical Signs of Chronic Kidney Disease?

The clinical signs of CKD often start off as very mild and increase in severity as the disease progresses:

- Vomiting
- Appetite loss
- Increased drinking and urination
- Dehydration
- Lethargy (tiredness)
- Weight loss
- Constipation
- Decreased grooming
- Drooling (due to nausea or ulcers in the mouth)

How Is Chronic Kidney Disease Diagnosed?

As with many other medical conditions, diagnosis of CKD frequently begins with your veterinarian obtaining a medical history from you. Among other things, your veterinarian may ask about any medications or supplements your pet has received; changes in appetite, drinking, or urination; previous illnesses; or any current signs of illness.

Diagnosis of kidney disease may require a combination of several tests. Your veterinarian may not recommend all of these tests, but the following are some common ones:

- **CBC and chemistry profile:** These tests are commonly performed together as part of a wellness screen or initial blood testing when a pet is ill. These tests provide an overview of many of your pet’s organ systems, including the kidneys. The CBC (complete blood cell count) shows the numbers of red blood cells (needed to carry oxygen to all the body’s tissues), white blood cells (needed to help fight off infection), and platelets.
Because the kidneys are involved in the production of red blood cells, pets with CKD may have low numbers of these cells. The white blood cell count may also be abnormal if infection is present. The chemistry profile measures the levels of several substances that can change if there is a problem with the kidneys, such as CKD.

- **Urinalysis**: Evaluation of a urine sample from your pet can provide critical information about how well the kidneys are working. Urine that is too diluted or that contains material that should not be present can indicate that a pet may have kidney disease.
- **Radiography (obtaining x-rays)**: X-rays of your pet’s abdomen may show kidney stones or abnormally shaped or sized kidneys.
- **Sonographic evaluation of the abdomen**: Evaluation of the abdomen by ultrasonography is a very useful test for examining the kidneys. The ultrasound machine is connected to a small, handheld probe that is held against your pet’s abdomen. The probe sends out painless sound waves that bounce off structures in the abdomen (such as the kidneys) and return to a sensor inside the ultrasound machine. This creates an image on a screen that shows your veterinarian the structure of your pet’s internal organs. The ultrasound can also “look inside” organs (like the kidneys) to detect masses, cysts, or other problems that can contribute to CKD.

**How Is Chronic Kidney Disease Treated?**

CKD is a progressive, irreversible condition. It is not technically “treatable” or “curable,” but in many cases, it can be well managed. Effective management generally focuses on slowing the progression of disease and improving quality of life for the patient.

Pets that are severely ill from CKD may need hospitalization and intensive care to become stable enough to continue recovering at home. At home, medications and supplemental fluids can often effectively manage the condition. There are even special diets and dietary supplements that can help some pets with CKD. Periodic blood testing and urine evaluations are often recommended to assess the pet’s response to management and determine how quickly the disease is progressing.

Pets can sometimes experience a good quality of life for many years after being diagnosed with CKD. Your veterinarian will evaluate your pet and discuss the best methods of management with you.

Although CKD is frequently not preventable, regular physical examinations and wellness screening tests can increase the chances of early diagnosis and effective management.
Chronic Otitis

- Chronic ear infections may involve bacterial or yeast overgrowth in the external, middle, or inner ear.
- Chronic infection can permanently damage the ear canal and cause pain, neurologic signs, and deafness.
- Ear infections are usually secondary to an underlying condition that allows for an unhealthy ear environment.
- Treatment is based on eliminating the bacteria or yeast with antibiotics or antifungal medication while working to resolve the underlying condition.
- Regular ear cleanings and resolution of the underlying condition help to prevent recurrence.

What Is a Chronic Ear Infection?

Ear infections are usually secondary to inflammation of the external ear canals (the tube-shaped part of the ear visible under the ear flap). Inflammation of the canals leads to the reproduction of normal bacteria and yeast that live in the ear to the point where the body is unable to control their numbers (called *overgrowth*). Other bacteria can also take advantage of the inflammation and unhealthy environment inside the ear to establish infection. The overgrowth of these organisms causes more inflammation. Inflammation of the ear canal causes swelling, making the tube narrower than usual. Inflammation also causes an increase in the production of wax. The ears become very itchy and painful. Severe ear infections can lead to eardrum rupture and middle and inner ear infections. Deep infections can lead to deafness and neurologic signs.

Certain disorders or diseases may be the primary reason ear infections develop. These conditions include:

- Allergies (environmental and food)
- Ear mites
- Foreign bodies
- Skin disorders (like seborrhea)
- Thyroid disease (in dogs)
- Tumors or polyps in the ear

Ear infections may recur because of the inability to control the original infection or treat the underlying cause. Chronic changes lead to future infections, and scar tissue and permanent narrowing of the ear canals can make future infections difficult to treat.

What Are the Signs of an Ear Infection?

An external ear infection first shows signs of local inflammation (redness, discharge). Pets may shake their heads, scratch their ears, or rub their ears against furniture or the floor. Some pets with severe infections may cry or groan as they rub and scratch their ears. Some pets scratch so severely that their nails create wounds on the skin around their face, neck, and ears.
External ear infections may progress to involve the middle and inner ear, leading to more serious signs of disease:

- **External ear infection (otitis externa)**
  - Itchy or painful ears
  - Head shaking
  - Discharge and odor from the ears
  - Narrowing or even closing of the canals

- **Middle ear infection (otitis media)**
  - Paralysis of the nerves in the face
  - Dry eye
  - Hearing loss
  - Abnormal pupil size

- **Inner ear infection (otitis interna)**
  - Inability to keep balance, stand, or walk
  - Nausea
  - Head tilt

**How Is an Ear Infection Diagnosed and Treated?**

During a physical examination, your veterinarian will look in the ear for the presence of inflammation, redness, discharge, growths, or other findings that may indicate an ear infection. Sometimes, a cotton swab is used to collect debris from the ear. This material can be placed on a slide and examined under a microscope to determine if the infection is due to yeast, bacteria, or mites. Your veterinarian may also collect a sample of ear debris for culture and sensitivity testing, which identifies the exact organisms present and helps your veterinarian select the best antibiotic to use.

In severe cases, or if the animal is in too much pain to permit an examination of the ears, sedation may be needed to evaluate the ears, collect samples of discharge, clean the ears, and initiate treatment. With the pet sedated, the ears can be gently flushed to remove debris and facilitate better examination of the ear. Radiographs (x-rays) and other diagnostic tests can be performed while the pet is sedated to determine if the middle or inner ear are also involved.
Once the infection has been identified, most animals with chronic ear infections can be treated at home. Ear mites are relatively easy to treat with medication placed directly into the ear or applied topically between the shoulder blades. Most yeast and bacterial infections can be treated with regular cleanings and topical or oral medication. When inflammation is severe, a steroid may be needed to give comfort to your pet and decrease the swelling around the ear canals.

If there are underlying problems such as thyroid disease or seborrhea, these must also be addressed to clear the infection and reduce the chances of recurrence.

If the ear canals have been permanently narrowed or damage is otherwise severe, surgery may be recommended to allow for drainage and application of medication. In other cases, more extensive surgery may be recommended to prevent the pet from being in chronic pain due to a permanently deformed, infected ear.

**How Can Ear Infections Be Prevented?**

Once an infection has been cleared, maintaining a healthy ear environment with regular cleaning helps prevent recurrence. Unfortunately, regular cleaning isn’t always enough. Underlying diseases such as allergies and skin disorders must be identified and resolved in order to help avoid future infections.
Coccidiosis

- Coccidiosis is an intestinal condition caused by a single-celled parasite.
- Dogs and cats swallow cysts containing the parasite from contaminated environments, usually during grooming.
- Signs of coccidiosis include watery diarrhea with blood or mucus, and possibly vomiting and lethargy (tiredness).
- Puppies and kittens are more severely affected than adult animals.
- People cannot be infected with the coccidia that affect their pets.
- Diagnosis is made by identifying the parasite cysts during a fecal exam.
- Pets are usually treated with an oral medication for 5 to 10 days.

What Is Coccidiosis?

Coccidiosis is an intestinal condition caused by a microscopic, single-celled parasite. While there are several types of coccidia, dogs with this condition are usually infected with *Isospora canis*, while cats are infected with *Isospora felis*.

What Causes Coccidiosis?

Infected dogs and cats shed cysts containing the parasite in their stool. These cysts can survive in the environment for as long as a year. Other pets become infected by swallowing the cysts from a contaminated environment, usually during grooming. Dogs and cats can also contract the parasite by eating an infected rodent.

Once inside the pet’s digestive tract, the cysts break open, and the parasite enters the intestinal cells, where it reproduces. The cell eventually ruptures, releasing the parasites and damaging the intestinal lining.

What Are the Signs of This Condition?

Signs of coccidiosis include watery diarrhea that may be tinged with blood or mucus. Pets with this condition may also experience vomiting, a loss of appetite, and lethargy (tiredness). Puppies and kittens can be severely affected, exhibiting dehydration, weight loss, and, in some cases, death.

Older pets usually have milder signs. Some pets may show no signs at all but still shed the parasite cysts in their feces.

Is Coccidiosis Contagious?

The coccidia species that infect dogs do not infect cats, and vice versa. However, the cysts in the feces from one dog can infect another dog, and the cysts in the feces from one cat may be infective to another cat. People generally cannot become infected with the species of coccidia that affect dogs and cats.
How Is Coccidiosis Diagnosed?

A diagnosis of coccidiosis is made by identifying parasite cysts on a fecal exam. Since the cysts are often difficult to find on a fecal exam, your veterinarian may choose to treat your pet if there is a high suspicion of coccidiosis, even if no cysts are found. This precautionary treatment is not harmful to your pet.

Any new pet being introduced into the home should have a fecal sample tested as soon as possible to diagnose coccidiosis or other intestinal parasite infections. Your veterinarian may also recommend fecal tests during your pet’s regular physical examinations.

How Is Coccidiosis Treated?

Several oral medications may be used to treat this condition. Your pet will most likely require daily treatment for 5 to 10 days. If you have a multi-dog household, but only one dog shows signs of coccidiosis, it’s a good idea to treat the other dogs to prevent reinfection from other pets that may carry the parasite but show no signs. The same goes for multi-cat households.

Pets (particularly puppies and kittens) with severe dehydration may need fluid therapy.

How Can I Prevent Coccidosis?

To prevent your pet from being infected from parasite cysts in the environment, wash his or her bedding and clean the kennel area with an ammonia product. Pick up and dispose of feces as soon as possible, and keep your pet from hunting animals when outside.
Cognitive Dysfunction

- Cognitive dysfunction (CD) in dogs and cats can be compared with Alzheimer’s disease in humans, although the conditions are not identical.
- Before diagnosing CD, your veterinarian may recommend diagnostic testing to rule out other medical conditions that can cause similar clinical signs.
- Medications can help some pets with CD. There is a diet for dogs with CD, and nutritional supplements may also help manage the problem in pets.

What Is Cognitive Dysfunction?

Most people are familiar with terms like Alzheimer’s disease or senility as they apply to humans. However, elderly dogs and cats develop a very similar condition known as cognitive dysfunction (CD).

Researchers are still trying to understand all the changes that occur in the brains of pets with CD, but studies have determined that deposits of a protein called beta-amyloid play a role. These deposits have an adverse affect on brain functioning. Interestingly, research on Alzheimer’s disease in humans has reported similar findings.

The exact prevalence of CD in dogs and cats is not well documented. However, evidence suggests that the disease becomes more common as pets age. In one study, CD affected 47% of dogs between the ages of 11 and 12 and 86% of dogs between the ages of 15 and 16.

What Are the Clinical Signs of Cognitive Dysfunction?

Some of the subtle clinical signs of CD can be difficult to distinguish from regular signs of aging. These include things like slowing down and becoming less active. However, dogs and cats with CD also exhibit other signs, including the following:

- House soiling (“forgetting” how to use the litterbox or eliminating outside the box for cats)
- Decreased activity and attention
- Disorientation
- Changes in sleep cycles (pacing or wandering and crying at night)
- Withdrawing from interactions with family members

Some pets can seem to not know family members and even exhibit aggressive behavior toward other pets or members of the household, as if they are strangers. Pet owners may also report that a pet has “forgotten” tricks, behaviors, and regular routines that were well established earlier in life.

How Is Cognitive Dysfunction Diagnosed?
Your veterinarian will likely begin the diagnostic process for CD by reviewing your pet’s medical history. Valuable information can include the duration of the observed abnormalities, the severity of the problem, and whether the problem seems to be getting worse over time.

The most important aspect of diagnosing CD is to rule out other medical problems that can cause similar clinical signs. For example, an elderly cat that starts soiling outside the litterbox may have another illness such as a bladder infection, diabetes, thyroid disease, or a kidney problem; all of these conditions can cause increased frequency of urination. Similarly, a cat that has arthritis may have difficulty getting into and out of the litterbox and therefore be reluctant to use it. Senior pets can also begin to lose their vision and hearing, which may affect how they interact and respond to family members. Your veterinarian may recommend a variety of diagnostic tests to rule out other medical issues before making a diagnosis of CD. Preliminary tests may include the following:

- Blood tests, including a chemistry panel and complete blood cell count (CBC)
- Urinalysis and urine culture testing to evaluate kidney function and look for evidence of kidney or bladder infection
- Radiographs (x-rays) to look for evidence of arthritis and to check for cancer or other changes involving organs in the abdomen or chest
- Abdominal ultrasonography
- Specific blood tests to evaluate thyroid function and look for other medical condition

**What Are the Treatment and Outcome for Cognitive Dysfunction?**

While there is no cure for CD, treatment may help improve the signs and slow the progression of the disease. Depending on the severity of the clinical signs, there are medications that can help dogs with CD, but there is currently no licensed medication for cats with the condition. There is a diet that can help dogs with CD, and nutritional supplements may also help manage the problem in pets.

There is no single medication that can help all pets with CD. However, it has been shown that exercise and mental stimulation can help slow the progression of CD. Regular exercise that is appropriate for an older pet, combined with environmental enrichment with toys and play activities, may help keep pets more alert as they age.

If the problem becomes too severe and issues such as house soiling, aggression, and poor quality of life become intolerable, euthanasia can be a reasonable option to discuss. Your veterinarian can help you and your family sort out these issues and try to help you make the best decision for you and your pet.
Colitis

- Colitis is a condition in which the colon, the last portion of the digestive tract, is inflamed.
- Dogs and cats may experience colitis for a few days or for many months.
- Signs of colitis include diarrhea with mucus and/or fresh blood, straining to defecate, and possibly vomiting.
- There are many causes of colitis, including stress, parasites, intestinal bacterial overgrowth, altered diet, food allergies, and immune-mediated conditions.
- Diagnosis may require fecal tests, abdominal radiographs (x-rays), abdominal ultrasounds, and/or a biopsy of the intestinal tissue.
- Treatment may include antibiotics, antiparasite medications, dietary fiber supplementation, probiotics, a special diet, or immunosuppressive medications.

What Is Colitis?

Colitis is the inflammation of the colon, which is the last portion of the digestive tract. Under normal conditions, the colon stores feces while absorbing fluid and nutrients. When the colon is inflamed, these functions are affected. Additional fluid is left in the colon, resulting in diarrhea.

Colitis may be acute, occurring for only a few days, or the condition may be chronic and last for months. Any dog or cat may experience colitis.

What Are the Signs of Colitis?

Diarrhea, often with mucus and/or fresh blood, is the hallmark of colitis. Pets with colitis often defecate with greater urgency and frequency. They may strain while defecating, causing some pet owners to mistakenly believe the pet is constipated. Some pets may vomit. Despite these signs, weight loss is usually not associated with colitis.

What Causes this Condition?

Acute forms of colitis may occur during or after stressful situations, such as boarding, grooming, or thunderstorms. Colitis can also happen when pets eat table food, get into the garbage, or eat anything that isn’t part of their usual diet, including nonfood items, such as rocks and clothing.

Colitis may also be caused by intestinal parasites, such as whipworms or *Giardia*, or by an overgrowth of certain types of bacteria in the digestive tract.

More chronic forms of colitis are often associated with allergies to dietary proteins or with the chronic immune stimulation associated with inflammatory bowel disease.

How Is Colitis Diagnosed?
Your veterinarian will probably start with a fecal exam to check for parasites and bacterial overgrowth. A rectal exam may also be performed to detect strictures or growths that may cause straining.

If a foreign body is suspected, radiographs (x-rays) may be recommended. In some cases, an abdominal ultrasound may be recommended as well.

For more chronic cases, biopsies (tissue samples) of the colon are the best way to confirm a diagnosis. Biopsies may be obtained during abdominal surgery or with endoscopy using a fiberoptic endoscope (a long, narrow tube with a tiny camera at the tip). The endoscope can be inserted into the rectum to help your veterinarian evaluate the rectum and large intestine. The instrument includes a small forceps, which your veterinarian can guide, using the camera, to take tissue samples.

How Is Colitis Treated?

Treatment for colitis depends on the cause. Depending on the results of the fecal exam, antibiotics or antiparasite medications may be all that is needed to clear up acute cases of colitis. Probiotics (beneficial bacteria) may be added to the diet to re-establish the proper balance of microorganisms in the digestive tract.

For dogs that have eaten garbage or table food, fasting for 24 to 48 hours or feeding a bland diet may be enough to decrease or eliminate the inflammation in the digestive tract. Food should never be withheld from cats for any length of time, however, so a bland diet is a better alternative. Once the pet is feeling better, you can gradually mix in more of the regular diet.

In either case, you should always consult your veterinarian before fasting your pet or changing the diet. If a foreign body is suspected, surgery may be needed, and waiting a few days may worsen the outcome.

Many pets with colitis are treated with dietary fiber supplementation. Fiber helps to bind the additional fluid in the colon and firm up the stools.

Pets with a food allergy may require a hypoallergenic diet. Dogs and cats with immune-mediated conditions may require immunosuppressive medications.
Common Household Poisons

- Many common food items or household products can sicken or even kill animals.
- Be aware of what substances may be toxic to your pet, and store and use them safely.
- If you think your pet has eaten something poisonous, call your veterinarian or a pet poison hotline immediately.

The Basics

Your home can hold a lot of unrecognized dangers for your pet. Many common food items or household products can sicken or even kill animals. However, a few simple precautions can help keep your pet safe.

Pets are not “mini people.” Animals react to substances in food and medicines completely differently than people do, so just because something doesn’t make a person sick doesn’t mean it is okay for a pet. Also, most pets are much smaller than people, so what may seem like a harmless amount of a food or drug can make them ill.

Pets are curious. If something smells good, they’ll eat it. If they can get into a container, they will. Be aware of what substances may be toxic to your pet, and store and use them safely.

Chocolate

If you suspect that your pet has consumed any amount of any chocolate, call your veterinarian. However, not all chocolate is equally dangerous to pets. In general, the darker the chocolate, the more toxic it is to animals. Baker’s chocolate is the most dangerous because it contains the highest concentration of a substance called methylxanthine. Pets that eat too much of this substance can have vomiting, diarrhea, excessive thirst and urination, hyperactivity, and, in severe cases, abnormal heart rhythms, tremors, and seizures.

Other Food

It is generally not a good idea to give your pet table food. Many human foods can cause digestive upset, which can be severe. Also, several common ingredients in human food can be toxic to pets. Just a few are:

- Avocados
- Grapes and raisins
- Macadamia nuts
- Onions, garlic, and chives
- Xylitol (a common sugar-free sweetener, often found in chewing gum and commercial baked goods, that can cause life-threatening liver failure)
- Yeast dough

Some beverages, such as coffee and alcohol, can also be poisonous to pets.
Grapes are sometimes recommended as treats for dogs; however, cases of serious kidney damage related to eating grapes have been reported. Raisins have also been reported to be toxic to dogs.

In general, do not store or leave food meant for you and your family in a place where your pet may be able to get to it. Take special care during holiday seasons and festive occasions, when it is very easy to become distracted and leave food or drinks on a counter or coffee table.

**Medicines**

Never give your pet a medicine meant for people unless you’ve been told to by a veterinary professional. Many common over-the-counter drugs can be extremely toxic to pets. Don’t leave medicine bottles out where pets can reach them (a determined dog can chew through a childproof cap), and pick up any dropped pills immediately. Use the same caution with dietary supplements or with products you buy at a health food store.

**Cleaning Products**

Read the warning labels on the household cleaning products you use, and store as directed.

**Outdoor Hazards**

If you have a garage, shed, or garden, you probably have at least some of the following:

- **Plants**: Learn which plants can be toxic to pets and under what circumstances. Tomatoes, for example, are in the nightshade family. Many lilies, flowers, and common ornamental shrubs can be toxic. The American Society for the Prevention of Cruelty to Animals (ASPCA) maintains a comprehensive online list ([http://www.aspca.org/pet-care/poison-control/](http://www.aspca.org/pet-care/poison-control/)).
- **Pest poisons**: Poisons meant to kill rodents, insects, or weeds are very common causes of poisoning in pets. Be very careful how you apply and store any poisons around your home.
- **Garden products**: Cocoa mulch, fertilizers, and compost piles are also unsafe for pets. Make sure any mulch or fertilizer you apply to your yard is safe for pets to play in (and possibly eat). Keep your pet out of areas treated with toxic products. Compost piles can grow bacteria and fungi that are highly toxic to pets, so if you have a compost pile, make sure your pet cannot get into it, and don’t compost dairy or meat items.
- **Garage chemicals**: Any chemical in your garage can be dangerous to pets. Antifreeze, in particular, can be deadly. Store all chemicals out of reach of your pet (just as you would for children), and carefully mop up any spills.

**In an Emergency…**

If your pet does eat something he or she shouldn’t, time is critical. Call your veterinarian or a pet poison hotline immediately and be prepared to describe the following:

- What your pet ate
• How long ago
• How much

The ASPCA Animal Poison Control Center’s hotline number is 888-426-4435. The Pet Poison Helpline number is 800-213-6680. (Note: Callers will be charged a consultation fee.)

If possible, bring some of the substance, including any available packaging, with you if you are asked to bring your pet in for an examination.

Top 10 Pet Poisons

The ASPCA Animal Poison Control Center handles more than 100,000 cases of pet poisonings every year. Based on those cases, the top offenders are:

• Human medicines
• Insecticides
• Human food
• Rodenticides
• Veterinary medicines that are given incorrectly (e.g., wrong medicine, wrong amount)
• Plants
• Chemicals (e.g., antifreeze, pool/spa chemicals)
• Household cleaners (e.g., bleach, detergent)
• Heavy metals (e.g., lead paint chips, linoleum)
• Fertilizer
Congestive Heart Failure in Dogs

- Congestive heart failure is a condition in which a dog’s heart cannot deliver sufficient blood to the body.
- Dilated cardiomyopathy (a weakening of the heart walls) is one of the more common causes of this condition in dogs.
- Signs include coughing, difficulty breathing, abdominal distention (a pot-bellied appearance), difficulty exercising, and fainting episodes.
- Diagnostics to determine the underlying cause may include blood tests, radiographs (or x-rays), and echocardiograms.
- In most cases, the condition cannot be cured, but medications can help improve the dog’s quality of life and prolong survival.

What Is Congestive Heart Failure?

*Congestive heart failure* is a broad medical term that means that a dog’s heart cannot deliver sufficient blood to its body. This condition can be caused by a failure of the left side, the right side, or both sides of the heart.

When the heart starts to fail, the body can compensate to ensure that tissues receive the blood and oxygen they need. As the heart disease increases in severity, these compensatory mechanisms become overwhelmed. The heart is then unable to pump adequate quantities of blood, so fluid backs up in the body, causing congestion. With left-sided heart failure, fluid is retained in the lungs. With right-sided heart failure, fluid accumulates in the belly.

Congestive heart failure can occur at any time, but it happens most often in middle-aged to older dogs. Boxers, Doberman pinschers, and cocker spaniels may be genetically predisposed to certain types of heart failure.

What Causes Congestive Heart Failure?

While many conditions can lead to congestive heart failure in dogs, one of the most common causes is dilated cardiomyopathy. In this condition, the chambers of the heart become enlarged, which weakens the muscle walls so that they are unable to pump adequate amounts of blood to the body. As a result, fluid may back up into the lungs, making breathing difficult, or into the abdomen, giving the dog a pot-bellied appearance.

Other causes of congestive heart failure in dogs include:

- Heart valve deficiencies
- Defects in the heart walls
- Fluid in the sac surrounding the heart
- Heart rhythm abnormalities
- Heartworm disease
- Increased blood pressure
- Endocarditis (an infection of the heart valves)
• Tumors
• Pregnancy

What Are the Signs of This Condition?

In the early stages of congestive heart failure, your dog may show no signs at all. As the disease progresses, signs may include:

• Coughing
• Difficult or rapid breathing
• Difficulty exercising
• Weakness or lethargy (tiredness)
• Fainting episodes
• Gray or blue gums
• Abdominal distention
• Collapse
• Sudden death

What Diagnostic Tests May Be Needed?

To determine the cause of congestive heart failure, your veterinarian may recommend a number of tests, such as:

• Blood tests, including heartworm tests
• Chest radiographs (or x-rays) to assess the heart, blood vessels, and lungs
• An electrocardiogram (ECG)
• An echocardiogram (an ultrasound exam to evaluate heart structure and function)
• Blood pressure tests

How Is Congestive Heart Failure Treated?

In some cases, such as congestive heart failure that is caused by heartworm disease, treatment of the underlying condition may resolve some or all of the heart problems. If the problem is caused by a congenital condition (a heart defect that the dog has had since birth), surgical repair may be an option. In most cases, however, the problem cannot be cured, but treatment can help improve the dog’s quality and length of life.

Dogs with severe congestive heart failure may require initial hospitalization and oxygen therapy. If there is fluid in the abdomen, it may need to be removed to make your pet more comfortable.

There are many medications that your veterinarian may recommend to help reduce fluid buildup, improve heart function, and/or normalize heart rhythms. Your veterinarian will discuss each medication and its potential side effects with you. A low-sodium diet may also be recommended to help minimize fluid accumulation.
Most dogs with congestive heart failure require medications for the remainder of their lives. Periodic blood tests, radiographs, and echocardiograms are often needed to monitor treatment success and disease progression.
Conjunctivitis

- Conjunctivitis is inflammation of the conjunctiva (the tissues lining the inner eyelids and the white portion of the eye).
- Diagnosis is based on physical examination findings, but fluorescein staining and other tests may be recommended to determine the extent of the problem.
- Treatment usually involves applying medication to the eyes; follow-up examinations and diagnostic testing may be recommended.

What Is Conjunctivitis?

*Conjunctivitis* is the medical term used to describe inflammation of the conjunctiva—the soft tissues lining the inside of the eyelids and the white portion of the eye.

What Causes Conjunctivitis?

 Conjunctivitis can occur as part of an upper respiratory tract infection, a condition that resembles a common cold. It can also be associated with a localized problem that causes trauma to or irritation of the eyes, such as certain viral, bacterial, and fungal infections. Other causes include:

- Airborne irritants, such as cigarette smoke, dust, and perfumes
- Systemic illnesses (illnesses that affect the whole body), such as feline herpesvirus, feline immunodeficiency virus (FIV), canine distemper, and bartonellosis (infection with the bacteria that cause “cat scratch disease” in humans)
- Dry eye (a medical condition characterized by inadequate tear production)
- Entropion (a malformation of the eyelids that causes the edge of the lids to roll inward; the hairs on the eyelids scrape against the eye and cause irritation)
- Trauma to the eye, such as a blow

What Are the Clinical Signs of Conjunctivitis?

The clinical signs of conjunctivitis vary depending on the severity of the inflammation. Signs include:

- Discharge from the eyes (can be pus, watery, or thick, like mucus)
- Swollen eyelids
- Red, “bloodshot” eyes
- Squinting
- Rubbing the eyes with a paw or against other objects, such as furniture or the floor

If the conjunctivitis is severe, permanent damage to the cornea (the clear covering on the surface of the eye) can occur. This may result in blindness or require surgery to remove the eye to prevent further pain, inflammation, and infection.

How Is Conjunctivitis Diagnosed?
The medical history and physical examination findings can provide valuable information for your veterinarian. The medical history may include trying to determine how long the conjunctivitis has been going on and whether any other signs of illness have been observed. Physical examination findings may reveal evidence of underlying illness. For example, a cat with an upper respiratory tract infection may have a runny nose, sneezing, and a fever in addition to conjunctivitis.

Diagnosis of conjunctivitis is usually based on physical examination findings. If the pet is squinting because the eyes are painful, your veterinarian may begin the examination by applying a drop of liquid topical anesthetic directly to the eye. This is not painful, and after a few minutes, it makes the surface of the eye numb so the examination can proceed. During the examination, your veterinarian will likely look for foreign material, wounds, or other causes of conjunctivitis. Entropion can also be diagnosed during the physical examination.

While examining your pet’s eyes, your veterinarian may apply fluorescein stain to the eye. Fluorescein is a green-tinted dye that fluoresces (glows) under blue light. If the surface of the cornea is intact, the fluorescein dye will not stick to the eye. However, if there is a scratch, ulcer, or wound on the cornea, the dye adheres to the defect and can show your veterinarian where and how serious the injury is. Fluorescein staining is not painful and can provide valuable information about the condition of your pet’s eye.

If your veterinarian suspects that the conjunctivitis may be caused by dry eye, he or she may recommend a test to determine if tear production is adequate. Similarly, if a systemic illness (such as FIV) is suspected, blood testing or other diagnostic tests may be recommended.

**How Is Conjunctivitis Treated?**

Most cases of conjunctivitis are treated with drops or ointments applied directly to the eyes. If the conjunctivitis is associated with another illness, like an upper respiratory infection, antibiotics or other medication given by mouth may also be recommended. In many cases, the eye starts looking better after only a few treatments. However, all medications should be given as directed for the full course of treatment.

If the conjunctivitis is associated with entropion, surgery may be recommended to stop the problem from recurring. Similarly, if a pet has dry eye, long-term management may be recommended to control the condition.

Your veterinarian may recommend recheck exams during the course of treatment to monitor how well the condition is responding to therapy. Notify your veterinarian right away if your pet’s eye begins to look worse or you see other signs of illness.
Coping With Cancer

- Cancer is extremely common in pets.
- Cancer can be successfully managed in many cases.
- Most pets tolerate treatment extremely well.
- An accurate diagnosis and proper staging of a pet’s cancer are essential in order to pursue the best treatment and achieve the best possible outcome.
- Cancer treatment in pets is designed to provide the best quality of life for the pet for as long as possible.
- Monitor your pet closely throughout treatment.
- Discuss euthanasia options with your veterinarian and outline a plan so you know how to proceed if necessary.

What You Need to Know

Cancer is extremely common in pets. While a diagnosis of cancer in a beloved pet can be devastating, it is important for owners to realize that many forms of cancer can be successfully treated or managed to provide the pet with an excellent quality of life. It is also important to realize that in pets, just as in people, some types of cancer are now viewed as a chronic, rather than a terminal, disease. The best way to fight cancer is to detect it early and begin treatment promptly.

Signs of Cancer

To detect cancer at its earliest, be sure to bring your pet in for regular veterinary examinations. Between examinations, monitor your pet for signs of cancer and schedule a checkup if any of the following appear:

- Abnormal lumps, bumps, or swellings anywhere on the body
- Sores or lesions that do not heal
- Unexplained weight loss or changes in appetite
- Bleeding or discharge from any body opening
- Unpleasant odor
- Difficulty urinating or defecating
- Persistent lameness
- Drooling or any signs of mouth discomfort

Diagnosing Cancer

If cancer is suspected, it is very important for you and your veterinarian to have as much information as possible when making serious decisions regarding treatment. An accurate diagnosis is essential. Your veterinarian will also want to correctly stage your pet’s cancer. This will help your veterinarian determine how advanced the cancer is and what the projected success rates of various possible treatments might be. As a result, your veterinarian may recommend diagnostic procedures such as laboratory tests, biopsies, x-rays, ultrasound studies, and even exploratory surgery.
Treating Cancer

The goal of cancer treatment in pets is to provide the pet with the highest quality of life for as long as possible. Cancer treatments such as chemotherapy and radiation are generally tolerated extremely well by canine and feline patients.

When side effects occur, your veterinarian can prescribe anti-nausea and pain medications, as needed, as well as nutritional support to keep your pet comfortable during treatment.

In some cases, the cancer may be so advanced that your veterinarian may recommend palliative care only. This means that your pet’s veterinary team will seek to keep your pet as comfortable as possible for as long as possible without pursuing more aggressive treatment options. The primary goal of cancer care in pets is always to maintain the best quality of life possible for your pet.

What You Can Do to Help Your Pet Cope

- Be your pet’s advocate. Watch your pet closely for signs that he or she is either doing well or experiencing pain or discomfort, and keep your veterinarian informed.
- Keep all scheduled veterinary appointments, and stay in contact with your veterinary team. It is there to help you.
- Provide your pet with lots of comfort care. Spend as much time as possible with your pet; provide a quiet, comfortable place to rest and sleep; and provide nutritional support and plenty of fresh water as needed. Your pet may need to urinate and defecate more often because of cancer treatment, so make your pet’s “bathroom” as accessible as possible.
- Above all, enjoy your time with your pet!

Euthanasia Considerations

In the course of your pet’s cancer care, you may realize that the “bad” days are starting to outnumber the “good” days. When you feel that you have done the best that you, in your personal circumstances, can do for your pet, you may need to consider euthanasia. Many resources are available through your veterinarian or online to help you with this difficult decision. Most owners weigh not wishing to see a pet suffer against the desire not to deprive a pet of any remaining “good” days. When this time approaches for you and your pet, be sure to keep the lines of communication open with your veterinarian. Consult with him or her closely about your pet’s medical status and learn what to expect in the days or weeks ahead. Make sure you know what the practice’s procedures are for an emergency euthanasia, both during the business day and after hours, if your pet takes a sudden turn for the worse. Monitor your pet closely for signs that he or she may be in discomfort, and discuss these signs with your veterinary team.

Many owners worry about putting their pet through cancer treatment. However, pets typically handle cancer treatment extremely well.
Coping With the Loss of a Pet

- Grief is a natural reaction to the loss of a pet.
- Everyone grieves differently.
- Pet-loss support resources exist and may be helpful for you.

The Five Stages of Grief

Grief is a natural reaction to the loss of a pet. Regardless of whether the pet is old or young, or whether the loss is expected or sudden, family members and other people who were close to the pet will experience similar feelings when a beloved pet dies. These feelings, commonly called the five stages of grief, are the same as those experienced when a person passes away:

- Denial
- Anger
- Bargaining (i.e., trying to find an activity or action that either could have helped avoid the loss or that will take it away)
- Depression
- Acceptance

There is no “set” way that people experience these stages, and not everyone goes through all of them. Everyone grieves differently. What is important to know is that if you have lost a pet, it is normal to feel sad or angry. Sometimes, people who did not know the pet may say things that imply that grief is a reaction that should be reserved for the death of a person. This is not the case—grief is natural whenever you lose a loved one.

Remembering Your Pet

Some people find that performing a special activity, such as planting a flower or creating a memorial item, helps ease the sadness they feel at losing their pet. A memorial item might be something you make yourself, like a photo of the pet in a special frame, or something you can purchase and personalize for your pet—you can find many suggestions on the Internet by typing “pet memorials” into a search engine. Donating to an animal shelter or favorite charity in your pet’s name can also be a way of remembering your pet.

When—or if—to Get a New Pet

Just as there is no set way that people mourn, there is no set time. Some people feel that they are ready for a new pet quickly, and some people do not want to consider getting a new pet until time has passed. Some people decide not to have another pet, even when they have finished grieving. Because every pet is different, it is not possible to “replace” a pet, but every pet offers a new chance for companionship.

Professional Pet-Loss Resources
Many resources exist to help people who are grieving the loss of a pet. Two of these are the Argus Institute and the Veterinary Social Work Program at the University of Pennsylvania. Both of these sites have links to or phone numbers for grief counseling services. Your veterinarian may also be able to suggest local support groups or other people, such as therapists or spiritual counselors, who can help.
Corneal Ulceration

- The cornea is the clear covering of cells on the front of the eye; it can become damaged if scratched or irritated.
- Corneal ulcers can be very painful and can cause eye redness, tearing, and squinting.
- Corneal ulceration is a common eye condition of dogs and cats.
- If corneal ulceration is not treated quickly and appropriately, the pet could become blind.

What Is a Corneal Ulcer?

The cornea is the thin, transparent covering of cells on the front of the eye. The cells that make up the cornea are very fragile, so anything that rubs, scrapes, or irritates the eye can damage this thin layer of cells or rub some of them off. This is called a corneal ulcer. Corneal ulceration can occur if the eye is irritated by chemicals, dust, or inadequate tear production. Trauma, such as scratching, can also cause a corneal ulcer.

Entropion is a medical condition in which the pet’s eyelids roll inward and the eyelashes or other hairs (which are normally on the outside of the eyelid) are pulled underneath, where they can scrape against the cornea. This can lead to corneal ulceration.

Tears are a natural lubricant for the eye. When the eye doesn’t produce enough tears, the cornea can become irritated and, eventually, a corneal ulcer can form. This condition is commonly called dry eye, but the medical term is keratoconjunctivitis sicca (KCS). In addition, some viral infections, such as feline herpesvirus infection, can cause corneal irritation and ulceration.

There are two types of ulcerations: superficial, which affects only a small amount of the top layer of the cornea, and deep, which extends through the layers of the cornea and can result in severe scarring and even eye rupture.

Most cases of corneal ulceration heal without complication when treated promptly. If treatment is delayed, bacteria and other pathogens, such as viruses and fungi, get an opportunity to cause infection, which can further complicate the condition. Without proper treatment, or with severe injury, corneal damage can lead to blindness. If the eye is severely damaged, surgical removal of the eye may be recommended to prevent the pet from suffering with constant pain and infection.

What Are the Signs of Corneal Ulceration?

Corneal ulcers are extremely painful. Animals with this condition may squint, rub their eyes, or tear excessively. Sometimes, a thick mucous discharge can develop. Clinical signs of corneal ulceration also include the following:

- Closed eyelids
- Tearing, swelling, redness of the eyes
- Conjunctivitis (inflammation of the membranes lining the eye)
- Sensitivity to light
Diagnosis

Diagnosis of corneal ulceration includes a physical examination to look for evidence of illness or trauma that may contribute to corneal damage. Your veterinarian will also examine your pet’s eye to determine the extent of the eye problem. For pets that are in pain, your veterinarian may first apply a few drops of a sterile topical anesthetic to your pet’s eye. This solution will make the surface of the eye numb, so a full examination can be completed without causing pain.

Many veterinarians use a sterile dye called fluorescein to diagnose a corneal ulcer. Although it sounds painful, staining the eye is painless and quick. Fluorescein is a greenish-yellow dye that does not stick to the surface of an intact cornea but does stick to the underlying layers of the cornea if they are exposed (as with a corneal ulcer). Fluorescein may be applied as an eyedrop solution. It is also available as a dry coating on a tiny strip of sterile paper. Your veterinarian can gently touch the eye surface with the sterile strip to apply the fluorescein stain.

Once the eye has been stained, the veterinarian generally examines the eye in a darkened room using a handheld ultraviolet light. If the cornea is damaged, the dye will stick to the damaged area. Under the ultraviolet light, the corneal injury will appear as a bright green–yellow area.

If corneal ulceration is suspected to be caused by another problem, such as KCS, additional diagnostic testing may be recommended to learn more about the pet’s underlying problem.

Treatment

Most corneal ulcers respond well to specially formulated antibiotic eye drops or ointment applied directly to the patient’s eye. If the underlying problem is dry eye (KCS), additional therapy can be initiated to help improve the condition. If the underlying cause is entropion, surgical correction may be recommended.

If the corneal ulcer is very deep or very large, other measures may be recommended, including an eye patch or surgery to temporarily cover (and protect) the surface of the cornea.
Cranial Cruciate Ligament Rupture

- Cranial cruciate ligament (CCL) rupture is one of the most common orthopedic problems in dogs.
- The CCL in dogs corresponds to the anterior cruciate ligament (ACL) in humans.
- An injury to this ligament is debilitating and extremely painful.
- Dogs injure this ligament when the joint is hyperextended or rotated to an excessive degree. The injury can also develop over time in susceptible dogs.
- In some cases, particularly in larger dogs, surgical treatment is recommended.

What Is Cranial Cruciate Ligament Rupture?

Cranial cruciate ligament (CCL) rupture is one of the most common orthopedic problems in dogs. A dog’s stifle joint corresponds to the human knee joint, and the CCL is comparable to the anterior cruciate ligament (ACL) in humans. Just as in humans, a partial or complete rupture of this ligament is debilitating and extremely painful, resulting in lameness and joint instability. Untreated, CCL rupture results in additional degenerative changes in the joint and, eventually, osteoarthritis. CCL rupture can occur in any dog. Risk factors include obesity, existing osteoarthritis or instability in the knee, and a lack of proper conditioning for the activity taking place, such as a normally sedentary dog that suddenly begins vigorous play.

What Are the Signs of Cranial Cruciate Ligament Rupture?

The first sign of the disease is typically hind leg lameness. The degree of lameness depends on whether the injury is chronic or acute/traumatic and whether the rupture is partial or complete. As a result, some dogs may be slightly lame while others are unable to place any weight on the affected limb. Other signs include:

- Pain and stiffness
- A dog that sits abnormally because it no longer can or wants to flex its stifle joint
- Difficulty rising
- Joint swelling and/or muscle atrophy (wasting) in the stifle area
- Decreased activity level

Causes of Cranial Cruciate Ligament Rupture

*Chronic Rupture:* This occurs when the ligament has weakened and become damaged over time, as with osteoarthritis. Additional degenerative changes in the joint may result. Partial tears will eventually rupture completely if left untreated. Age, obesity, poor posture, and certain diseases can contribute to ligament deterioration and rupture.

*Acute Rupture:* Dogs typically injure their CCL while engaged in some type of physical activity during which the joint is hyperextended or rotated to such an extreme degree that the ligament tears.

Diagnosis
Diagnosis of CCL is usually made based on clinical signs, physical examination, and radiographs (x-rays). During the examination, your veterinarian may conduct a “sit test” with your dog. Dogs with partial or complete tears of the CCL are reluctant to flex the stifle joint and may sit abnormally to one side with the injured leg held straight out. Your veterinarian will also evaluate the joint for abnormal movement or instability; this may need to be done with your dog under sedation. Any swelling in the joint or muscle atrophy will also be noted.

**Treatment**

Your veterinarian may recommend medical or surgical treatment for CCL rupture. Treatment recommendations are based on several factors, including the severity of the injury, the condition of other structures in the knee, and the size and overall health of the patient.

Medical management typically consists of rest, appropriate pain medication (such as nonsteroidal antiinflammatory medications, or *NSAIDs*), and joint supplements. Once the acute phase has passed, it is very important to keep the dog’s weight under control and follow a veterinarian-approved exercise plan. In many cases, small dogs (less than 30 pounds) can do well with medical management. Conservative (medical) treatment may also be recommended if the dog is not a good candidate for surgery.

Surgical treatment involves stabilizing the joint in order to create more normal joint movement. There are several surgical procedures that can accomplish this successfully. Some veterinarians perform the surgery themselves; others may refer this procedure to a veterinary orthopedic specialist. Some veterinarians can perform CCL surgery using arthroscopic surgical equipment. If your dog is a candidate for CCL surgery, your veterinarian will discuss your surgical options with you.

After the surgery, closely follow your veterinarian’s instructions regarding limitations on activity to allow the surgical site to heal. Pain medications and physical therapy will be prescribed as needed. The prognosis varies based on the degree of joint degeneration.

**Caution**

A significant percentage of dogs that have experienced a CCL rupture in one hind leg typically rupture the CCL in their other hind leg within a year.
Crate Training Your Puppy

- Crate training is a method of housebreaking puppies in which a crate (an indoor kennel) is used.
- The crate must be large enough to allow the puppy to lie down and turn around without allowing room to soil outside the bed.
- The crate should never be used as a form of punishment.
- Dogs that associate their crate with positive experiences, such as feeding, may continue to use it by choice for the rest of their lives.

What Is Crate Training?

Many veterinarians recommend crate training as a good way to housebreak puppies, and in some cases, adult dogs. This training method is based on the principle that dogs prefer not to soil where they sleep. A comfortable crate not only provides a puppy with a secure, den-like atmosphere but also prevents destructive behaviors (such as chewing inappropriate items) and protects against household dangers (such as electrical wires) when a puppy isn’t being supervised.

What Kind of Crate Is Appropriate?

A wide variety of crates can be purchased from your local pet store. The key is to find a crate that is large enough to allow your puppy to lie down and turn around without allowing room to soil outside the bed.

If your puppy is a large breed, consider purchasing a crate that will have enough room for your dog when he or she is full grown. However, to housebreak your puppy in a large crate, you must decrease the size of the crate’s interior with either adjustable panels (which are available for some crates) or materials or objects that cannot be chewed and swallowed by a teething puppy.

How Do I Crate Train My Puppy?

**Associate the crate with positive things.** Create a soft bed by placing a towel or blanket on the floor of the crate. For the first few days, leave off the top of the crate or keep the door open. Place the crate in a common area where your puppy can be with you while getting accustomed to the crate. Place treats, kibble, and/or toys inside the crate to entice your puppy to explore it. Whenever your puppy enters the crate, shower him or her with praise. For the first few days, allow your puppy to enter and exit the crate as he or she pleases.

**Use the crate to help housebreak your puppy.** Feed your puppy in the crate and, when the food is consumed, immediately take your puppy outdoors to urinate and defecate. Eating will stimulate your puppy to urinate and defecate, and your puppy will quickly learn the routine.

**The rules of the crate.** Puppies should be taken outdoors to eliminate (and duly praised) before being placed in the crate and as soon as they are removed from the crate. To prevent the puppy from associating the crate with negative experiences, the crate should never be used as
punishment. If toys are left in the crate, ensure that they are large enough that your puppy can’t swallow, or choke on, them and that they can’t be chewed into smaller pieces.

**Begin with small increments of time in the crate.** Young puppies have very little bladder and bowel control, so they can’t spend much time in a crate. Young puppies should be taken outdoors frequently (such as every 2 hours during the day) and given lots of praise. If you crate your puppy at night, place the crate near your bed so that you can hear your puppy cry, which will usually mean that your puppy has to urinate or defecate. Young puppies usually need to go outdoors at least once or twice in the night for at least a few weeks. Your puppy will gradually extend the time between bathroom breaks until he or she can sleep through the night and can wait until early morning to urinate or defecate.

Start your puppy with short increments of time, such as 30 minutes to an hour, in the crate. Over the course of a few weeks, gradually increase the amount of time. Puppies younger than 4 months should spend no more than 4 hours at a time in the crate, except for when sleeping at night. If you need to crate your puppy during a full workday, have someone let your puppy outdoors periodically. Ensure that clean water is always available in the crate.

If your puppy soils the bed, remove the bedding until he or she can be in the crate without soiling. If your puppy continues to soil where he or she sleeps, your puppy may have been raised in poor breeding conditions in which he or she had to sleep in urine or feces. Consult your veterinarian for advice or to see if an underlying medical condition is causing the problem.

Remember to take your puppy outdoors to eliminate as soon as you remove him or her from the crate. Then you can begin to allow your puppy short periods of supervised activity in the house. Start by limiting your puppy to one room where you can observe him or her and interrupt inappropriate elimination with a trip outdoors. If your puppy does well, you can gradually increase your puppy’s freedom in the house.

**What Are the Benefits of Crate Training?**

When done properly, crate training can help a puppy learn to wait to urinate or defecate until he or she is outdoors. A crate helps keep curious puppies from getting into trouble (for example, household dangers and destructive behaviors). When a puppy associates a crate with positive experiences, the puppy will often choose to continue using the crate as a haven as he or she grows into adulthood and throughout life.
Creatinine Level

- The kidneys are largely responsible for maintaining the body’s creatinine level within a healthy range.
- The creatinine level can be affected by many things, including certain medications and various illnesses.
- If your pet’s creatinine level is abnormal, additional tests may be recommended to determine the cause.

What Is Creatinine?

Creatinine is a substance that the body produces during normal metabolism. The body eliminates creatinine almost exclusively through the kidneys’ filtration process, so measurement of creatinine is an accurate estimation of how well the kidney filtration processes are working. Anything that alters the ability of the kidneys to filter efficiently (such as dehydration) can cause changes in the level of creatinine in the blood.

The creatinine level is an important part of a blood test known as a chemistry panel, so it is often evaluated during routine wellness checkups or pre-surgery screening in healthy pets. Often, it is evaluated along with urine tests or other blood tests that screen for abnormalities involving the kidneys. Because various illnesses can affect the creatinine level, your veterinarian may recommend measuring your pet’s creatinine level if your pet has any of the following signs of illness:

- Vomiting
- Appetite loss
- Lethargy (tiredness)
- Anemia
- Increased drinking and/or urination
- Weight loss
- Dehydration

How Is the Creatinine Level Measured?

To measure your pet’s creatinine level, your veterinary team must obtain a small blood sample. This procedure is usually very quick; it may take only a few seconds if the patient is well behaved. For patients that are very frightened or not well behaved, your veterinary team may want to use a muzzle, towel, or other gentle restraint device. In some cases, such as in patients with very thick fur, it may be necessary to shave the hair from the area where blood will be drawn. The hair will grow back, and this is often a good way to find the vein quickly.

Some veterinary offices have in-house blood analysis equipment, so they can perform the test for creatinine in the office and have results the same day. Other offices send blood samples to an outside laboratory for the test to be performed. If an outside laboratory is used, results are generally available within 1 to 2 days.
Be sure to tell your veterinarian about any medications or supplements your pet may be receiving, as some products can alter the creatinine level in the blood.

**What Does the Creatinine Level Tell Your Veterinarian?**

Although changes in the creatinine level are commonly associated with kidney disease, many other factors can affect the creatinine. Some antibiotics, for example, can cause the creatinine level to increase.

The following are a few conditions that cause an abnormal creatinine level:

- Dehydration
- Kidney infection
- Kidney failure
- Toxic injury to the kidneys
- Urinary blockage
- Shock
- Severe heart disease
- Muscle wasting or severe weight loss

If your pet has an abnormal creatinine level, your veterinarian will combine that information with other vital information about your pet to decide if further diagnostic testing is recommended to investigate the abnormal result. Additional tests may include a urinalysis (a screening test to evaluate components in the urine), radiographs (x-rays), or additional blood testing. Depending on your pet’s overall condition, your veterinarian may recommend medications or other management.

**Are There Risks Associated With Measuring the Creatinine Level?**

Very few risks are associated with measuring the creatinine level. Drawing blood takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Once blood is obtained, all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.
Cushing's Disease

- Cushing's disease occurs when the body produces excessive amounts of a hormone called cortisol.
- Cushing's disease affects middle-aged and older dogs. It is rare in cats.
- Diagnosis can be difficult and may require several different types of tests.
- Surgery is an option for some dogs, but most dogs receive medication to control the condition.

What Is Cushing's Disease?

Cushing's disease occurs when the body produces and releases excessive amounts of a hormone called cortisol. It is named after the doctor who first described it in people. The veterinary medical term for Cushing's disease is hyperadrenocorticism.

Cortisol is produced by the body’s adrenal glands. Normally, the body has highly developed systems called feedback mechanisms that control how much cortisol the adrenal glands produce and release, based on the body’s needs. Cortisol affects many functions in the body, including immunity, reproductive health, and systems that control the body’s fluid balance.

Cushing's disease occurs when a change in the body causes the adrenal glands to ignore the feedback mechanisms, leading to excessive production and release of cortisol. Sometimes, this change is a tumor on one of the adrenal glands; in other cases, the adrenal glands are “tricked” by another gland (the pituitary gland in the brain) into continuing to produce too much cortisol. Regardless of the cause, the sustained overproduction and release of cortisol eventually causes Cushing's disease.

Cushing's disease is most commonly diagnosed in dogs, although it does occur rarely in cats. Middle-aged and older dogs are generally affected, and certain breeds such as poodles, cocker spaniels, and dachshunds seem to be more at risk due to genetic factors.

What Are the Clinical Signs of Cushing's Disease?

Because most dogs with Cushing's disease are middle aged or elderly, some of the subtle signs of illness can be easily misinterpreted as evidence that the pet is simply “getting older” and “slowing down.” These signs may include weight gain, lethargy (tiredness), reduced ability to exercise, and muscle weakness. Other clinical signs associated with Cushing's disease can include the following:

- Increased drinking and urination
- Increased appetite
- Thinning hair
- Panting and increased rate of breathing
- Enlarged or distended abdomen

Diagnosis
Diagnosis of Cushing's disease may require several steps; in some cases, the diagnosis can be difficult. Your veterinarian will likely begin by reviewing your pet’s medical history for any suspicious clinical signs. A complete physical examination may be followed by recommendations to perform diagnostic tests. Results of these background tests can support the diagnosis of Cushing's disease:

- **Blood tests:** Because excess cortisol can affect the liver, blood chemistry values associated with the liver may be abnormal. The numbers and types of white blood cells may also be affected.
- **Urinalysis:** Increased water drinking associated with Cushing's disease can cause the urine to become diluted.
- **Abdominal x-rays:** Dogs with Cushing's disease may have an enlarged liver that is visible on x-rays.
- **Abdominal ultrasonography:** Ultrasonography can detect liver enlargement as well as changes in the adrenal glands that may be consistent with Cushing's disease.

Your veterinarian may also recommend some specific tests that evaluate the body’s cortisol feedback mechanisms to determine if they are functioning properly:

- **Dexamethasone suppression test:** Normally, if the body is given cortisol from an outside source (for example, in a pill or by injection), the adrenal glands respond by decreasing their own production and release of the hormone. The dexamethasone suppression test involves administering a very small amount of cortisol by injection and drawing blood to measure the body’s cortisol production during the following few hours. With Cushing's disease, the adrenal glands continue to produce cortisol despite the introduction of additional quantities. This response is consistent with a diagnosis of Cushing's disease.

- **ACTH stimulation test:** The letters ACTH stand for adrenocorticotropic hormone. This hormone is produced by the body and stimulates the adrenal glands to produce and release cortisol. The ACTH stimulation test involves administering a small amount of ACTH by injection and measuring the levels of cortisol produced over a period of a few hours. In dogs with Cushing's disease, the injection of ACTH causes the adrenal glands to release unusually high amounts of cortisol.

Both of these tests require hospitalization for a few hours so that blood can be drawn to check the body’s response to the injections. Another test for Cushing's disease involves testing the urine for evidence of high cortisol levels. This test does not require hospitalization.

**Treatment**

If your veterinarian determines that your dog has a tumor involving an adrenal gland, surgery may be an option. However, for most dogs, Cushing's disease can be controlled with medication. Most dogs must continue to receive medication throughout their lives to maintain cortisol levels within a healthy range.
Demodectic Mange

- Demodectic mange is an inflammatory skin condition caused by microscopic mites of the genus *Demodex*.
- It is most common in young dogs and rare in cats.
- Signs include scaly patches of bare skin, which may or may not be itchy.
- Your veterinarian can diagnose the condition by taking a sample from your pet’s skin and examining it under a microscope.
- The localized form typically resolves on its own without treatment.
- The generalized form may be treated with oral or topical medications and antibiotics.

What Is Demodectic Mange?

Demodectic mange is an inflammatory skin condition caused by microscopic mites of the genus *Demodex*. These mites are transmitted from mother dogs and cats to their puppies or kittens during nursing and become normal inhabitants of the hair follicles. In small numbers, the mites usually don’t cause problems. However, in animals with certain genetic factors, metabolic disease, or a compromised immune system, the number of mites can increase, causing skin inflammation.

Demodectic mange usually occurs in dogs younger than 18 months and in older, immunocompromised dogs. Although it can be found in any breed, it is more common in certain purebred dogs, such as shar-peis, Dobermans, Great Danes, and Chihuahuas. Cats rarely get demodectic mange.

Is Demodectic Mange Contagious?

In general, demodectic mange is not considered a contagious disease. You will not get the mites from your pet, and other pets in your household will usually not be affected. As puppies and kittens grow, they usually develop immunity to the mites and do not experience skin infections. The mites are also selective about where they live. The species *Demodex canis* is most commonly found on dogs, while *Demodex cati* prefers cats.

What Are the Signs?

Animals may have localized or generalized demodectic mange. In the localized form, animals may lose one or more patches of hair, usually around the eyes and mouth, limbs, and trunk. The skin within the patches may be dry and flaky but is generally not itchy.

Animals with generalized demodectic mange lose hair in large areas over their entire body. The exposed skin is red and scaly and often becomes itchy, smelly, and painful because of secondary infections. Dogs with this form of demodectic mange should not be used for breeding because genetics often plays a part in this disease.

In some animals, hair loss may be limited to the paws. Affected areas are often red, and they may become infected and painful, causing your pet to limp.
How Is Demodectic Mange Diagnosed?

If your veterinarian suspects demodectic mange, he or she will scrape your pet’s skin or pluck some hair to search for mites. The mites tend to live deep within hair follicles, so your veterinarian will have to squeeze the skin and gently scrape several hairless patches with a scalpel blade until the area bleeds slightly to obtain samples that contain mites. He or she can then place these samples on a glass slide and look at them under a microscope to see the tiny mites.

If your veterinarian is unable to find mites but still suspects that they are the cause of the problem, he or she may recommend that a skin biopsy be performed. In other cases, your veterinarian may choose to treat your pet for demodectic mange to see if the condition improves with treatment.

In older dogs, demodectic mange is usually caused by a compromised immune system. If an older dog is affected, your veterinarian will most likely want to test for underlying conditions, such as a glandular disorder, liver or kidney disease, or cancer.

How Is Demodectic Mange Treated?

The localized form of demodectic mange generally resolves on its own within a few weeks or months and doesn’t require treatment. However, you should bring your pet in for a recheck exam to make sure the condition doesn’t become generalized.

Treatment for the generalized form requires patience. It may take several months before you see improvement. In some cases, the condition can’t be completely cured, only managed, and may come back. Your veterinarian has several options for treating demodectic mange. Some treatments are applied directly to the skin in the form of a dip or a spot-on solution that kills the mites. Other medications can be given by mouth. Because some treatments for demodectic mange have effects throughout the body, your veterinarian may recommend heartworm testing and additional blood tests for your dog before deciding which treatment to use. Your veterinarian will evaluate your dog’s condition and determine the best method of treatment for your pet. Regardless of which therapy is selected, treatment often must continue for many months, so be prepared for a lengthy commitment to therapy. Periodic skin scrapings should be performed to monitor treatment progress, and treatment often lasts for at least a month after the point when mites are not seen under the microscope.
Dental Care

- Without routine dental care, most dogs and cats develop periodontal (dental) disease by 3 years of age.
- Periodontal disease is the most common health problem in dogs and cats.
- Bad breath may be a sign of periodontal disease in your pet.
- Providing routine dental care for your pet can be easy and can benefit your pet’s oral and overall health.

What You Need to Know

Bad breath in pets may be a sign of periodontal disease that could lead to other health problems. Periodontal disease starts when plaque (a bacterial film) coats the tooth. Plaque hardens (calcifies) into tartar, a thick yellow or brown layer on the teeth. Tartar can irritate the gums, creating an environment where bacteria thrive. As the disease progresses, the gums become tender, red, and swollen and the bacteria continue to multiply. Eventually, the inflamed gums pull away from the teeth, creating pockets that trap more bacteria and food particles. The gums bleed, the roots of the teeth may become exposed, teeth may become loose, and your pet may feel pain when eating. If the bacteria enter the bloodstream, they can create problems for organs such as the heart, lungs, liver, and kidneys.

Signs of Dental Problems

- Bad breath
- Sensitivity around the mouth
- Loss of appetite
- Yellow or brown deposits on the teeth
- Bleeding, inflamed, and withdrawn gums
- Loose or missing teeth
- Pawing at the mouth or face
- Difficulty chewing

What to Do

Your pet needs routine dental care from your veterinarian and you. Annual veterinary checkups are essential for helping your veterinarian monitor your pet’s dental health, but don’t wait for a checkup if you suspect a problem. After an examination, your veterinarian may recommend a dental prophylaxis (tooth cleaning) for your pet. Anesthesia and pain medication are used for dental procedures. If dental disease is severe, your veterinarian will recommend the best treatment, which may include tooth extraction.

Pets are never too young to start having their teeth brushed at home; in fact, the younger they are, the better. Slowly and gently introduce your pet to toothbrushing. It should be a bonding experience that is reinforced with praise and rewards. Begin by rubbing your pet’s teeth and gums with soft gauze wrapped around your finger. Gradually switch to using a specially designed pet toothbrush or baby toothbrush with pet toothpaste (do not use toothpaste for people
because it can upset your pet’s stomach). If your pet is most at ease on your lap, keep his or her toothbrush next to the chair where you sit together. Focus on your pet’s gum line, and work up to 30 seconds of brushing for each side of the mouth at least a few times a week. If your pet won’t tolerate brushing, your veterinarian can recommend plaque-preventive products for your pet.

There’s no substitute for regular brushing, but feeding dry food can help keep your pet’s teeth and gums in good condition. In addition, special plaque-reducing foods, treats, and toys can help. The Seal of Acceptance from the Veterinary Oral Health Council appears on products that meet defined standards for plaque and tartar control in dogs and cats. Ask your veterinarian for recommendations.

Caring for your pet’s teeth can have several benefits. For example, a few minutes of brushing each week can help give your pet a longer, healthier life.

**Ways to Prevent Periodontal Disease in Your Pet**

- Take your pet to annual veterinary checkups
- Brush your pet’s teeth or use plaque-reducing products at least a few times a week
- Feed dry food
- Provide plaque-reducing foods, treats, and toys
Dental Cleaning

- 85% of all pets have periodontal disease by the time they are 3 years of age.
- Dental disease can result in bad breath, painful chewing, and tooth loss.
- Bacteria under the gum can travel to the heart, kidneys, and liver.
- A professional dental cleaning is required to remove plaque and tartar from a pet’s teeth and to assess the health of the mouth.
- A thorough dental cleaning requires that the pet be under anesthesia.
- Regular, at-home dental care can help improve the health of your pet’s mouth and lengthen the intervals between professional dental cleanings.

It’s estimated that 85% of all pets have periodontal disease by the time they are 3 years of age. Periodontal disease is a progressive disease of the supporting tissues surrounding teeth and the main cause of early tooth loss.

Periodontal disease starts when bacteria combine with food particles to form plaque on the teeth. Within days, minerals in the saliva bond with the plaque to form tartar, a hard substance that adheres to the teeth. The bacteria work their way under the gums and cause gingivitis—inflammation of the gums. Once under the gums, bacteria destroy the supporting tissue around the tooth, leading to tooth loss. This condition is known as periodontitis. Gingivitis and periodontitis make up the changes that are referred to as periodontal disease. The bacteria associated with periodontal disease can also travel in the bloodstream to infect the heart, kidneys, and liver.

A professional veterinary dental cleaning is the only way to remove tartar from the teeth and under the gum tissue to protect your pet’s health. With a professional dental cleaning and follow-up care, gingivitis is reversible. Periodontal disease is not reversible, but diligent at-home dental care and regular veterinary cleanings can slow down the progression of the condition.

What Is a Dental Cleaning?

During a dental cleaning (sometimes called a prophylaxis), (1) plaque and tartar are removed from a pet’s teeth and (2) the health of the entire mouth (tongue, gums, lips, and teeth) is assessed. A thorough dental cleaning can be accomplished only while the pet is under general anesthesia. Anesthesia keeps your pet free of pain during the dental procedure and allows your veterinarian to fully inspect the teeth and remove tartar from under the gums. During anesthesia, a soft plastic tube is inserted into the trachea (the main airway in the throat) to support the patient’s breathing. Placement of the tracheal tube also prevents inhalation of bacteria that are aerosolized during the dental cleaning.

A dental cleaning may include the following:

- Removal of visible plaque and tartar from the teeth
- Elimination of plaque and tartar from under the gum
- Probing of dental sockets to assess dental disease
- Polishing to smooth enamel scratches that may attract bacteria
• Dental radiographs (x-rays) to evaluate problems below the gum line
• Application of fluoride or a dental sealer
• Removal or repair of fractured or infected teeth
• Dental charting so progression of dental disease can be monitored over time
• Inspection of the lips, tongue, and entire mouth for growths, wounds, or other problems

**How Do I Know if My Pet Needs a Dental Cleaning?**

Regular inspection of your pet’s mouth is important to catch dental disease in the early stages. Tartar may appear as a brownish-gold buildup on the teeth, close to the gum line. Redness or bleeding along the gum line may indicate gingivitis. Other signs of dental disease include:

• Bad breath
• Drooling
• Pawing at the mouth
• Difficulty chewing
• Loose or missing teeth

If you notice any of these signs in your pet, schedule an appointment with your veterinarian.

**What Are the Benefits of a Dental Cleaning?**

A professional dental cleaning removes not only the visible plaque and tartar on the teeth surfaces but also the bacteria under the gums. This eliminates potential sources of infection to the mouth and other organs and protects your pet from pain and tooth loss.

**What Can I Do to Keep My Pet’s Teeth Clean?**

Once a dental cleaning has been performed, you can take a number of steps at home to keep your pet’s teeth clean and lengthen the intervals between dental cleanings.

Your veterinarian may recommend a plaque prevention product—a substance that you apply to your pet’s teeth and gums on a weekly basis. The product adheres to the teeth surface to create a barrier that prevents plaque from forming.

Just as in people, daily brushing can help remove food particles from between your pet’s teeth. You can use a child’s toothbrush or purchase a finger brush from your veterinarian. Human toothpastes should be avoided because they contain ingredients that should not be swallowed by your pet. Your dog or cat may like the taste of pet toothpaste, which is available in flavors such as chicken, seafood, and malt.

Several dental diets and treats can also help keep plaque and tartar to a minimum. The diets tend to have larger kibbles to provide abrasive action against the tooth surface when chewed. Or they may contain ingredients that help prevent tartar mineralization. Ask your veterinarian which diets or treats are appropriate for your pet.
Dental Exam

- A dental exam is performed by your veterinarian to determine the overall dental health of your pet.
- A dental exam can help identify early signs of dental disease.
- Left untreated, periodontal disease can lead to kidney problems, heart disease, and other health issues.

What Is a Dental Exam?

The term *dental disease* in dogs and cats is very broadly used to describe gingivitis (inflammation of the gums) and periodontitis (inflammation of the bone and other support structures around the tooth). Another term commonly used to collectively describe these two conditions is *periodontal disease*.

According to a study by the American Veterinary Dental Association, over 80% of dogs and cats older than 3 years have some form of periodontal disease. It’s very important to keep your pet's teeth clean and healthy, and a good way to start is by having your veterinarian perform regular dental examinations on your pet.

How Is a Dental Exam Performed?

As with any other medical condition, a dental examination generally begins with a medical history. Before performing a dental exam, your veterinarian may ask if you have noticed bad breath, excessive drooling, or pawing at the mouth, which can indicate that your pet suffers from a dental issue.

Your veterinarian will then begin by examining your pet's head and neck, noticing any abnormalities, such as swellings, lumps, pain, or enlarged lymph nodes. An abscess is a collection of pus surrounded by inflamed tissue. Abscessed teeth can cause swelling of the cheek and jaw and are usually very painful. Lymph nodes become enlarged when infection is present. Your veterinarian will also smell your pet's breath. Bad breath is a sign of periodontal disease.

Next, your veterinarian will check your pet's teeth and gums for redness, bleeding, and inflammation. Gingivitis (inflammation or infection of the gums) can cause the gums to appear red or swollen and to bleed easily. Gingivitis can result from either accumulation of bacteria at the gum line or infection with certain viruses (such as feline leukemia virus and calicivirus). Gingivitis can be painful and can progress to periodontal disease, tooth abscesses, and tooth loss.

During a dental exam, your veterinarian will examine your pet's teeth for damage (such as cracks) and plaque and tartar. Plaque is the yellow, gummy substance that sticks to teeth; it eventually hardens to become dental tartar. Daily toothbrushing helps to remove plaque, but once tartar forms, it can be removed only by professional dental cleaning.
Plaque and tartar harbor bacteria, which can attack the teeth, gums, bones, and surrounding structures. Bacteria from periodontal disease can also enter the bloodstream and affect the liver, kidneys, and heart, causing further problems.

When examining your pet's mouth, your veterinarian will also look for lumps or growths that could be oral cancers. If any questionable lumps are seen, a biopsy may be recommended to determine if the growth is cancerous.

Some parts of a dental exam, such as those mentioned above, can generally be performed without sedation. However, if a patient is very painful or is aggressive during physical examination, your veterinarian may recommend sedation to complete even a brief or partial dental examination. A full dental examination, which requires sedation, involves probing the gum line and spaces between the teeth for pockets.

**Dental X-rays**

Dental x-rays may be obtained during a dental examination. X-rays can help your veterinarian to determine the health of the roots of the teeth and to diagnose impactions (teeth that are wedged in and can’t move into a normal position), fractures, and tooth root abscesses. Sedation is required for obtaining dental x-rays.

**What Are the Benefits of a Dental Exam?**

Healthy teeth are important for your pet’s overall health. A dental examination can alert you and your veterinarian to dental issues in your pet and can help determine the most effective treatment. Without proper dental care, pets may develop painful periodontal disease, suffer from inflamed gums, and even lose teeth.

Young puppies and kittens can also benefit from dental examinations. As puppy and kitten teeth are replaced by adult teeth, your veterinarian can perform a brief dental exam to see if all of the adult teeth are coming in normally. Sometimes, puppy or kitten teeth don’t fall out when they should, which can interfere with the positioning of the adult teeth as they try to come in. Puppy and kitten checkups are ideal for reviewing toothbrushing tips with your veterinary team and for getting your pet used to dental exams.

**At Home Dental Care**

After the dental examination, your veterinarian may recommend that your pet receive a dental cleaning. At-home dental treatments such as toothbrushing, dental rinses or gels, dental chew toys, and other types of dental care may also be recommended. There is even a vaccine available (for dogs) that can help prevent periodontitis. After performing a dental examination, your veterinarian can discuss with you whether the dental vaccine may benefit your dog’s oral health.

Most people brush their teeth regularly, but many of our pets don’t have the benefit of consistent at-home care. If you currently have an at-home dental care program for your pets, congratulations! Regular dental exams with your veterinarian are a good way to evaluate your
program and determine if adjustments are needed. If you aren’t yet giving your pets at-home dental care, a dental exam can tell you how your pet’s teeth are doing and what you need to do to help maintain your pet’s oral health.
Dental Radiography

- Dental radiography is painless, very safe, and noninvasive.
- Dental radiography is useful for evaluating tooth roots and surrounding bone.
- Sedation or anesthesia is necessary so that your pet can be properly positioned for dental radiography.

What Is Dental Radiography?

A radiograph (sometimes called an *x-ray*) is a type of photograph that reveals the body’s bones and internal organs. The procedure for obtaining a radiograph is called *radiography*. Dental radiography involves obtaining x-ray images of the mouth, teeth, and jaws. Radiography is painless, safe, and completely noninvasive.

When Is Dental Radiography Recommended?

Dental radiographs are generally obtained during a routine dental examination and cleaning. However, in cases of facial trauma or head trauma, dental radiographs may be taken to assess the extent of damage to the mouth, teeth, and jaws.

Dental radiographs can help your veterinarian evaluate the health of tooth roots and identify a variety of problems that are not visible just by looking at your pet’s teeth, including:

- Tumors involving the bones of the jaw
- Tooth impactions (teeth that are wedged in or can’t erupt normally)
- Tooth fractures
- Tooth root abscesses
- Retained teeth (teeth that failed to erupt at the proper time)
- Feline resorptive lesions (painful erosions on the tooth surface)

Because sedation is required for obtaining dental x-rays, your veterinarian may recommend blood work and other preanesthetic testing before taking dental radiographs of your pet. Sedation is needed so that your pet can be properly positioned for the radiographs to be taken. During the dental radiography procedure, your pet will be monitored closely to ensure a safe recovery from sedation.

Dental radiography generally takes only a few minutes. Some veterinarians use traditional dental radiography equipment, whereas other practices use digital radiography equipment. After examining the radiographs, your veterinarian can identify problem teeth or other issues that may need to be addressed during the dental cleaning. Veterinarians also use radiographs after procedures such as tooth extractions to confirm that all the tooth roots have been removed.

What Are the Benefits and Risks of Dental Radiography?
Dental radiography has many benefits and very minimal risks. It is very safe, completely painless, and noninvasive. It is available in many veterinary practices and generally takes only a few minutes.

The risks associated with dental radiography are minimal. Because the level of radiation exposure needed to perform radiography is very low, even pregnant females and very young pets can undergo radiography. In the vast majority of cases, the benefits of performing dental radiography far outweigh any possible risks. Dental radiography is a valuable tool for your veterinarian because it can provide important information about the health of your pet’s teeth and gums.
Desoxycorticosterone Pivalate (DOCP) for Addison's Disease

- Addison’s disease occurs when the body cannot produce adequate amounts of certain hormones, including a hormone called cortisol.
- Desoxycorticosterone pivalate (DOCP) is an injectable medication used to help manage Addison’s disease.
- Most pets with Addison’s disease respond well to appropriate treatment and can live normal life spans.

What Is Addison’s Disease?

Glucocorticoids (primarily cortisol) and mineralocorticoids are two important types of hormones produced by the body’s adrenal glands. Under normal conditions, the brain releases a hormone called adrenocorticotropic hormone (ACTH) that stimulates the adrenal glands to release their hormones. Addison’s disease occurs when either the brain doesn’t release adequate amounts of ACTH, or the adrenal glands fail to release their hormones in response to ACTH. The medical term for Addison’s disease is hypoadrenocorticism.

Glucocorticoids and mineralocorticoids help regulate numerous complex processes in the body and participate in critical functions, including the following:

- Maintaining the body’s fluid balance
- Maintaining the body’s balance of sodium and potassium
- Maintaining the integrity and functioning of blood vessels
- Regulating blood pressure and blood flow to vital organs, like the kidneys
- Supporting cardiac function
- Controlling blood sugar levels and carbohydrate metabolism
- Helping to counteract the effects of stress
- Helping to maintain immune system function

The body has highly developed systems called feedback mechanisms that control how much of these hormones the adrenal glands produce and release, based on the body’s needs. During times of physical or emotional stress, the body tends to increase the production and release of glucocorticoids (cortisol) to help it deal with the stressful episode. In contrast, when the body is receiving cortisol from an outside source (like a cortisone pill or injection), it reduces the amount of cortisol that the adrenal glands produce.

In most cases, the cause of Addison’s disease is not determined. Sometimes, the body’s immune system can damage the adrenal glands’ cells so extensively that they can’t release hormones when they need to. In other cases, such as a brain tumor, the part of the brain that should release ACTH is unable to. However, Addison’s disease can also occur if a pet that is receiving cortisol medication suddenly stops getting it. In this case, the body has reduced its own cortisol production and can’t increase it quickly enough to compensate when the medication is discontinued. This is why steroid medications (such as prednisone) should not be discontinued suddenly, but must instead be gradually reduced and then discontinued.
Addison’s disease is most commonly diagnosed in dogs, although it does occur rarely in cats. Young to middle-aged dogs are generally affected, and females are more commonly affected than males.

**What Are the Clinical Signs of Addison’s Disease?**

The clinical signs associated with Addison’s disease can vary greatly and can resemble those of other diseases. They include the following:

- Vomiting and diarrhea
- Decreased appetite
- Increased drinking and urination
- Dehydration
- Weakness and collapsing episodes
- Abdominal pain
- Weight loss
- Weak pulses and slow heart rate

These clinical signs can vary in severity, and many owners report that the problems seem to "wax and wane," sometimes seeming to resolve on their own and sometimes responding temporarily to very nonspecific treatment. Because pets with Addison’s disease have a reduced ability to handle stress, the emotional stress of visiting a boarding kennel or the excitement of a family gathering can cause clinical signs to resurface.

Diagnosis of Addison’s disease can be complicated; generally more than one type of test is needed to confirm a diagnosis.

**What Is Desoxycorticosterone Pivalate (DOCP)?**

Some pets with Addison’s disease arrive at the veterinary office in a state of life-threatening crisis. Low blood pressure, shock, dehydration, impaired heart function, and other complications of the disease can be fatal if not treated immediately and aggressively. In these cases, hospitalization for emergency intravenous fluid therapy and other stabilization is necessary.

In other cases, the clinical signs of Addison’s disease are more subtle. As long as the pet is stable, treatment can begin on an outpatient basis.

The primary treatment for Addison’s disease consists of giving the body the adrenal gland hormones it is unable to produce on its own. Glucocorticoid supplementation commonly involves administering prednisone or hydrocortisone pills. Most pets also need mineralocorticoid supplements; these are available in pill and injectable forms.

A popular mineralocorticoid formulation is injectable desoxycorticosterone pivalate (DOCP); this medication can be given as an injection every 21 to 30 days. DOCP replaces a hormone that regulates sodium and potassium balance, promotes improved cardiac functioning and blood flow to the kidneys, and helps maintain the body’s blood pressure and fluid balance. DOCP injections
are given into a muscle (intramuscularly). Your veterinarian can give injections at his or her office, but some pet owners can be shown how to give the injections at home.

Medications for Addison’s disease only replace missing hormones; they don’t cure the disease. Therefore, pets with Addison’s disease need to receive medications for the rest of their lives. Periodic veterinary examinations and repeat blood testing are required for the life of the pet, and sometimes medication dosages need to be adjusted. Your veterinarian may also want to discuss modifying your pet’s medication during times of stress, when the body’s need for these hormones may increase. Fortunately, pets that receive proper treatment for Addison’s disease can have a normal life span and enjoy a good quality of life.
**Dewclaw Removal**

- Dewclaw removal may be recommended if the dewclaw is deformed or if extra dewclaws are present.
- Dewclaw removal may also be recommended for hunting or working dogs or if there is a risk of trauma to the toe.
- Dewclaw removal is frequently performed when pets are very young (between 3 and 5 days old).
- Most pets recover very well following dewclaw removal surgery.

**What Are Dewclaws?**

Dewclaws are the toes on the inner edge of your pet’s paws. They look like thumbs because they are up higher than the other four toes and they don’t touch the ground when your pet is walking. Some pets only have dewclaws on their front paws, whereas others have dewclaws on their front and rear paws. Some pets are born without any dewclaws, and others are born with extra ones.

**Why Are Dewclaws Removed?**

Sometimes, as for hunting dogs or other working dogs, the dewclaws are removed to prevent trauma to them. For pets born with deformed or extra dewclaws, removal is often recommended to prevent trauma to the dewclaws during normal play and activity.

**When Are Dewclaws Removed?**

In many cases, dewclaws are removed when a newborn is between 3 and 5 days old. If the procedure is not done during that time, it is recommended to wait until the pet is at least 12 weeks old. Often, dewclaws are removed while the pet is undergoing spaying or neutering.

**How Are Dewclaws Removed?**

Removing the dewclaws is a surgical procedure. If the pet is very young (3 to 5 days old), the area can be “numbed” (with local anesthesia) to complete the surgery. For older pets, full (general) anesthesia is recommended; this means that the pet is completely unconscious for the surgery.

Because the toe is removed through an opening (incision) made in the skin, the area is thoroughly cleaned and shaved before surgery to reduce the risk of infection. Once the toe is removed, stitches or surgical glue is used to close the opening. Sometimes, the paw is bandaged for a few days to help keep the area clean and dry.

**What At-Home Care Is Needed Following Dewclaw Removal?**

Most pets recover very well following dewclaw removal surgery. Medications are sometimes prescribed and may include antibiotics or pain medications. In some cases, the paw is bandaged for a few days to keep the area clean and dry. You should check the bandage several times daily.
for moisture, slippage, bad odor, or soiling. If there is no bandage, check the paw frequently for swelling, bleeding, or oozing.

Although your pet doesn’t walk on the dewclaws, it is often recommended to minimize jumping and running for a few days after surgery.

Most pets eat, drink, and behave normally after surgery. Notify your veterinarian if your pet seems lethargic (tired) or doesn’t want to eat or drink. Also notify your veterinarian if your pet seems uncomfortable or if any other problems are observed.
Deworming and Prevention of Gastrointestinal Parasites in Dogs and Cats

- Gastrointestinal parasites can cause serious illness in pets, and some parasites can infect humans.
- Deworming involves administering medication to treat and control gastrointestinal parasites. Your veterinarian can recommend the most appropriate deworming medications for your pet.
- Any new pet entering your home should be tested for parasites as soon as possible and treated if parasites are found.

What Are Gastrointestinal Parasites?

Gastrointestinal (GI) parasites include any parasites that live in the stomach or intestines of a host. A variety of GI parasites affect dogs and cats. They range from roundworms and tapeworms, which are visible with the naked eye, to microscopic organisms like coccidia and Giardia. Regardless of their size, GI parasites can cause serious illness and sometimes even death in pets. Some parasites are zoonotic, which means humans can become infected. The following are the most common GI parasites in pets:

- **Roundworms**: Roundworms are visible with the naked eye and resemble small pieces of spaghetti. In humans, roundworms can lead to larva migrans, an illness caused by migration of young worms through body organs such as the liver, lungs, and nervous system. Young roundworms may also travel to the eye, where they can cause blindness.
- **Hookworms**: These worms attach to the intestinal wall and suck blood and other nutrients from their hosts. Hookworms can cause severe blood loss and diarrhea in infected pets. Infective hookworm larvae in the environment can penetrate the skin and infect a new host. When this happens in humans, the condition is called cutaneous larva migrans. People with this condition may experience itchy skin lesions with a snakelike pattern.
- **Tapeworms**: Tapeworms are long, flat worms that are actually made up of numerous segments; each segment contains tapeworm eggs. Humans can become infected if they inadvertently eat tapeworm eggs or infected fleas (which can contain tapeworm eggs).
- **Giardia**: Giardia organisms are single-celled parasites that live in the intestines. Fecal-contaminated water, food, or soil can be sources of infection.
- **Coccidia**: Coccidia are microscopic GI parasites. They can cause severe diarrhea in some infected pets.
- **Whipworms**: Whipworms live in the large intestines of dogs and shed eggs into the environment. Female whipworms can produce over 2000 eggs daily, and environmental contamination can persist for years.

How Do Pets Become Infected With Gastrointestinal Parasites?

In most cases, eggs or infective stages of GI parasites are shed in the host’s fecal material. Once parasites are in the environment, other pets can be exposed through direct contact with feces or exposure to soil, water, or plants that have been contaminated with feces. Some GI parasites can remain in the environment for months to years.
Some parasites can infect small animals (like rodents); pets become infected when they prey on these small hosts and eat them. Some GI parasites can infect puppies and kittens when they nurse from their infected mothers, and puppies can sometimes become infected during fetal development.

Tapeworms are slightly different in that they can be transmitted by fleas. The immature stage of the tapeworm lives inside the flea. When a pet grooms a flea off of its hair, it eats the flea (and the tapeworm). The tapeworm then hatches inside the pet and continues its life cycle.

**What Are the Clinical Signs of Gastrointestinal Parasites?**

Diarrhea, vomiting, and weight loss can be among the clinical signs of GI parasite infection. However, many infected pets don’t show any clinical signs at all. The best way to tell if your pet is infected is to have him or her tested for parasites.

**What Is Deworming?**

Deworming involves administering (or in some cases, applying) medication to treat and control infections with GI parasites. Because puppies and kittens are commonly infected with GI parasites, many veterinarians routinely deworm these young patients several times. Fecal testing can detect GI parasites in most cases, but parasites are not detectable all the time. Even if testing does not confirm parasites, your veterinarian may recommend deworming as a precaution. This is not harmful to your pet.

Deworming medications come in a variety of formulations, including pills, chewable tablets, topical spot-on products that are applied to the skin between the shoulder blades, and liquid medications given by mouth. Your veterinarian can recommend the most appropriate deworming medications for your pet.

**How Can I Treat and Prevent Gastrointestinal Parasites?**

Your veterinarian can recommend several safe and effective medications to treat GI parasites. Fortunately, many monthly heartworm preventive medications also control some of these parasites, but there is no single medication that can treat and prevent all GI parasites. Here are some tips for protecting your pets:

- Use a monthly heartworm preventive that also targets GI parasites.
- For dogs, pick up fecal material promptly to reduce the risk of environmental contamination.
- For cats, clean the litterbox frequently to reduce the risk of spread in a multicat household or reinfection in a single-cat household. Also, cover sandboxes when not in use to discourage cats from depositing feces there.
- Encourage children to wash their hands after playing outside and before eating.
- Schedule regular checkups with your veterinarian, and bring a stool sample from your pet for parasite testing.
• Any new pet entering the home should be tested for GI parasites as soon as possible and treated if parasites are found.
• If possible, prevent your pet from killing and eating rodents and other small animals.
• Use effective flea control to reduce the risk of exposure to tapeworms
Dexamethasone Suppression Test

- A dexamethasone suppression test is used to help diagnose Cushing disease (a condition involving the adrenal glands) in dogs.
- Cushing disease affects the way the body produces the hormone cortisol, which has many functions in the body.
- Dexamethasone suppression testing can usually be performed at your veterinarian’s office and takes a few hours to complete. The risks associated with dexamethasone suppression testing are minimal.

What Is a Dexamethasone Suppression Test?

Dexamethasone suppression testing is used to help diagnose Cushing disease, a condition that affects the adrenal glands in dogs. Cushing disease is much less common in cats.

What Is Cushing Disease?

Cortisol is a steroid hormone produced by the body’s adrenal glands. Under normal circumstances, the body has highly developed systems called feedback mechanisms that control how much cortisol the body produces. This allows the adrenal glands to produce/release higher or lower amounts of cortisol, based on the body’s needs. Cortisol affects many systems in the body, including the immune system and systems that control the body’s fluid balance. Cushing disease occurs when something in the body causes the adrenal glands to disregard the normal feedback mechanisms. Sometimes Cushing disease is caused by a tumor on one of the adrenal glands, which continues to make cortisol despite signals from the body telling it to stop. Sometimes, the adrenal glands are “tricked” by another gland (the pituitary gland in the brain) into continuing to produce too much cortisol.

Cushing disease eventually results in negative effects on the body due to the sustained overproduction and release of cortisol. Clinical signs associated with Cushing disease can include the following:

- Increased drinking and urination
- Increased appetite
- Thinning hair
- Muscle weakness
- Liver enlargement

Cortisol overproduction can also cause problems with the body’s regulation of sugar, a condition that can predispose a pet to developing diabetes.

What Is a Dexamethasone Suppression Test Used For?

A dexamethasone suppression test checks whether the body’s cortisol feedback mechanisms are working properly. Normally, if the body is given cortisol from an outside source (for example, in a pill or by injection), the adrenal glands “realize” that there is additional cortisol in the body,
and they respond by decreasing their own production and release of the hormone. However, if the feedback mechanisms are not working properly, the adrenal glands will continue to produce cortisol despite the introduction of additional quantities. This inappropriate response by the adrenal glands is consistent with a diagnosis of Cushing disease. Your veterinarian may also recommend additional testing to help confirm a diagnosis.

How Is a Dexamethasone Suppression Test Performed?

Your veterinarian will begin the test by drawing a small amount of blood from your dog to check the baseline ("starting") cortisol level. Afterward, a very small dose of cortisol is given by injection. Repeat blood samples are then taken at specific intervals (a few hours apart) to measure the cortisol level and determine if the body’s response to the injection of cortisol is appropriate. The blood samples are submitted to a diagnostic laboratory. Results are generally available within a few days.

Your veterinarian will likely recommend that your dog remain in the hospital for the few hours that are needed to complete the dexamethasone suppression test. This is to avoid stress (for example, from a car ride), which can affect your dog’s cortisol level and reduce the accuracy of the final test result. Generally, dogs undergoing dexamethasone suppression testing are temporarily kept in a very quiet area of the hospital to reduce stress and excitement as the test is being performed. Your veterinarian may ask you to withhold food on the day of the test. You should mention any medications or supplements that your pet may be receiving, as some chemicals can affect the accuracy of the test. Be sure to address any questions or concerns with your veterinarian.

What Are the Benefits and Risks of Dexamethasone Suppression Testing?

There are very few risks associated with dexamethasone suppression testing. The amount of cortisol that is given by injection is very small and is not enough to cause side effects. Drawing blood takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Once blood is obtained, all further processing is performed at your veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.

Diagnosing Cushing disease can be complicated, but early diagnosis can mean early treatment and a better chance at a normal life. Several different tests can be performed to diagnose Cushing disease, so your veterinarian may recommend performing multiple tests to help confirm the diagnosis.
Diabetes Insipidus in Dogs

- Diabetes insipidus occurs when the body is unable to produce an adequate amount of the hormone vasopressin (also called anti-diuretic hormone [ADH]).
- Affected dogs drink excessively because they lose excessive amounts of fluid through urination.
- With treatment, dogs with diabetes insipidus can live a normal life span and enjoy a relatively normal life.

What Is Diabetes Insipidus?

When most of us think about diabetes, we think of a condition called diabetes mellitus. This is a disease in which the body doesn’t make an adequate amount of the hormone insulin or the body is unable to use its available insulin effectively. The result is an inability to regulate the body’s blood sugar level.

However, there is another form of diabetes called diabetes insipidus. Like diabetes mellitus, diabetes insipidus involves changes in one of the body’s hormone levels. Diabetes insipidus occurs when the body is unable to produce an adequate amount of the hormone vasopressin (also called anti-diuretic hormone [ADH]) or when the available vasopressin is not being used properly.

Normally, ADH is produced by the brain, enters the bloodstream, and affects several areas of the body, particularly the kidneys. ADH helps the kidneys retain water, which is necessary for keeping the body adequately hydrated. Diabetes insipidus occurs when the body doesn’t have enough ADH or when the kidneys can’t use it properly. The result is fluid loss by the body, leading to dehydration.

Because ADH is produced in the brain, medical conditions such as brain injury, brain inflammation, and brain tumors can sometimes interfere with the brain’s ability to produce a normal amount of the hormone. Conditions that can reduce the kidney’s ability to use ADH properly include uterine infections, kidney infections, and adrenal gland disease. In some dogs, diabetes insipidus is a genetically inherited condition.

What Are the Clinical Signs of Diabetes Insipidus?

Because ADH helps the body retain water, an inadequate amount of ADH (or an inability to use it properly) causes the body to lose too much water through urine production by the kidneys. A very common clinical sign associated with diabetes insipidus is increased production of abnormally dilute urine. The pet responds to this water loss (dehydration) by drinking more water, so dogs with diabetes insipidus tend to urinate frequently and drink large amounts of water. Affected dogs may also begin to urinate in the house.

In some cases, the dog may be so desperate for water that he or she stops eating (preferring instead to drink even more water) and begins to lose weight. Some dogs also “steal” water from
various sources around the home, eat snow and ice, or drink urine in an attempt to drink more fluids.

**How Is Diabetes Insipidus Diagnosed?**

Your veterinarian will begin the diagnostic process by obtaining a thorough medical history from you and performing a physical examination on your dog. Initial diagnostic tests may include a chemistry panel, a CBC (complete blood cell count), and a urinalysis. These tests can help rule out kidney disease, diabetes mellitus, and other medical conditions that tend to make dogs drink more water and urinate excessively. If there is an underlying medical condition that may be causing diabetes insipidus, such as a uterine or kidney infection, investigation of the underlying problem will likely be part of the diagnostic process.

Additional testing for diabetes insipidus may include additional blood testing and urinalysis as well as a specific test to determine if your dog’s kidneys are able to produce concentrated urine. This test may require that your dog spend a day or more in the hospital. As part of the diagnostic plan, some veterinarians administer desmopressin (a synthetic replacement for ADH) to measure how the patient responds to ADH replacement.

Your veterinarian will evaluate your pet and discuss diagnostic testing options with you.

**Treatment**

Several synthetic ADH substitutes are available for use in dogs. Some of these agents are administered by injection or as pills, but some formulations are administered as drops into the eyes or nose. Weaning the pet onto a sodium-restricted diet may also be part of the recommended therapy for diabetes insipidus.

Some pet owners may elect not to treat diabetes insipidus. In this case, the pet must have unrestricted access to water at all times. If water is restricted in any way, the pet can quickly become dehydrated and suffer life-threatening complications. Also, the home environment and daily routine must be modified to allow for frequent urination. This may include installing doggie doors, increasing the frequency of walks, and/or allowing the dog to spend more time outside.

With treatment, dogs with diabetes insipidus can live a normal life span and enjoy relatively normal lives. An untreated dog can also do very well, as long as plenty of water is always available.
**Diarrhea**

- Diarrhea is feces that is looser or more watery than normal.
- Pets with diarrhea may defecate more frequently than usual, have accidents in the house, and may have blood, mucus, or parasites in their feces.
- Puppies and kittens with diarrhea, as well as pets showing signs of vomiting and lethargy (tiredness), should be seen by a veterinarian immediately.
- There are numerous causes for diarrhea, including eating garbage or foreign material, a sudden change in diet, viruses, and bacterial overgrowth.
- Diagnostic tests may include fecal tests, blood work, abdominal radiographs (x-rays), abdominal ultrasound, and endoscopy with biopsy (tissue sample).
- Treatment varies with the cause but usually includes special diets and/or medications.

**What Is Diarrhea?**

A pet with diarrhea has looser or more watery feces than normal and sometimes more frequent stools as well.

Many cases of diarrhea may resolve in a day or two without treatment. Pets that experience diarrhea for more than a few days, or show more severe signs, such as vomiting, loss of appetite, or lethargy (tiredness), should be seen by a veterinarian immediately. Puppies and kittens with diarrhea are especially susceptible to dehydration and require a veterinary exam.

**What Are the Signs of Diarrhea?**

In addition to loose or watery stools, pets with diarrhea may show signs such as:

- Mucus or blood in the stools
- Worms in the stools
- Accidents in the house
- Defecating with increased frequency
- Straining to defecate

Other signs that may indicate a more serious problem:

- Nausea or vomiting
- Loss of appetite
- Lethargy (tiredness) or weakness
- Abdominal pain
- Weight loss

**What Causes Diarrhea?**

There are many causes for diarrhea. Most commonly, it occurs when a pet eats something that is not part of his or her normal diet, such as garbage, or when the diet is changed abruptly. When changing from one kind of pet food to another, it’s best to make a slow transition over a week,
gradually mixing in more of the new food and less of the old food. This transition allows the pet’s digestive system to adjust and decreases the likelihood of diarrhea.

Other potential causes of diarrhea include:

- Bacterial overgrowth in the digestive tract
- Viruses
- Parasites
- Ingestion of foreign objects, such as toys, bones, and fabric
- Food allergies
- Inflammatory bowel disease
- Antibiotics and other drugs
- Toxins
- Pancreatitis
- Diseases in other organs (such as liver disease)
- Cancer

How Is Diarrhea Diagnosed?

Diagnosis may depend on the severity of the pet’s clinical signs and the length of time the pet has experienced the problem. Diagnostic tests may include:

- Fecal tests for internal parasites, bacterial overgrowth, and viral infections, such as canine parvovirus
- General blood tests to check for systemic diseases (diseases that affect the whole body)
- Specific blood tests, such as thyroid panels, pancreatic tests, or feline leukemia virus tests
- Abdominal radiographs (x-rays) to visualize possible obstructions and foreign bodies
- Abdominal ultrasound
- Endoscopy and biopsy (tissue sample) for chronic diarrhea cases

What Are the Treatment and Outcome for Diarrhea?

Treatment varies depending on the cause. In mild cases, your veterinarian may recommend a bland diet (a diet that will be easy for your pet’s body to digest). If there is bacterial overgrowth, your pet may need probiotics or oral antibiotics to restore the normal balance of bacteria in the digestive tract. Medications to firm the stool or treat parasites may be necessary. Diarrhea caused by ingestion of foreign objects may require surgery.

More chronic cases of diarrhea are often treated with special diets and medications. In some cases, the cause may not be completely cured and may need to be managed throughout the pet’s life.
**Digoxin Level Test**

- Digoxin is a medication used to treat congestive heart failure and certain heart rhythm abnormalities in dogs and cats.
- A digoxin level test requires a blood sample from your dog or cat, and the test can be performed at the hospital on an outpatient basis.
- The test results help determine if the dose of digoxin is in the correct range for treating the condition without causing harmful effects.
- Signs of digoxin toxicosis (disease caused by poisoning) include mild gastrointestinal upset and worsening of the signs associated with the heart condition.
- Pets with digoxin toxicosis should be taken off the drug immediately.

**What Is a Digoxin Level Test?**

The medication digoxin is used to treat congestive heart failure and a condition in which the upper chambers of the heart (the atria) beat faster than normal. This drug has a narrow therapeutic range, meaning that there is a narrow margin between the dose that improves the condition and a dose that could be toxic.

Many factors can alter the metabolism of digoxin in dogs or cats, including other medications the pet may be taking at the same time. A digoxin level test measures the level of digoxin in the blood to determine if the dose is within the therapeutic range (the correct range for treating the condition). This ensures that the pet receives the benefits of the medication without any harmful effects.

The test requires a small blood sample from your pet. Ideally, the sample should be drawn 8 to 10 hours after the pill is administered. Most hospitals send the blood sample to an outside laboratory for analysis, and the results are usually available within a few days.

**When Do Pets Need This Test?**

A digoxin level test should be performed 1 or 2 weeks after the pet is initially started on the medication. Your veterinarian may also recommend the test if the following occurs:

- The dose of medication is changed.
- Concurrent (simultaneous) medications are altered.
- The pet gains or loses weight.
- The pet experiences any signs of digoxin toxicosis.

**What Are the Signs of Digoxin Toxicosis?**

While dogs and cats with kidney disease are at risk for developing side effects from digoxin, any pet could have a problem. Possible signs of toxicosis are mild gastrointestinal upset, including vomiting, diarrhea, loss of appetite, lethargy, or weight loss.
Pet owners may also notice worsening of signs associated with the heart condition, such as increased respiratory rate, difficulty breathing, coughing, fainting, or exercise intolerance. Rarely, seizures may occur. If you notice any of these signs in your pet, contact your veterinarian immediately.

**How Is Digoxin Toxicosis Treated?**

When digoxin toxicosis is suspected, administration of digoxin should be discontinued immediately. Some pets may be treated with intravenous fluids to help eliminate the medication from their systems. Early intervention affords the best prognosis.
Dog Licenses

- Most locations throughout the United States have state or local laws that require dog owners to license their dogs.
- Licensing your dog is usually as simple as filling out a form and paying a small fee.

What is a dog license?

A dog license is proof that you have registered your dog with your local (often a state, county, or city) government authority. Most locations throughout the United States have state or local laws that require dog owners to license their dogs.

In most cases, you will receive a metal license tag that must be placed on your dog’s collar.

How do I get a license for my dog?

The licensing process is usually as simple as filling out a form and paying a small fee. However, the form is different from state to state and, sometimes, from town to town. For this reason, if you move, you will probably need to get a new license for your dog.

Proof of your dog’s vaccination status may also be required to get a dog license.

Some locations, like New York City, offer a discount on the license fee if the dog is spayed or neutered.

Do I need a dog license for my new puppy?

The age at which your dog must be licensed depends on where you live. Some places require a license for puppies as young as 3 months.

Where do I get a dog license?

Dog licenses are usually available at local government offices. In some areas, licenses may also be obtained at specific veterinarian’s offices or animal shelters. Some locations offer online services or allow you to complete the licensing process by mail.

License application forms are often available online.

Do I have to renew my dog’s license?

Many places require dog owners to renew their dog’s license every year. A small fee is usually charged for renewal. Some areas offer a “lifetime” license if the dog carries a form of permanent identification (e.g., microchip, tattoo).

Why do I need a license for my dog?
The most important reason to get a license for your dog is to comply with the laws where you live. The second most important reason is to help your dog come home to you if he or she gets lost. Animal shelters and services can use the information you supply in your license application to contact you if your dog is brought to them. For the same reason, it is important that you keep your dog’s license tag on your dog’s collar at all times.

For specific information about dog laws, licensing and renewal requirements, and licensing options for where you live, visit your local government Web site.
Dog Supplies

Every well-kept dog needs some basic supplies. Many kinds of supplies are available, so your choices will depend on your and your dog’s needs and preferences. Here are some basic guidelines regarding dog supplies.

Food and Water Dishes

Metal or ceramic dishes are best because plastic can cause a skin reaction in some dogs. Make sure that you give your dog fresh water every day.

Brush and Comb

Brushing your dog helps to remove dirt and loose, dead hair and to prevent mats and tangles. The various types of brushes and combs are designed for different purposes. Read more about them in the Dog Grooming Care Guide.

Collar With License and ID Tag

Many kinds of dog collars are available. Make sure that your dog’s collar is fitted properly to prevent escape without being too tight; you should be able to fit two of your fingers under your dog’s collar. Most locations throughout the United States have state or local laws that require dog owners to license their dogs. In most cases, you will receive a metal license tag that must be placed on your dog’s collar.

Leash

Many kinds of leashes are available. Choose a leash that you feel comfortable using. Some people prefer the feel of leather leashes, whereas others find different materials easier on their hands. However, a type of leash that’s appropriate in one situation might not be appropriate in others. For example, you might walk your dog on a retractable leash in the park so that he or she can roam and get plenty of exercise, but when walking in crowded places, at your veterinarian’s office, or in pet stores, you’ll probably want to use a leather, nylon, or fabric leash to keep your dog closer to you. Your veterinarian can offer advice and answer any questions you may have about this.

Carrier

A safe, comfortable carrier is essential for small dogs.

Crate

Pet supply stores and online vendors sell wire crates, plastic airline crates, and mesh crates. Each style has its own advantages. Wire crates usually collapse for storage and portability, and they provide more ventilation than plastic ones. Plastic crates might make dogs feel safer. Mesh crates provide privacy for dogs and are the most portable, but they aren’t very durable; some dogs chew
through them and escape. Enhance your dog’s comfort by putting a bed or blanket and a toy inside the crate. If you purchase a wire crate, your dog might like to have a blanket or towel draped over it to help him or her feel more secure.

**Bed**

A warm, comfortable bed is very important for your dog. Be sure to clean your dog’s bedding regularly.

**Dog Toothbrush and Toothpaste**

Use a specially designed pet toothbrush or baby toothbrush with pet toothpaste (do not use toothpaste for people because it can upset your dog’s stomach).

**Housing**

If your dog will be spending time outdoors, be sure he or she has access to shade and plenty of cool water in hot weather as well as a warm, dry shelter in cold weather.

**Toys**

Most dogs enjoy a variety of toys. However, dogs can be particular about the toys they’ll fetch. Preferences can include a tennis ball, a Frisbee, or a stick. Try different toys to see which one your dog prefers. Don’t use anything edible, and don’t use small or smooth balls that your dog could swallow. If your dog prefers a Frisbee, buy one specially made for dogs; Frisbees for humans are too hard and could chip your dog’s teeth.

Many dogs will play tug with any type of toy, but most people prefer something soft and comfortable to hold, such as tug toys made of fleece or soft rope that are 1 to 3 ft long. Tug toys made of bungee material are easy on the hands and will put less stress on you and your dog. Some people like using tug toys with handles.

Food puzzle toys are sturdy containers, usually made of hard rubber or plastic, with holes in which food or treats can be placed. Dogs must shake, paw, roll, chew, or lick the toy to remove the food. Food puzzle toys offer a natural solution to canine boredom.

Dogs also chew for stimulation and to relieve anxiety. Therefore, it’s important to provide various chew toys, such as synthetic bones, hard rubber toys, commercial dental bones, and other hard chew treats. Contact your veterinarian for recommendations about which toy or treat is best for your dog or if you see your dog swallow a large piece of a chew toy, bone, or treat.

**Dog Supplies Checklist**

- Food and water dishes
- Brush and comb
- Collar with license and ID tag
- Leash
- Carrier
- Crate
- Bed
- Dog toothbrush and toothpaste
- Housing
- Toys
Ear Cleaning

- Ear cleaning can help treat or prevent ear problems.
- Follow your veterinarian’s recommendations closely.
- Always put health and safety first. If the procedure seems dangerous to you or very painful for your pet, stop and consult your veterinarian.

The Basics

Ear cleaning can help treat or prevent ear problems. Some pets are prone to ear problems and may need regular ear cleanings between veterinary visits. Ear cleaning can help remove dirt and wax that can prevent medications from reaching inflamed areas. It can also get rid of allergens and microbes that may contribute to inflammation or infection.

Ear cleaning can be relatively easy, as long as you follow a few simple guidelines. The most important guideline is to always put health and safety first. If, for any reason, your pet becomes so agitated that you feel you are at risk of being bitten or scratched, stop. If the procedure seems excessively painful for your pet, stop and get your veterinarian’s advice.

Follow Recommendations

The ear is a very delicate structure. It is very important to closely follow your veterinarian’s recommendations regarding ear cleanings. Treating too frequently or too aggressively can make the problem worse, not better. Sensitive, already inflamed parts of the ear can be damaged. Because some ear washes contain chemicals and drying agents, it is important to use only products recommended by a veterinarian.

What You Need

- Old clothes
- Safe, easy-to-clean work area (e.g., tile or linoleum floor, water-resistant walls)
- Towel
- Nonirritating ear wash or rinse recommended by your veterinarian
- Cotton balls or tissues

Technique

There are several techniques for home ear cleaning. The simplest one is described here.

- Choose a space that’s easy to clean (e.g., bathroom, laundry room, shower stall), or take your pet outside. Ear cleaning can be messy.
- Wear old clothes and keep a towel handy.
- If necessary, gently restrain your pet (see Restraining Your Pet, below). You may need a helper.
- Hold the ear solution bottle just over the opening of the affected ear and gently squeeze the prescribed amount of solution into the ear. Do not squeeze the bottle too hard, as a
powerful stream can irritate tender, inflamed ear structures. **Note:** If an ear medication requires refrigeration, do not store it at room temperature; however, allow it to reach room temperature before use to make it more comfortable for your pet.

- Fold the earflap down against your pet’s head and try to prevent your pet from shaking his or her head too much. Gently massage the very base of the ear to distribute the solution as far as possible into the ear canal. Ask your veterinarian to demonstrate this massage.
- Keep the solution in the ear for the prescribed amount of time.
- Allow your pet to shake his or her head to remove some of the solution. (This is the messy part.)
- Use cotton balls or tissues to gently wipe away any discharge, loosened debris, and remaining liquid from the ear flap, side of the neck, hair below the ear, and opening of the ear canal. Cotton swabs should not be used because a sudden shake of the head or slip of the hand could result in a cotton swab puncturing the delicate eardrum or pushing debris inside the inner ear canal.

### Signs of Ear Trouble

- Odor
- Scratching/rubbing at ears or side of head
- Discharge
- Debris
- Shaking/tilting of the head
- Pain
- Head shyness (not wanting the head or ears to be touched)
- Irritability

### Restraining Your Pet

Although some pets are willing to sit or lie quietly while you clean their ears, most object, at least at first. Here are some tips on how to keep your pet from wiggling while you work:

- Place your pet on a stable work surface that you can stand next to, and allow him or her to lie down, either in an upright “sphinx” position or flat on his or her side. While standing next to your pet, put the arm you will use to treat the ear over your pet’s shoulders, and use your upper arm and elbow to press your pet against your torso to help keep him or her still. You can wrap your other arm under or over your pet’s neck to hold the ear open and ear flap back. If necessary, move to your pet’s other side or turn your pet around to treat the other ear.
- If you don’t have a high work surface, you can use the same method while seated on the floor, either holding the front of your pet’s body partially against your body or on your lap. If you have a large dog, you can stand behind him or her and have him or her sit back against your legs. Sometimes it helps to back the pet into a corner.
- Small dogs and cats can be wrapped in a large towel and held against your body, leaving only the head free. Be sure not to wrap your small pet too tightly.
- If your pet struggles, talk to him or her calmly. Stop if he or she becomes extremely agitated. Massaging the base of the ears (unless they are painful) should feel good to the pet and may help calm him or her enough that you can resume treatment.
- Be sure to reward good behavior.
**Ear Hematoma**

- An ear hematoma is a pocket of blood that forms inside the exterior portion of the ear.
- Often, ear mites or an infection in the ear canal cause a pet to scratch or shake his or her head. If aggressive scratching or head shaking causes the blood vessels inside the ear to break, a hematoma can form.
- Diagnosis of the ear hematoma is made by physical exam; diagnosis of the underlying condition requires examination of the ear canal and a swab of the ear contents.
- Surgical correction is usually the most effective way to prevent recurrence and preserve the natural appearance of the ear.
- Treatment of any underlying condition is necessary to prevent further problems.

**What Is an Ear Hematoma?**

An ear hematoma is a pocket of blood that forms within the exterior portion of a pet’s ear. Although both dogs and cats can have ear hematomas, the condition is more common in dogs.

**What Causes an Ear Hematoma?**

Ear hematomas are usually caused by some kind of self-trauma—such as when a pet aggressively scratches at the ears or shakes his or her head, causing the ears to slap against the skull. This trauma can cause blood to leave the blood vessels and pool in a pocket between the skin flaps that make up the outer part of the ear.

Usually, there is an underlying cause for the scratching and head shaking, such as ear mites or bacterial and/or fungal infections of the ear canal. It is crucial to treat both the ear hematoma and the underlying parasites or infection.

**What Are the Signs of an Ear Hematoma?**

A pet with an ear hematoma will have a fluid-filled swelling on all or portions of the inner surface of the ear flap.

**How Is an Ear Hematoma Diagnosed?**

Your veterinarian can diagnose this condition with a physical exam. However, it is also important to diagnose underlying conditions that may lead to excessive scratching or head shaking. The veterinarian will most likely inspect the ear canal and swab it for a sample to examine under the microscope for signs of parasites or infection.

**How Is an Ear Hematoma Treated?**

Surgical repair is usually the most effective treatment for ear hematomas. While your pet is under anesthesia, your veterinarian will make an incision along the length of the hematoma on the inner surface of the ear. After the fluid and blood clots are removed, the inner surface of the ear is tacked down to the outer surface of the ear with sutures. The sutures hold the inner and
outer surfaces against each other so that when scar tissue forms, the two surfaces are smooth and not lumpy. The sutures generally stay in place for a few weeks. The incision is left open so that fluid will continue to drain as the ear heals. Eventually, the incision will heal on its own.

For dogs with droopy ears, the treated ear is often flipped up and bandaged against the head to prevent head shaking during recovery. An Elizabethan collar (a cone-shaped hood that fits over the pet’s head) is often recommended so pets can’t scratch at the ears.

As an alternative, several small incisions may be made on the inside surface of the ear with a laser. In this case, sutures are not needed.

Another treatment involves the placement of a small drain, or rubber tube, in the external portion of the ear. The drain is kept in place for several weeks as the fluid resolves and the ear heals. Some pets may not tolerate this, and cats’ ears are usually too small for this technique.

In some cases, veterinarians may draw out the fluid with a needle and syringe. Medication may also be injected into the space to reduce swelling and inflammation. However, it is very common for the hematoma to come back with this procedure.

If there is an underlying ear infection or ear mites, your pet will most likely need to have the ear canals cleaned and treated with ointment or drops. Resolution of the underlying problem will help prevent another ear hematoma.

Without treatment, the ear hematoma will eventually heal on its own, but your pet will probably experience weeks of discomfort. In addition, the two sides of the ear often form thickened, wrinkled scar tissue, so the ear won’t look or feel natural. If the underlying ear condition is not treated, your pet will continue to scratch or shake his or her head, and there’s the chance that the other ear may develop a hematoma.
Ear Infections and Your Pet

- Any pet can develop an ear infection, regardless of ear shape, exposure to water (swimming), or the amount of hair inside the ear canal.
- Underlying allergies or other illnesses can cause ear infections to develop.
- Diagnosis is based on physical examination findings, but diagnostic testing may be recommended to investigate underlying factors contributing to the infection.
- Treatment usually involves applying medication into the ears, but identifying and treating underlying causes helps ensure treatment success and reduces the likelihood of reinfection.

What Is an Ear Infection?

Ear infections generally begin as inflammation of the skin inside the outer ear canal. Once the inflammation is present, discharge, redness, and other characteristics of an ear infection become established.

Any pet can develop an ear infection regardless of ear shape, exposure to water (swimming), or the amount of hair inside the ear canal. Allergies and other systemic illnesses (illnesses that affect the entire body) are commonly involved in establishing ear infections and keeping them going.

The medical term for an ear infection is *otitis*. Ear infections tend to begin in the outer ear canal, but they can progress to involve the middle ear canal and inner ear.

What Causes Ear Infections?

Ear infections in dogs and cats are most often the result of an underlying problem. Conditions that can lead to development of an ear infection include the following:

- Allergies (food or inhalant allergy)
- Ear mites
- Polyps or other growths in the ear canal
- Systemic illnesses such as thyroid disease and adrenal gland disease (in dogs)
- Foreign bodies in the ears, including dirt, sand, or plant material

Ear infections begin with inflammation of the tissue inside the ear canal. Once the inflammation is established, bacteria and yeast take advantage of this environment to infect the ear. This means that when your veterinarian is trying to diagnose and treat an ear infection, the underlying cause must be considered, along with the ear infection itself and any other bacterial or yeast infections that may be complicating the condition.

What Are the Clinical Signs of an Ear Infection?
Ear infections are painful. Some pets may even try to bite someone who attempts to touch their ears or head. The clinical signs of otitis depend on the severity of the inflammation but may include the following:

- Shaking the head or rubbing the head and ears on the floor or on furniture
- Scratching the ears
- Discharge from the ears, which can sometimes have a very bad odor
- Redness of the ear canal and ear flap; the ears may also feel warm when touched

Some pets with severe otitis may cry or groan as they rub and scratch their ears. Some pets scratch so severely that their nails create wounds on the skin around their face, neck, and ears. If the otitis is severe or chronic, the outer ear canal can begin to thicken and become deformed. This thickening can make the ear opening very narrow, so cleaning the ears becomes more difficult. Ulcerations on the inside of the ear canal can also result from infection and trauma.

Chronic or severe ear infections that begin in the outer ear canal can damage the ear drum, causing hearing loss. Additionally, progression of the infection into the middle and inner ear can be associated with more severe clinical signs, including development of a head tilt, incoordination, inability to stand or walk, and increased pain.

**How Is an Ear Infection Diagnosed?**

A medical history and physical examination findings can provide valuable information for your veterinarian when trying to diagnose an ear infection. The medical history may include trying to determine how long the ear infection has been going on, whether it has occurred before, and whether any other signs of illness have been observed. Physical examination findings may reveal evidence of underlying illness, such as thyroid disease (in dogs).

Diagnosis of otitis is usually based on physical examination findings; redness, inflammation, discharge, and other changes within the ear can indicate an ear infection. Determining the cause of the infection generally requires diagnostic testing. For example, ear mites can be diagnosed by examining a small amount of ear debris under a microscope. If your veterinarian suspects a bacterial or yeast infection, he or she may recommend culture and sensitivity testing of the debris inside your pet’s ear. To perform this test, your veterinarian places a small, sterile swab into the outer area of your pet’s ear canal to collect some of the debris. This material is submitted to a diagnostic laboratory, which can analyze it to determine exactly which bacteria or yeast are present. This information helps your veterinarian determine the best medications to treat the infection. If an underlying illness such as thyroid disease, adrenal gland disease, or allergy is suspected, blood testing or other diagnostic tests may be recommended.

Your veterinarian will also likely clean your pet’s ears to remove as much debris as possible before treatment begins.

**How Is an Ear Infection Treated?**
Your veterinarian will likely prescribe medication (usually ointment or drops) that can be placed directly into your pet’s ear to treat the ear infection. If a secondary bacterial or yeast infection is present, oral antibiotics or antifungal medication may also be recommended. In some cases, your veterinarian may recommend oral or topical steroids to help reduce swelling and inflammation and make your pet more comfortable with having his or her ears handled. Of course, identifying and treating the underlying cause of the infection is critical to ensuring treatment success and reducing the chances of reinfection.

Thyroid disease and adrenal gland disease can generally be managed with medication, but therapy is long-term, frequently for the life of the pet. Similarly, pets that develop ear infections as a result of allergies may need to remain on a hypoallergenic diet or receive long-term treatment for inhalant allergies. In contrast, ear mite infestations resolve relatively quickly with treatment and only tend to come back if the pet is exposed to ear mites again.

In many cases, the ears may start looking better after only a few applications of medication. However, it is advised to give all medications as directed for the full course of treatment. Your veterinarian may recommend recheck exams during the course of treatment to monitor how well the condition is responding to therapy. Notify your veterinarian right away if your pet’s ears begin to look worse, if the problem seems to return after treatment is completed, or if other signs of illness are observed.

Regular ear cleaning is an important part of treating otitis. If you are uncomfortable cleaning your pet’s ears, ask your veterinary team to review ear cleaning procedures with you.

In some severe or chronic cases, surgery may be recommended to stop otitis from happening again.
Ear Mites in Dogs and Cats

- The scientific name for ear mites is *Otodectes cynotis*.
- Ear mites are contagious to other animals but not to humans.
- Ear mite infestation can cause secondary ear infections, but the mites and infections are both treatable with medication.

What Are Ear Mites?

Ear mites are small parasites that live on an animal’s body, particularly in the ears of dogs and cats. Ear mites sustain themselves by eating skin cells, blood, and earwax. They deposit their waste (a dark, crusty debris) in the ear of the host animal. They also mate and produce eggs in the ear of the host. The mite’s entire life cycle is only about 3 weeks, and the mite spends its whole life on the animal. Ear mites are contagious to some other animals (for example, cats, dogs, and ferrets), but they are not contagious to humans.

Signs of Ear Mites

- Shaking/rubbing of the head and ears
- Dark, crusty debris in the ears
- Itching/scratching
- Secondary ear infections
- Red and inflamed ears

Diagnosis and Treatment

Ear mites are microscopic. Your veterinarian can find them by examining ear debris under a microscope.

Fortunately, ear mite infestations are very treatable. If ear mites have caused a secondary ear infection, it should be treated while the ear mite infestation is being treated.

Your veterinarian may prescribe ear drops that kill the mites when the medication is applied into your pet’s ears. Some spot-on flea and tick medications also kill ear mites. Your veterinarian will examine your pet and recommend an appropriate treatment.

Because ear mites are contagious to other pets, all animals in the household should also be treated. If your pet goes outside frequently and can pick up ear mites again, consider regular use of a flea/tick medication that also controls ear mites.
Ehrlichia Testing in Dogs

- Ehrlichiosis is a bacterial infection transmitted by ticks.
- Clinical signs of ehrlichiosis may include fever, swollen lymph nodes, painful joints, and lethargy (tiredness).
- Many veterinarians diagnose ehrlichiosis using a SNAP test.
- SNAP testing requires a very small blood sample and takes just a few minutes at your veterinarian’s office.
- Sometimes additional diagnostic testing is recommended.

What Is Ehrlichiosis?

Ehrlichiosis is a disease caused by bacteria of the *Ehrlichia* family. There are several species of *Ehrlichia* bacteria, and some of them can affect humans. Ehrlichiosis (whether it occurs in dogs or humans) is transmitted through the bite of a tick. The tick that most commonly spreads the disease is called the brown dog tick.

After the *Ehrlichia* organism enters the body through a tick bite, it affects the cells in the dog’s bloodstream. White blood cells (needed to fight infection), red blood cells (needed for carrying oxygen throughout the body), and platelets (needed to help form blood clots) can all be affected.

What Are the Clinical Signs of Ehrlichiosis?

Ehrlichiosis has different phases of illness, which are called *acute*, *subclinical*, and *chronic*:

- In the **acute phase**, clinical signs occur about 1 to 3 weeks after an infected tick bites the dog. Clinical signs associated with this phase can include lethargy (tiredness), fever, appetite loss, and enlarged lymph nodes. In some cases, clinical signs can resolve without treatment. However, if the infection is not treated, it can progress to the subclinical phase.
- In the **subclinical phase**, the dog may appear completely normal because clinical signs are not observed. This phase may last many months or even years, but eventually, the bacteria can reactivate and start to cause illness again.
- In the **chronic phase**, the dog may again show vague signs, such as fever, lethargy, and appetite loss. However, as the *Ehrlichia* organism affects the blood cells and bone marrow, clinical signs may include bleeding problems and anemia (an inadequate number of red blood cells). At this point, the bacteria may also affect the brain, causing seizures and incoordination.

Other clinical signs associated with ehrlichiosis can include joint pain and swelling as well as autoimmune disease, in which the dog produces antibodies (proteins that defend the body) that damage its own cells. If ehrlichiosis causes severe complications, death can result.

How Is Ehrlichiosis Diagnosed?

Clinical signs of ehrlichiosis can resemble those of other tick-associated diseases, such as Lyme disease and Rocky Mountain spotted fever. Additionally, dogs can be infected with ehrlichiosis
and other tick diseases at the same time, so your veterinarian may recommend screening for other tick diseases during the diagnostic testing for ehrlichiosis.

Your veterinarian may suspect ehrlichiosis based on a medical history that includes tick exposure and suspicious clinical signs. A CBC (complete blood cell count) may also show changes in white blood cells, red blood cells, or platelets; however, not all dogs develop these changes, so CBC results can be normal even if a dog has ehrlichiosis.

Many veterinarians diagnose ehrlichiosis using a SNAP test. SNAP tests are a group of quick, convenient blood tests that can be performed at your veterinarian’s office. The available SNAP tests include the following:

- The **SNAP Heartworm RT Test** screens for heartworm infection.
- The **SNAP 3Dx Test** simultaneously screens for heartworm disease, Lyme disease, and ehrlichiosis.
- The **SNAP 4Dx Test** can diagnose four diseases at the same time: heartworm disease, Lyme disease, ehrlichiosis, and anaplasmosis (which is another disease that is transmitted to dogs through a tick bite).

SNAP testing is very accurate, so it is a good way to identify dogs that may be infected with one or more of these diseases. SNAP testing is also very convenient because it uses a very small amount of blood and takes only a few minutes to perform.

Your veterinarian may recommend additional testing to follow up a SNAP test result or to look for other evidence of illness related to heartworm disease or one of the tick-borne infections. Testing may involve sending additional blood samples to a laboratory for further analysis or performing other diagnostic tests to gain more information about your dog’s condition.

**What Are the Benefits of Ehrlichia Testing?**

Tick-borne diseases like ehrlichiosis pose a risk to dogs in many areas of the country. Because clinical signs are not always apparent, periodic testing is a good way to identify dogs that have been infected. Even dogs that receive year-round tick control products and don’t spend large amounts of time outside can be at risk for exposure to tick-borne diseases. Testing helps identify dogs that need (1) treatment for one (or more) of these infections or (2) adjustments in the type of tick control being used.

There are currently no vaccines to protect dogs from ehrlichiosis, so appropriate tick control methods combined with periodic testing may be the best way to help protect dogs from ehrlichiosis.

Many tick-borne diseases are regional, so not all dogs are at risk for exposure to the same diseases. Your veterinarian can discuss the risk of ehrlichiosis for dogs in your area. In some cases, your veterinarian may not recommend testing. Even if you live in an area where tick-borne diseases are less common, be sure to ask your veterinarian what tick prevention measures can help protect your dog.
Ehrlichiosis

- Ehrlichiosis is a bacterial infection transmitted by ticks.
- Clinical signs of ehrlichiosis may include fever, swollen lymph nodes, painful joints, and lethargy (tiredness).
- Ehrlichiosis can be fatal.

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**Treatment of Ehrlichiosis**

The main treatment for ehrlichiosis is antibiotic therapy. Doxycycline is commonly used and is an effective treatment for the disease. If ehrlichiosis has caused other complications, they may need to be treated separately, using different medications or therapies. Your veterinarian will evaluate your dog’s condition and medical history and decide on the best course of treatment.

**Prevention of Ehrlichiosis**

There is currently no vaccine against ehrlichiosis. Appropriate tick-control methods combined with periodic testing may be the best way to help protect dogs from this infection.

If possible, limit your dog’s exposure to wooded areas or other places where ticks may hide; this can reduce the risk of infection. Frequently checking your dog for ticks and safely removing them is an important daily routine, particularly during tick season.
Elbow Dysplasia

- Elbow dysplasia is a painful, debilitating, and typically inherited disease.
- The disease is a failure of the bones and cartilage in the elbow joint to grow and develop properly.
- The causes of elbow dysplasia can be multifactorial.
- Both elbow joints are typically affected although some dogs may experience it in just one.

What Is Elbow Dysplasia?

Elbow dysplasia is a painful, developmental disease that affects the elbow joints. The disease has a genetic basis, but nutrition and other factors play a role as well. Large breed dogs (such as Great Danes and Labrador retrievers) can be affected, as well as smaller dogs, like Dachshunds. Elbow dysplasia is essentially a failure of the bones and cartilage in the joint to grow and develop properly. Affected dogs experience pain, varying degrees of lameness, and may have elbow joints that are nonfunctional.

There are three bones in the elbow joint that must work together: the ulna, the radius, and the humerus. These bones must align together correctly and have normal, healthy cartilage in order for the joint to work properly. When this doesn’t occur, the joint becomes unstable and varying degrees of lameness and osteoarthritis can result. Elbow dysplasia can occur in three forms:

- **Ununited anconeal process:** A section of bone on the ulna, called the anconeal process, doesn’t unite properly with the rest of the ulna during bone growth.
- **Fragmented coronoid process:** A small piece of bone on the inside of the elbow joint develops abnormally and breaks away from the ulna bone, causing damage within the elbow joint.
- **Osteochondritis dissecans:** A piece of cartilage becomes partially or fully detached from its normal place inside the elbow joint.

Each of these conditions can produce debilitating pain in the affected joint and lead to osteoarthritis and other degenerative changes.

What Are The Signs?

The first signs of the disease are typically foreleg lameness and gait abnormalities (changes in the way the dog walks). The disease most typically appears in larger breed dogs, and affected dogs generally begin to exhibit signs of lameness and pain in the elbow joint between four and six months of age. Some clinical signs include:

- A dog that appears to try and shift weight to its rear legs
- An abnormal gait that looks as if the dog is “paddling” its feet
- Decreased activity level
- Difficulty rising
- Stiffness upon rising
• Muscle atrophy (wasting)
• Swelling in the elbow area

Breeds that are most commonly affected include:

• Bernese Mountain dog
• German shepherd
• Rottweiler
• Golden retriever
• Labrador retriever
• Newfoundland
• Saint Bernard

**Diagnosis**

Diagnosis of elbow dysplasia can be made based on clinical signs, physical examination, gait analysis, and diagnostic imaging. Radiographs (x-rays) are typically used to confirm elbow dysplasia but in some cases diagnostic arthroscopy, MRI (magnetic resonance imaging), or other diagnostic imaging may also be recommended. During the physical examination, the veterinarian will look for signs of reduced range of motion in the joint as well as muscle atrophy.

**Treatment and Outcome**

Treatment of elbow dysplasia depends on its severity and may include a combination of medical and surgical options. Medical treatment includes weight management, appropriate exercise, physical therapy, NSAID (nonsteroidal anti-inflammatory drug) therapy, and joint supplements. Surgical options are also available. Depending on the type of elbow dysplasia, the age of the dog, and the severity of the condition, your veterinarian will discuss whether surgery is recommended for your dog.

Long-term outcomes for most dogs with elbow dysplasia can be fairly positive. Many dogs develop osteoarthritis before diagnosis or as the disease progresses, so long-term management includes managing osteoarthritis.

As with most degenerative diseases, early treatment may result in a better outcome.
Electrocardiography

- An electrocardiogram (ECG) is a test that helps to determine the heart’s rhythm and rate.
- Your veterinarian may need to combine ECG results with results of blood work, x-rays, and possibly cardiac ultrasound to get a clear idea of how your pet’s heart is functioning.
- An ECG is safe and noninvasive and takes only a few minutes to perform.

What Is Electrocardiography?

The body sends electrical impulses through the heart that stimulate heartbeats to occur at a consistent rhythm and rate. An electrocardiograph machine can detect and record electrical changes associated with the beating of the heart. Your veterinarian can interpret this information to determine your pet’s heart rhythm and rate. The process of using the electrocardiograph machine to assess heart rate and rhythm is called electrocardiography, and the result is an electrocardiogram (ECG).

The ECG can tell your veterinarian if your pet’s heart is beating too slowly or too quickly. It can also tell if the rhythm is abnormal (a condition called an arrhythmia) or if there is any type of delay in conduction (transmission) of the electrical impulses through the heart. A delay can be associated with problems such as thickened heart chambers or heart enlargement. However, the ECG is not generally used to evaluate the function of heart valves or to check the heart muscle for normal contractility (ability to contract). In many cases, your veterinarian will combine ECG results with results of blood work, x-rays, and possibly cardiac ultrasound to get a clear idea of how your pet’s heart is functioning. All of these tests can be performed as part of a cardiac examination.

How Is Electrocardiography Performed?

Electrocardiography generally takes only a few minutes and is not painful for your pet. Sedation is not required. Pets are generally encouraged to lie on their side during the procedure, but it can also be done if the pet is standing.

The heart's electrical impulses are recorded by attaching small electrodes to your pet’s limbs and chest. The ECG machine records these impulses as wavy lines onto a strip of ECG paper, which your veterinarian examines to determine the test results.

The electrical impulses associated with a normal heartbeat create a specific pattern on the ECG paper, and a normal heart rhythm creates a specific amount of space between each pattern. The pattern of an abnormal heartbeat or irregular heart rate looks different. Your veterinarian will interpret all of this information to determine if the ECG results are normal.

What Are the Benefits of Performing Electrocardiography?

An ECG is safe and noninvasive and takes only a few minutes to perform. An ECG shows the heart's electrical activity and identifies arrhythmias or alterations in heart rate. An ECG is useful
for determining if an animal has heart disease. The information provided by an ECG helps your veterinarian make appropriate treatment recommendations for your pet.
Endocarditis

- Endocarditis is an infection of the heart valves and/or inside lining of the heart.
- The disease is more common in dogs than cats and usually affects male dogs.
- Endocarditis occurs when bacteria from another location in the body travel through the blood to the heart.
- Signs of endocarditis include coughing, difficulty breathing, getting tired quickly, and fainting episodes.
- Diagnosis may require blood tests, radiographs (x-rays), electrocardiograms (ECGs), and an echocardiogram (an ultrasonic examination of the heart).
- Treatment includes antibiotics and medications for heart failure.

What Is Endocarditis?

Endocarditis is the infection of the heart valves and/or inside lining of the heart. In most cases, the infection involves bacteria, but a fungus may also be responsible. The disease typically occurs in dogs, especially mid-size to larger breeds, and is rare in cats. Male dogs are most commonly affected.

What Causes This Condition?

Endocarditis is often initiated by a bacterial infection somewhere else in the body, such as the mouth, urinary tract, prostate, lungs, or bones. Bacteria from these locations can spread to the bloodstream. When the bacteria-filled blood flows through the heart, the heart valves can become infected.

In addition to bacteria, platelets and fibrin (substances responsible for clotting) build up on the valves, forming clumps known as vegetations. These vegetations eventually interfere with heart valve function, often leading to heart failure. The left side of the heart, which receives blood from the lungs, is most often infected, resulting in lung congestion.

Fragments of the vegetations can also break loose and travel through the blood to other parts of the body. These fragments can act like a clot and deprive tissues of oxygen, or cause infections in other locations, such as the joints, nervous system, and urinary tract.

What Are the Signs of Endocarditis?

The signs of endocarditis are usually associated with left-sided heart failure and lung congestion. These signs may include coughing, difficulty breathing, getting tired quickly, and fainting episodes. Other signs are more general or may be associated with clots or infections in other parts of the body. These signs include:

- Lethargy or weakness
- Weight loss
- Loss of appetite
- Fever
• Limping or lameness

How Is This Disease Diagnosed?

Diagnosis is often difficult and may require several tests and procedures. Blood tests are usually performed to check for signs of infection and to determine if other organs are infected. The veterinarian will usually want to take several blood samples over a 24-hour period to be tested. The tests determine the exact bacteria involved and the most effective antibiotics to use against them.

Other procedures may include radiographs (x-rays) to assess the heart, as well as ECGs (electrocardiograms) to evaluate heart rhythm and function. An echocardiogram, which is a heart exam with an ultrasound machine, is often useful to help the veterinarian visualize the heart valves and identify vegetations.

How Is Endocarditis Treated?

Treatment usually involves antibiotics for a number of weeks. If the pet has heart failure, additional medications may be necessary to help the heart function properly and to relieve congestion in the lungs. Follow-up examinations are important to determine the effectiveness of treatment and to ensure that your pet is comfortable. Early diagnosis and treatment offers the best prognosis.
Entropion

- Entropion is a condition in which part or all of the eyelid rolls inward toward the eye surface.
- As a result, eyelashes may brush against the cornea (the clear covering of the eye), causing scratches, ulcers, and pain.
- Signs of entropion and associated corneal damage include squinting or blinking, excessive tearing, eye discharge, and pawing at the eye.
- The condition is often inherited in flat-faced dogs and cats or in dogs that have many facial folds.
- It may also occur as a result of eye irritation, which can cause eyelid spasms.
- Diagnosis involves an examination of the eyelids and eye surface.
- Treatment usually involves surgical correction of the eyelid conformation (shape), as well as treatment of any corneal damage from eyelash rubbing.

What Is Entropion?

Entropion is a rolling inward of part of the eyelid or the entire eyelid. It can occur on the upper and/or lower eyelid, in one eye, or in both eyes. When the eyelid rolls inward, the eyelashes can rub against the cornea (the clear covering of the eye), resulting in painful scratches. If left untreated, these scratches can lead to corneal ulcers and blindness.

Entropion is more common in dogs than in cats. Flat-faced dogs (like English bulldogs, Pekinese, and pugs) and cats (like Persians and Himalayans) may be more likely to experience entropion. Breeds that have numerous skin folds on the face, such as bloodhounds, shar-peis, and chow chows, may also be more likely to experience this condition.

What Are the Signs of Entropion?

- Pets with entropion may show the following signs:
  - Squinting, blinking
  - Excessive tear production
  - Eye discharge that may be clear, white, yellow, or greenish
  - Pawing at eye
  - Pigmentation (discoloration) on the eye surface

If you see these signs in your pet, it is important that you seek veterinary help immediately. Corneal scratches can be very painful, and the outcome is better if they are treated as soon as possible.

What Causes Entropion?

Entropion is generally inherited, but it can also be caused by eye irritation, which can cause the eyelids to spasm.

How Is Entropion Diagnosed?
Your veterinarian will examine the eye to determine if entropion is being caused by a primary problem with the eyelid or by eye irritation. If eye irritation is the cause, once the irritation is resolved, the eyelid will most likely return to normal.

While examining the eyelid, the veterinarian will also assess the eye surface for damage that may have been caused by eyelash rubbing. He or she may put a few drops of fluorescein dye into the eye. This procedure is painless and can locate a scratch or other injury on the surface of the cornea. If there is an injury on the cornea, the dye sticks to it, making it obvious by staining it apple green.

**How Is Entropion Treated?**

Generally, entropion is treated with surgery. A small piece of skin is removed to make the eyelid roll more outward instead of inward and keep the eyelashes away from the eye surface. In puppies, surgery should not be performed until the face conformation (shape) has matured, which is usually by about 6 months of age. Temporary stitches may be put in place until then to prevent the eyelashes from rubbing against the eye.

If a corneal injury has resulted from the eyelashes rubbing against the eye, it must also be treated. Minor corneal injuries are usually treated with topical antibiotics (applied directly to the eye as drops or ointment) and pain medications. More severe problems may require surgical intervention.
Examination and Rabies Vaccine

- Regular examinations are essential to maintaining your pet’s health.
- A thorough physical examination checks every major body system.
- Periodic vaccine risk assessments help ensure that your pet is properly immunized against infectious diseases.
- Rabies is a deadly disease that is generally fatal in all species. Vaccination against rabies is required by law in most states.

Why Are Annual Examinations Important?

Regular physical examinations are essential to maintaining your pet’s health. A thorough examination checks every major body organ and system.

- **Eyes**—The eyes will be checked for redness, cloudiness, or discharge.
- **Ears**—Many pets suffer from ear infections. Your veterinarian will examine your pet’s ear canals for possible signs of an ear problem: debris, waxy buildup, or trauma caused by scratching.
- **Mouth**—Your veterinarian will look in your pet’s mouth for signs of dental disease and for broken or missing teeth. If he or she sees any problems, your veterinarian may recommend a thorough dental examination and cleaning for your pet.
- **Respiratory system**—Your veterinarian will listen to your pet’s heart and lungs.
- **Digestive system**—Your veterinarian will “palpate” (feel) your pet’s abdomen for signs of discomfort and to check that the major organs are the right size and shape.
- **Musculoskeletal system**—Your veterinarian will palpate all your pet’s major muscles and bones to check for signs of weakness or pain.
- **Skin and haircoat**—Your veterinarian will check all your pet’s “lumps and bumps.” If anything suspicious is found, a biopsy or lump removal may be recommended.
- **Laboratory tests**—During a routine examination, your veterinarian may also want to take samples of your pet’s blood, urine, and feces to obtain additional information about your pet’s health or to ensure that specific body systems are functioning properly.

During your pet’s examination, your veterinarian will also ask you many questions about your pet’s behavior, lifestyle, and health history since your last visit. The answers to these questions will help your veterinarian determine what preventive care recommendations he or she should make in order to help keep your pet healthy. Based on your pet’s age, lifestyle, and disease risk, your veterinarian will recommend vaccinations for your pet. In virtually every state, vaccination against rabies is required by law.

What Is Rabies?

Rabies is a deadly disease caused by a virus that attacks the central nervous system. All warm-blooded animals, including wild animals, dogs, cats, and humans, can get rabies. Once clinical signs appear, rabies is generally fatal. However, the disease is also generally preventable through vaccination.
Rabies remains prevalent in wildlife populations—primarily raccoons, bats, foxes, and skunks. Pets are at risk of contracting the disease from wild animals and potentially transmitting it to humans.

The virus can have an incubation period lasting from days to months. Rabies is usually transmitted through contact with the saliva of an infected animal; most pets and people become infected through a bite wound. An animal’s saliva becomes infective once the virus has traveled through the animal’s nervous system from the initial bite site to reach the brain and, ultimately, the salivary glands. Once the virus enters the salivary glands, the animal can pass the infection to other animals or humans through its saliva. Animals with rabies are referred to as rabid.

Prevention

Because of the potentially serious human health implications, rabies vaccination of dogs is required by law in virtually all states, and many states also require cats to be vaccinated. Vaccination is the most effective way to prevent the disease in animals and, in doing so, to safeguard human health. Today’s rabies vaccines are very safe and effective.

Other forms of rabies prevention include:

- Keeping your pet away from wildlife.
- Ensuring that all other dogs or cats your pet comes in contact with are vaccinated.
- Minimizing contact with stray animals. Do not feed stray animals with unknown vaccination status or allow them to remain near your home and pets.

Vaccination helps protect your pet from unnecessary euthanasia or extended quarantine if he or she has contact with a rabid animal. Any pet that bites a person and has an unknown or out-of-date vaccination status may be subject to quarantine or euthanasia, depending on state laws.
Exercising Your Dog

- Exercise can have many health benefits for your dog.
- You can help your dog get plenty of exercise by scheduling regular activity.
- Consult your veterinarian before beginning an exercise program for your dog.

Benefits

Exercise can have many health benefits for your dog. Regular exercise burns calories, reduces appetite, improves muscle tone, increases metabolism, and improves temperature regulation. It can be a valuable contributor to weight loss and maintenance. Exercise can also help stimulate your dog’s mind, thereby preventing boredom and destructive behaviors.

Needs and Precautions

Individual exercise needs vary based on breed or breed mix, sex, age, and level of health. If your dog is a 6- to 18-month adolescent or a sporting, herding, hound, or terrier breed or mixed breed, your dog’s exercise requirements are high. However, strenuous exercise can cause problems in some dogs, especially those that are not fit or are very young or old. Athletic owners should consider this to avoid overexerting their dogs, especially in hot or humid weather. When starting a new exercise routine, go slowly for the first week to give your dog a chance to adapt to it. On hot or cold days, go easy or rest. Consult your veterinarian before beginning an exercise program for your dog.

Get Moving

Various kinds of exercise can help satisfy your dog's instinctive urges to dig, herd, chew, retrieve, and chase. Here are some good exercise options for most dogs:

- Walking or jogging
- Fetch
- Playing with other pets
- Running off leash
- Swimming (great for arthritic dogs)
- Tricks for low-calorie treats (see the box for ideas)
- Tug of war if appropriate for your breed

You can help your dog get plenty of exercise by scheduling regular playtimes and walks. For walks, work up to a brisk, 10- to 20-minute walk or jog once or twice a day. If you don’t have time to walk your dog, hire a dog walker. Consider adopting another pet so that your dog has a playmate that encourages activity. If you don’t want to commit to a new pet, try scheduling regular visits with the pet of a friend or relative. Doggy day care centers can also help ensure that your dog gets plenty of exercise throughout the day.

Low-Calorie Dog Treats
• Apple slices
• Banana slices
• Carrot slices
• Commercial dog treats (low-calorie or formulated for a smaller dog)
• Green beans
• Lean meat (cooked)
• Melon chunks
• Pear slices
• Popcorn (without butter or oil)
• Unflavored rice cake pieces

If your dog has food allergies, consult your veterinarian about which treats are safe and appropriate.

Do not feed your dog (or cat) grapes or raisins because they have reportedly caused kidney problems in pets.
Explaining Pet Loss to Children

Our companion animals are often treasured members of the family, and we mourn for them when they die or are euthanized. It is important to recognize your feelings of loss and grief and to express them in your own way. In addition, when your child is attached to a pet that dies or is euthanized, it is important to recognize his or her feelings of loss and help your child express those feelings.

The Human–Animal Bond

The human–animal bond is increasingly recognized as a powerful and unique relationship. This bond offers much-needed comfort and companionship in our hectic lives, even improving our mood and blood pressure! When our beloved animals die or are euthanized, it is important to recognize our feelings of bereavement and to express them. Families often have a pet for a number of years, so children grow up with the pet as part of the family. Unfortunately, dogs and cats usually live for only 10 to 15 years and smaller animals usually live for fewer years, so a child may lose a few pets before reaching adulthood. Recognizing the importance of the pet in your child’s life and preparing your child for the loss are crucial to helping your child cope with grief.

What to Do

Children are often very attached to the family pet, so loss of a pet can be very traumatic for a child. Honesty is the best policy when explaining a pet’s death to your child, but you should use language appropriate for your child’s age. Your child wants to understand what happened, so use simple terms; however, do not say that the pet “was put to sleep” because your child may become afraid to sleep. Your child needs time to grieve and may want to memorialize the pet by making a scrapbook or having a memorial service. Talk with your veterinarian about obtaining your pet’s ashes and burying them (if your municipality permits this). Ask about other memorials that your veterinarian may offer, such as making a paw print for a keepsake that your child may treasure. To help your child focus on happy memories, share funny stories about your pet and frame a picture of your child with your pet.

Seek Assistance

Talk with your veterinarian about ways to help your child cope. It may be helpful for your veterinarian to talk with your child. It is important for parents to inform school officials that their child has lost a pet. If your child shows behavioral changes or signs of depression, your child may need to talk with a professional counselor.

Many veterinary schools offer a pet-loss support hotline and support groups for small animal owners experiencing the loss of a pet. Several good sources of information on pet loss are available, including Argus Institute (for families and veterinary medicine) at the College of Veterinary Medicine & Biomedical Sciences at Colorado State University (www.argusinstitute.colostate.edu).
What to Do If Your Child’s Pet Dies or Is Euthanized

- Honesty is the best policy when explaining a pet’s death to your child, but use language appropriate for your child’s age.
- Memorialize the pet by making a scrapbook or having a memorial service.
- Talk with your veterinarian about obtaining your pet’s ashes and burying them.
- Ask your veterinarian about memorials that he or she may offer, such as making a paw print as a keepsake for your child.
- To help your child focus on happy memories, share funny stories about your pet and frame a picture of your child with your pet.
Eye Discharge

- Some pets produce more tears than others, so increased wetness of the eye is not always a medical problem.
- Eye discharge becomes a problem when it is excessive, abnormal, or accompanied by other signs of a problem (such as squinting, rubbing, or sneezing).
- Depending on the cause of the eye discharge, drops or ointments applied directly to the eye are effective in many cases.

What Is Eye Discharge?

Eye discharge can refer to any type of fluid that comes from the eye. Most healthy pets have eyes that are clear, bright, and have minimal discharge. However, some types of eye discharge are completely normal. Each time your pet blinks, tears are released from tear ducts and bathe the surface of the eye to provide moisture and deliver oxygen and nutrients. Some pets produce more tears than others, so increased wetness of the eye is not always a medical problem. Some pets can also have crusty material at the corners of their eyes when they wake up. This is usually easy to clean with a damp tissue and is not considered a problem in most cases.

Tear staining occurs in some dogs and cats. Animal tears contain components that can cause brown staining of the fur around the eyes. In pets with light-colored fur, this discoloration can be more noticeable than in pets with darker fur. Tear staining is not generally considered a medical problem, but can sometimes be minimized by keeping the facial fur trimmed close and wiping the eyes daily with a damp tissue to remove excess material. If tear staining is excessive, ask your veterinarian about other management options.

When Is Eye Discharge a Problem?

Eye discharge becomes a problem when it is excessive, abnormal, or accompanied by other signs of a problem. A small amount of clear discharge can be considered normal, but excessive tearing or consistent watering should be investigated. Normally, tears produced around the eyes drain out of the nose, through the nasolacrimal ducts. Occasionally, these ducts can become blocked, causing the clear discharge to spill out onto the face.

Similarly, discharge that becomes thick or starts to look like mucus or pus can indicate an eye infection or other problem. Even if eye discharge does not seem excessive or abnormal, if it is accompanied by other clinical signs such as squinting, sneezing, or rubbing the eyes with a paw or against other objects (such as furniture or the floor) this can indicate an eye infection or other problem. Eye discharge can also occur with some systemic illnesses (illnesses that affect the entire body), such as an upper respiratory tract infection.

Dogs and cats that have short, flat noses or “pushed in” faces, like Persian cats and Pekingese dogs, sometimes have folds of skin on their faces (right under the eyes) that become moist and infected from being consistently wet from tears. Also, the hair on their faces sometimes brushes the surface of the eyes, scraping against the cornea (the clear covering of the surface of the eye) and causing irritation and increased eye discharge.
Dry eye is a condition in which tear production is too low to keep the surface of the eye moist. Instead of tears bathing the cornea with each blink, the inner eyelids scrape against the cornea, causing trauma and irritation. Pets with dry eye tend to develop a thick white or green discharge from the eyes in response to the cornea becoming excessively dry and irritated. These pets may also squint or rub their eyes because dry eye can be painful.

Irritating airborne substances can cause redness, excessive watering, and other problems with the eyes. Common airborne irritants include cigarette smoke, dust, dirt, pollen, and sprays/perfumes used around the home.

How Is Eye Discharge Diagnosed?

Medical history and physical examination findings can provide valuable information for your veterinarian. Medical history may include trying to determine how long the eye discharge has been present and whether any other signs of illness have been observed. Physical examination findings may reveal evidence of underlying illness.

If the pet is squinting because the eyes are painful, your veterinarian may begin the eye examination by applying a drop of liquid topical anesthetic directly to the eye. This is not painful, and after a few minutes it makes the surface of the eye numb so examination can proceed. During examination, your veterinarian will likely look for redness, puffiness, foreign bodies, wounds, or other changes that may explain the eye discharge.

While examining your pet’s eyes, your veterinarian may also perform tests to make sure your pet’s tear production is adequate, to check the cornea for scratches or other injuries, and to determine if the nasolacrimal ducts are blocked.

How Is Eye Discharge Treated?

If your pet has an infection or inflammation involving the eyes, drops or ointments applied directly to the eyes are effective in most cases. If tear production is inadequate (as with dry eye), long-term medication may be recommended to control the problem. If the nasolacrimal ducts are blocked, flushing them with sterile eyewash may help clear any obstructions.

Certain grooming practices, such as keeping the hair on the face trimmed closer, can help reduce tear staining and minimize contact of facial hair for dogs and cats that have flat faces.

If your pet does not tolerate dust, cigarette smoke, and other airborne irritants, your veterinarian can help you devise a plan for reducing these irritants around your home.
**Fecal Analysis**

- Fecal analysis helps your veterinarian determine if your pet has intestinal parasites.
- Only a small sample of your pet’s stool is required to perform a fecal analysis.
- Fecal analysis may be recommended if your pet develops diarrhea, weight loss, or vomiting; however, even pets that don’t seem ill can benefit from periodic fecal evaluations.

**What Is a Fecal Analysis?**

A fecal analysis is a test that examines your pet’s stool to detect intestinal parasites, including worms (hookworms, roundworms, whipworms) and other organisms (coccidia, *Giardia*). It can also detect other abnormalities, such as increased numbers of bacteria in the stool. If your pet develops diarrhea, vomiting, or weight loss (clinical signs frequently associated with parasites), your veterinarian may want to perform a fecal analysis to help determine if parasites are part of the problem. However, some pets have intestinal parasites without any obvious clinical signs, so your veterinarian may recommend performing a fecal analysis during your pet’s regular wellness examination visits.

**How Is a Fecal Analysis Performed?**

Your veterinarian may request that you bring in a fresh sample of your pet’s stool. The sample should be placed in a clean, labeled container or a leak-proof plastic bag. Your veterinarian can also obtain a fresh stool sample during a physical examination. To do this, your veterinarian may choose to use a fecal loop, which is a small plastic wand with a loop on the end. After applying lubricant, your veterinarian can gently insert the loop into your pet’s rectum and collect a sample of fecal material.

A fecal analysis begins with a visual examination of the stool sample to look for worms, blood, mucus, or foreign material such as grass, bone fragments, or other items the pet may have eaten. Your veterinarian will also examine the stool for abnormal color, consistency, or odor.

Some worms can be seen in the stool. For example, roundworms are long slender worms that look similar to spaghetti. Another worm that may be seen in the stool is a tapeworm. Adult tapeworms grow into a long, segmented parasites in the intestines. As they age, segments containing eggs break off and pass out in the stool. These segments look like pieces of rice and can sometimes be seen near the pet’s rear end or in the stool. Many other types of parasites are only visible by looking for them under a microscope. Parasite eggs, which are commonly shed in the stool of infected animals, are also visible under a microscope.

There are several tests that your veterinarian may perform as part of a fecal analysis:

- *Direct fecal smear.* In this test, a small amount of stool is placed on a microscope slide, mixed with a very small amount of water or saline, and examined under a microscope. Bacteria and some single-celled parasites can sometimes be identified using this method.
• **Fecal flotation:** In this test, a sample of stool is placed in a plastic container and mixed with a small amount of a special solution. Parasite eggs then float to the top of this solution. A clean microscope slide is placed on the rim of the container to collect the eggs, which your veterinarian can see under the microscope.

• **Fecal centrifugation:** This test is similar to fecal flotation, but the fecal material and special solution are mixed together in a test tube, which is then placed into a centrifuge. A centrifuge is a machine that spins the tube in a circle very rapidly. The spinning creates a force inside the tube that causes heavy material (such as fecal debris) to sink quickly to the bottom, and lighter material (such as parasite eggs) to float to the top. Your veterinarian then collects material from the top of the test tube and examines it under the microscope. Studies have shown that fecal centrifugation may permit the detection of more parasites than some other forms of fecal analysis.

• **Special testing:** If your veterinarian suspects that your pet is infected with *Giardia* or a specific type of bacteria, specific testing to detect these problems may be recommended.

**What Is a Fecal Analysis Used For?**

Fecal analysis is performed mainly to identify parasites. Sometimes, stool may be checked for dangerous bacteria, like salmonella, or for viral infections like parvovirus and coronavirus. These tests are usually only performed when the pet is suspected of having these diseases and are not routine.

**Benefits of Fecal Analysis**

Fecal analysis is most commonly used to help identify the eggs of parasites such as hookworms, whipworms, and roundworms. Because there is no single medication that can treat every possible parasite, accurate diagnosis is important so that the correct treatment can be given.

Some intestinal parasites, such as roundworms and hookworms, are *zoonotic*. This means that they can infect people. Periodically testing your pets for parasites is a good way to help protect your other family members.

Although some pets infected with intestinal parasites develop diarrhea or other clinical signs, many pets don’t show any signs at all. The only way to identify these pets and treat them for parasites is to test them periodically for evidence of infection. Fecal analysis is a good way to identify infected pets.
Fecal Flotation and Giardia Test

- Intestinal parasites can cause serious illness and even death in pets.
- Some parasites are zoonotic, which means they can infect humans.
- Fecal flotation and Giardia testing can identify intestinal parasites, which is important for determining the best treatment and helping to ensure a full recovery.
- Even pets that are receiving regular parasite preventive medication need periodic parasite testing. No single medication is effective against all possible parasites.

What Are Fecal Flotation and Giardia Tests?

Roundworms, hookworms, whipworms, and microscopic intestinal parasites (like coccidia and Giardia) are relatively common in pets, but that doesn’t mean that they can’t cause serious illness. Young, sick, or debilitated pets can even die if they are heavily infected with parasites. If your pet has parasites, accurate diagnosis, including identification of the parasite(s) present, is important to determine the best treatment and help ensure a full recovery. Fecal diagnostic tests, such as fecal flotation and Giardia testing, are an important part of this process.

Why Does My Pet Need Fecal Flotation and Giardia Testing?

Parasites can cause clinical signs such as diarrhea, vomiting, and weight loss. If your pet is showing any suspicious signs, your veterinarian may recommend performing fecal flotation and Giardia testing to determine if parasites are the cause. However, some pets don’t develop clinical signs, so periodic testing of “healthy” pets is also recommended. Your pet’s routine wellness examination is a convenient time to perform parasite testing. Even pets that regularly receive parasite preventive medication (e.g., daily or monthly medication) should be tested periodically because no single medication is effective against all possible parasites.

Any new pets that are being introduced into your home (whether adult pets or puppies/kittens) should be tested for parasites before meeting your other pets. Many parasites are transmitted through contact with fecal material, so if your new pet has worms, he/she can infect your other pets. Even if your new pet seems perfectly healthy, you should schedule an examination with your veterinarian as soon as possible. Parasites, viruses, and other medical problems aren’t always apparent, so your veterinarian may recommend a fecal flotation and Giardia test, along with some other diagnostic tests, to help ensure that your new pet is healthy before playing with your other pets and family members.

Some intestinal parasites, such as roundworms and hookworms, are zoonotic. This means that they can infect humans. Periodically testing your pets for parasites is a good way to help protect your other family members.

How Are Fecal Flotation and Giardia Tests Performed?

To test for intestinal parasites, your veterinarian needs a stool sample from your pet. Ask your veterinarian for a stool specimen container. Otherwise, a clean, dry container or plastic bag can be used to hold the sample. A fresh sample is preferable to a sample that is more than a day old,
and only a small amount (approximately a teaspoonful) is generally needed for testing. Also, if you have multiple cats sharing a litterbox, or multiple dogs using the same exercise area, many veterinarians will accept a “representative” sample from your household of pets.

If you aren’t comfortable collecting a specimen at home, your veterinarian can obtain a stool sample during an office visit, either during a routine rectal examination of your pet or with a device called a fecal loop. A fecal loop is a small plastic wand with a small loop on the end. After applying lubricant, your veterinarian can gently insert the loop into your pet’s rectum and collect a sample of fecal material.

To perform a fecal flotation, your veterinarian places a small amount of fecal material into a small container and mixes it with a special solution. This solution is made so that the eggs of many parasites (such as whipworms, hookworms, and roundworms) will float to the top. Your veterinarian then covers the top of the container with a microscope cover slip and allows it to sit for a few minutes. During this time, the parasite eggs float to the top of the solution and stick to the cover slip. After a few minutes, your veterinarian collects the cover slip from the top of the tube, places it on a microscope slide, and examines it under a microscope to find and identify the eggs.

Giardia organisms can sometimes be identified using fecal flotation, but some veterinarians prefer to use a different test, called a SNAP test, to screen for Giardia. The SNAP test detects Giardia antigens (proteins produced by the parasite) in the fecal material of infected pets.

Some veterinarians perform fecal testing in the office, so results may be available the same day. Other practices use an outside laboratory for diagnostic testing, so results may take a few days. Some veterinarians use other diagnostic techniques (such as centrifugation or evaluation of fecal smears) to help identify parasites.

What Are the Benefits of Fecal Flotation and Giardia Testing?

Testing for parasites helps identify zoonotic parasites that can pose a risk to children and other family members.

Although some pets infected with intestinal parasites develop diarrhea or other clinical signs, many pets don’t show any signs at all. The only way to identify and treat infected pets is to test them periodically for evidence of infection. Fecal flotation and Giardia testing are helpful for identifying infected pets.
Fecal Smear

- A fecal smear is a thin layer of feces that is examined under a microscope.
- The smear is usually performed in combination with other tests to identify possible causes of diarrhea.
- Ideally, the sample should be examined within 30 minutes of collection.
- Fecal smears are generally used to identify *Giardia*, a protozoan parasite that causes diarrhea.
- Fecal smears are used to examine fecal cytology—the cells within a fecal sample.
- Identifying organisms in a fecal smear can help your veterinarian determine the most effective treatment for your pet’s diarrhea.

What Is a Fecal Smear?

A fecal smear (sometimes called a *direct fecal smear*) is a diagnostic test that helps identify possible causes of diarrhea in a cat or dog. It is generally conducted in combination with a fecal flotation test, which is used to screen for intestinal parasite eggs.

With a direct fecal smear, a thin film of feces is examined under a microscope for evidence of *Giardia*, a protozoan parasite that can cause diarrhea. A fecal smear can also be used to identify cellular abnormalities, bacterial or fungal organisms, and in some cases, parasite eggs.

How Is the Test Performed?

The key to a good fecal smear is to start with as fresh a sample as possible. Since *Giardia* is identified by observing the organism swimming across the slide, a direct fecal smear should be examined within 30 minutes of collection, before the organisms die or disappear.

If you are unable to obtain a fresh sample, your veterinarian can usually retrieve a specimen with a gloved finger or an instrument called a fecal loop. If you can’t bring your pet to the veterinarian right away, fecal samples should be stored in the refrigerator, but not frozen, until the sample can be delivered.

Once a sample is obtained, a direct fecal smear is made by spreading a thin film of feces on a glass slide and adding a few drops of saline. The slide is then examined under a microscope for evidence of microscopic organisms.

A fecal smear can also be used to examine fecal cytology—the cells contained in the specimen. In this case, the slide is stained with special dyes to facilitate visualization of cells, bacteria, and fungi. *Clostridium* and *Campylobacter* are two types of bacteria that often cause diarrhea. Occasionally, fungal organisms may be identified. Cell abnormalities may help detect infection, hemorrhage, and in some cases, cancer.

What Are the Benefits of a Fecal Smear?
A fecal smear is an important diagnostic tool that can help your veterinarian identify probable causes of diarrhea and determine the best treatment for your pet.

The amount of feces used for a fecal smear is small, so it may be necessary to repeat fecal smears to increase the likelihood of finding organisms such as *Giardia*. In some cases, a fecal smear result may be inconclusive. Your veterinarian may recommend a commercial test that may more effectively detect *Giardia* by identifying its proteins.

The information obtained from fecal smears, including fecal cytology, can help your veterinarian find the best solution to resolving your pet’s intestinal problem.
Feeding Your New Puppy

- Veterinarians are your best source of information for making informed choices about which brand of food or treats to feed your puppy.
- Commercially produced puppy foods must meet AAFCO (Association of American Feed Control Officials) nutritional standards.
- There are a number of commercial diets specifically for dog breeds of different sizes.
- To ensure that your puppy has a healthy adulthood, seek professional advice, educate yourself about good puppy nutrition, and carefully monitor your puppy’s growth rate, activity level, and body condition.

When deciding what to feed your new puppy, make sure you get reliable, professional veterinary advice on:

- What type of diet to choose
- How much food to feed
- How to adjust your puppy’s diet as he or she grows into adulthood

Veterinarians are your best source of information to help you make more informed choices about which brand of food to feed or what kinds of rewarding treats to give your puppy for good behavior.

Eating Right—Nutrition Basics

Puppies should eat a diet that contains protein, fats, carbohydrates, vitamins, minerals, and water in the proper proportions. Commercially produced puppy foods must meet AAFCO (Association of American Feed Control Officials) nutritional standards. Pet foods that meet AAFCO standards are marked with the phrase “complete and balanced” and, in the case of puppy foods, should be formulated for growth. Any diets that meet these guidelines won’t require any additional supplementation—the diet will include all necessary vitamins and minerals. Don’t forget to also make sure your puppy has a continuous supply of fresh, clean water!

There are many commercial puppy foods on the market. Ask a veterinary professional for advice on what products offer the right nutritional mix for your pet.

How Much and When?

Typically, tiny puppies—those under 12 weeks of age—should eat three to four times a day. Once a puppy is 3 months old, he or she can generally make the switch to eating two to three times a day. The frequency of feedings, however, will depend on the puppy’s breed, size, and individual needs. This frequency should continue until the puppy has reached adulthood.

Growing puppies require significantly more food for their size than adult dogs. The feeding guidelines listed on your pet food bag are a good place to start, but you should monitor how well those amounts seem to be meeting your puppy’s needs. A puppy that is leaving food in the bowl
at mealtimes or becoming too pudgy may be eating too much; a puppy that seems lethargic or excessively thin may not be getting enough.

It’s also important to set a regular schedule for feeding your puppy. A good schedule helps prevent stomach upsets and supports housetraining your puppy.

**Large Breed vs. Small Breed**

Picture a huge Great Dane puppy standing next to a tiny Chihuahua puppy. They’re both dogs—and members of the exact same species—but their nutritional needs during puppyhood and young adulthood are completely different.

Small-breed dogs mature faster, typically have faster metabolisms, and have tiny mouths and teeth. They often need puppy diets that are easy for them to eat and chew and are more “energy dense” to help keep up activity levels and encourage proper growth and development. In addition, small, toy, or teacup breeds may need to eat more often.

Large-breed dogs, on the other hand, often mature at a slower rate and are prone to developing joint (e.g., elbow and hip) problems if they eat too much and grow too rapidly. Excess body weight can also stress developing bones. For these reasons, it is vitally important not to overfeed large-breed puppies.

Thankfully, there are a number of commercial diets specifically for dog breeds of different sizes. Diets designed for large-breed puppies, for example, are typically less energy dense and, therefore, are less likely to be overfed. Ask a veterinary professional for advice if your puppy belongs to a particularly large or small breed.

**Feed by the Puppy, Not by the Package**

The key point to remember is that every puppy is different, and no single diet will work best for all of them. To ensure that your puppy has a healthy adulthood, seek professional advice, educate yourself about good puppy nutrition, and carefully monitor your puppy’s growth rate, activity level, and body condition.

**Body Condition**

When you visit your veterinarian, he or she can weigh and examine your puppy to help you determine if things are “on track.” In between those appointments, which become less frequent as your puppy ages, you should be able to monitor your puppy’s progress on your own. Many veterinarians and nutritionists use a *body condition score* to determine whether an animal is overweight or underweight. These scores usually rank a pet on a five- or nine-point scale. In general, your dog should score a 4 on a nine-point scale or a 3 on a five-point scale throughout his or her life.

One of the most important aspects of caring for your dog’s health is to maintain your dog at a proper weight. Studies have demonstrated that dogs maintained at the proper weight will live up
to 2 years longer than overweight or obese dogs. Therefore, it’s best for all dogs—puppies and adults—to be a little on the lean side. That doesn’t mean your dog should be abnormally skinny. It means you should be able to feel—but not see—ribs when you run your hands down your dog’s sides. Your dog should also have a definite “waist” when viewed from above.

If you have any concerns about your puppy’s growth rate, condition, or eating habits, schedule a weight check.

Read the Label

Under federal Food and Drug Administration (FDA) regulations, every puppy food must include a label listing its ingredients and a guaranteed analysis of how much protein, fat, and other important nutrients are in it. Reading the percentages can get complicated, so one of the best quick ways to assess the quality of a diet is to look at the ingredient list. By law, the pet food manufacturer must list the ingredients by weight. For more information on reading pet food labels, visit www.fda.gov/AnimalVeterinary/ResourcesforYou and click on “Pet Food Labels—General” under “Information for Consumers Fliers.”
First Aid and Your Pet

- **One:** Remain calm and try to keep your pet calm. Approach your pet with caution. An animal in pain may bite or scratch.
- **Two:** If some sort of stabilization is possible (for example, direct pressure to slow down bleeding), try it—ideally while on the way to the veterinarian. If this is not possible, just get to the veterinarian as quickly as possible.
- **Three:** Even if your pet seems all right after an injury, take him or her to the veterinarian. Injuries involving an eye, the head, a large wound, breathing difficulty, sudden or severe swelling, pain, significant blood loss, or trauma (such as a car accident) should be seen immediately.

Dealing with an injured pet can be scary and frustrating. In many cases, you don’t know how bad the injury is, and your pet may not be acting normally. If your pet is injured, the first thing you need to do is try to remain calm. If possible, try to determine how severe the injury is, but remember that caution is extremely important when approaching an injured animal. Any pet, no matter how calm or friendly he or she may usually be, can bite or scratch when in pain.

While all injuries should be seen by your veterinarian as soon as possible, injuries involving an eye, the head, a large wound, difficulty breathing, sudden or severe swelling, pain, significant blood loss, or trauma (such as a car accident) should be seen immediately. Even if your pet appears to be normal after an accident, it’s possible for him or her to have internal injuries that you can’t see, so it’s important to go to your veterinarian as soon as possible.

**What to Do Before Transporting Your Pet**

In some cases, it’s obvious that your pet needs immediate transportation to your veterinarian for treatment. To reduce the risk of greater injury, however, you first need to stabilize your pet for transport.

If you think your dog may snap or try to bite because of pain, make a makeshift muzzle by wrapping something around the snout to hold the mouth closed. Be sure not to obstruct the nostrils! A necktie, stocking, belt, or long sock may work well. Wrap the muzzle, but don’t tie a knot—you may need to get it off in a hurry. If your pet is panting heavily or having problems breathing, don’t try to muzzle. Cats should not be muzzled.

If your pet is unable to move, you should handle him or her as little as possible to avoid further injury. Gently slide the pet onto a flat board, such as a piece of plywood covered with a blanket, and loosely strap him or her in place with tape or rope for transportation. For less serious injuries, try to scoop the pet up into a large blanket or towel and head for the car. If your cat becomes aggressive, use a towel or blanket (and thick leather gloves, if possible) to scoop him or her into a box or other sturdy container that restricts movement but has plenty of airflow.

**Bleeding**
If there is no apparent bleeding, take your pet to the veterinarian immediately. If there is quite a bit of bleeding, apply direct pressure to the wound. Sterile gauze is the best option, but a clean cotton T-shirt will also work.

Hold the material firmly in place until the blood clots. If the bleeding is on a limb or paw and it does not slow down after direct pressure, make a makeshift tourniquet and tie it between the wound and the heart. A tourniquet is simply something that wraps or ties around an area. It should be snug enough to compress the vessels and slow down blood flow, but not so tight that it is painful or can damage muscles or nerves in the area. You can use some of the same things you might use for a makeshift muzzle—a stocking, necktie, belt, or long sock will work. Be sure to loosen the tourniquet for 20 seconds every 5 minutes. Only use a tourniquet if absolutely necessary. A misapplied tourniquet can result in permanent disability or even the need for amputation. Never apply a tourniquet to your pet’s neck or tail.

Signs of internal bleeding aren’t always obvious, but they can include blood running from the nose, mouth, or rectum; coughing blood; blood in the urine; pale gums; or a rapid or weak pulse. In this case, minimize handling to prevent further damage, and keep your pet as warm, still, and quiet as possible on the way to the veterinary clinic.

Fractures

Without radiographs (x-rays), it may not be possible to tell if your pet has a fracture (a broken bone). If a limb is hanging or dangling, a fracture is likely. If your pet has a fracture, rest him or her on a flat, transportable surface, such as a piece of wood or tarpaulin, padded with blankets. You should not try to set a fracture. If you don’t know exactly where the break is (and how bad), you can make things worse. If a leg is clearly broken and the fracture is below the knee or wrist, you can try to wrap the area, first with cotton padding, then with something long and flexible, such as a magazine. This makeshift splint should extend one joint above and below the fracture. Secure it with tape and ensure that it is loose enough to maintain blood flow. If the fracture is above the knee or elbow, it will be very difficult to immobilize without making things worse, so just try to position the leg close to the body and get the pet to a veterinarian as quickly as possible. In most cases, it is best to handle the limb as little as possible and focus instead on getting your pet to the veterinary hospital.

If the injury is to an area that isn’t a limb, such as the spine, ribs, or hip, immobilize your pet as much as possible, carrying him or her on the transport that you created until he or she can be examined by your veterinarian.

Any injured animal, no matter how calm or friendly he or she may usually be, can bite or scratch when in pain, so use caution in handling an injured pet.

Burns

If your pet is burned with chemicals, flush the area immediately with large quantities of cool water. For burns from a heat source (fire, stovetop, etc.), gently flush with cool water or gently apply an ice pack wrapped in a soft towel.
Shock

Often, injuries can cause your pet to go into shock. The signs of shock can vary and may include a weak or forceful pulse, shallow or deep breathing, nervousness, and a dazed appearance. If your pet is in shock, keep him or her still, quiet, and warm and get to a veterinarian right away. If your pet is unconscious, keep his or her head level with the rest of the body and watch for signs of vomiting. If vomiting occurs, be prepared to tilt the head slightly below the rest of the body to prevent inhalation of the vomit, then return the head to the level position.

An Ounce of Prevention

To avoid panicking during a pet injury, prepare yourself ahead of time. Assemble a first aid kit that includes essential items like sterile gauze and bandage material, towels, and a thick blanket. In addition, know when your veterinarian’s office is open and the location of the nearest emergency clinic that is open after hours. Keep this information, including phone number and address, available where it’s easy to find.
Flea Allergy Dermatitis (FAD)

- Flea allergy dermatitis (FAD) is a severe allergic reaction to the bite of a flea.
- FAD can cause intense itching and painful skin wounds.
- Left untreated, affected animals can develop secondary skin infections.
- FAD can be treated by controlling fleas on the pet and removing fleas from the pet’s environment.
- Corticosteroids and antibiotics may be prescribed to treat itching and secondary skin infections.

What Is Flea Allergy Dermatitis?

Flea allergy dermatitis (FAD) is a severe allergic reaction to a flea bite. Both dogs and cats can develop FAD. Affected pets have an extreme allergic reaction to certain proteins in the flea’s saliva, which the flea injects into the pet’s skin during biting and feeding. Some pets are so allergic that even a single bite can cause a reaction.

FAD makes pets feel miserable, and if left untreated, the associated severe itching and inflammation can lead to excessive scratching and chewing that can damage the skin. Secondary bacterial or fungal infections can develop as a result.

What Are the Signs of Flea Allergy Dermatitis?

Discomfort and itching are among the first signs of FAD. FAD can be more severe during warm/humid weather, when fleas are more active. However, if a pet’s home environment is infested with fleas or the pet lives in a place that is warm year-round, FAD can be a chronic, year-round problem.

Affected animals may scratch, bite, lick, and chew excessively at itchy and inflamed areas. Red, oozing lesions called *hot spots* may develop in areas where the scratching is most intense—typically on the rump, tail, and legs. Affected dogs typically exhibit thinning of the hair along the rump and the base of the tail. Affected cats can remove large areas of hair and develop scabs that can cover most of their body.

Other signs include:

- Skin inflammation
- Hair loss
- Scabs
- Oozing or crusted sores (hot spots)
- Darkening or thickening of affected skin
- Unpleasant odor (resulting from secondary infection)

Diagnosis of Flea Allergy Dermatitis
Diagnosis is typically made through examination and on finding evidence of fleas. However, because a single bite can cause a reaction and because many pets, particularly cats, can do an excellent job of grooming fleas off of themselves, evidence of fleas may not be found. Allergy testing can help determine whether the pet has a sensitivity to flea saliva. Because pets that are allergic to fleas are often allergic to other substances, additional allergens may be tested for as well.

**Treatment and Prevention**

The only truly effective way to treat FAD is to completely prevent flea bites by removing fleas from your pet and its environment. Effective treatment targets adult (biting) fleas, but many products also target the other life stages of fleas (such as eggs and larvae), which can live in the environment and mature into adult fleas.

There are many safe, effective, and easy-to-administer flea-control products. These products are typically administered by applying the medication as a fluid directly to the animal’s skin—generally between the shoulder blades or at the back of the neck. Your veterinarian may recommend more than one product to most effectively kill fleas and break the flea life cycle.

Once an infestation is established in your home, fleas can be very difficult to eliminate. You may need to treat your pet repeatedly. In addition, fleas must be completely removed from the affected pet’s environment. Therefore, all other animals in the house must also be treated with flea-control products, and the house (and possibly the yard) may need to be treated with flea-control products as well.

Vacuuming rugs, throwing out old pet bedding, and laundering other items may also be recommended by your veterinarian to help remove fleas from your pet’s environment. Because many species of wildlife carry fleas, it may also be recommended that you secure your home and yard to prevent wildlife from inadvertently re-infesting your pet’s living and exercise areas.

Secondary skin infections that develop as a result of FAD may be treated with antibiotic or antifungal medications. In addition, your veterinarian may prescribe a short course of corticosteroids to reduce inflammation and itching so that irritated areas may heal.

There are more than 2000 species of fleas, but the one that most commonly afflicts dogs and cats is the cat flea (*Ctenocephalides felis*).
Flea and Tick Prevention

- Fleas and ticks are external parasites that can cause extreme discomfort and serious illness in pets and even people.
- Fleas and ticks are easily prevented from bothering your pet through the use of safe, easy to administer, effective products.
- Parasite prevention also may require treating your home and yard and keeping pets out of areas where fleas and/or ticks are likely to lurk.
- Flea or tick control products meant for dogs should never be used on cats and vice versa.

What Are Fleas and Ticks?

Fleas and ticks are external parasites that can cause extreme discomfort for your pet and can also cause serious diseases.

**Fleas**

Fleas are insects that are ubiquitous in the environment—meaning they can be found almost everywhere. There are more than 2000 species of fleas, but the common cat flea (*Ctenocephalides felis*) is the one that most commonly afflicts dogs and cats.

A disease of concern that can be caused by fleas is flea allergy dermatitis (FAD), which is a severe allergic reaction to flea bites. Some pets are so allergic that even a single bite can cause a reaction. FAD makes pets miserable. In severe cases, it can cause severe itching and inflammation that, if left untreated, can lead to excessive scratching and chewing that can damage the skin. Secondary bacterial or fungal infections can develop as a result.

Fleas can also play a role in transmitting parasites, such as tapeworms, and bacterial diseases, such as cat scratch fever (bartonellosis), to humans.

Finally, in very severe infestations, particularly in old, ill, or young animals, fleas can remove so much blood through feeding that they can weaken the animal.

Fleas are prevalent throughout the United States. They prefer warm, humid conditions, so infestations are typically worst during mid to late summer and early fall. In some parts of the country, they can be a significant problem year round. Even during the cooler months, fleas can survive very well indoors once an infestation has been established.

**Ticks**

Ticks are not insects, but they are closely related to spiders, scorpions, and mites. There are approximately 80 tick species found in the United States, but only a handful of them are of real concern to pets and people. Some of these include the brown dog tick (*Rhipicephalus sanguineus*), the deer tick (*Ixodes scapularis*), and the American dog tick (*Dermacentor variabilis*). The brown dog tick is the only species that can complete its entire lifecycle on a dog and can infest homes and kennels.
Tick bites can be painful and irritating, but the real concern with ticks is the number of serious diseases they can transmit, such as Lyme disease, babesiosis, anaplasmosis, ehrlichiosis, and Rocky Mountain spotted fever. These diseases can cause significant illness and even death in both pets and people.

Ticks are found in virtually every region of the United States. They are most prevalent in the early spring and late fall, although some species are well adapted to temperature extremes and can be found any time of year. In general, however, they prefer dark, moist, brushy places in which to lay their eggs.

**How Do I Know If My Pet Has Fleas and/or Ticks?**

Larger tick species can typically be seen or felt in the hair coat, especially once they are engorged after feeding. Deer ticks, on the other hand, are very tiny—about the size of the head of a pin in some stages—and can be harder to see.

Repetitive scratching is a telltale sign that your pet may have fleas. Adult fleas can be identified on the pet, but fleas in other stages of their life cycle (eggs, larvae, and pupae) can be harder to find. Adult fleas are tiny and can be hard to see, but flea combs can be used to remove fleas as well as flea dirt. Flea dirt is essentially flea feces, which is digested blood. To check your pet for fleas, run a flea comb through your pet’s fur and dump any hair and debris onto a white paper towel. Dampen it slightly with water. Any small, dark specks that stain the towel red are a clear indication your pet has fleas. Finally, excessive grooming is also a sign of a potential flea problem. Infested cats will groom themselves repeatedly in an effort to remove fleas.

**How Do I Prevent Fleas?**

There are many safe, effective, and easy to administer flea control products. These products are typically administered orally in tablet (or liquid) form or topically by applying the medication as a fluid directly to the animal’s skin—generally between the shoulder blades or at the back of the neck. Some flea control products are only active against adult fleas, whereas other products can also target other stages of the flea life cycle, such as eggs and larvae. In some cases, your veterinarian may recommend more than one product in order to most effectively kill fleas and break the flea life cycle.

Once an infestation is established, fleas can be very difficult to get rid of. You may need to treat your pet repeatedly. In addition, fleas must be completely removed from the affected pet’s environment. Therefore, all other animals in the house must also be treated with flea control products, and the house and yard may need to be treated as well.

Vacuuming rugs, throwing out old pet bedding, and laundering other items may also be recommended by your veterinarian to help remove fleas from your pet’s environment.

**How Do I Prevent Ticks?**
There are many safe, effective, and easy to administer tick control products. Many of the major flea control products also have formulations that will help prevent ticks. These products are typically administered topically by applying the medication as a fluid directly to the animal’s skin—generally between the shoulder blades or at the back of the neck.

Prevention also includes keeping pets out of “tick habitats,” such as heavily wooded areas or tall grass. As much as possible, create tick-free zones in your yard by keeping grass mown short and bushes cut back. Ticks like moist areas, so remove leaf litter from around your house. If necessary, you may need to treat your backyard with a pesticide to reduce the number of ticks.

Finally, make a habit of performing a “tick check” on your pet at least once a day, especially if he or she has any access to wooded or grassy areas where ticks may lurk. If you find a tick, grasp it with a pair of tweezers as close down to the mouthparts as you can reach. Exert a gentle, steady pressure until the tick lets go. There are also tick removal tools that are very easy to use. Never remove a tick with your bare fingers. Avoid using lighter fluid, matches, or other products that may irritate the skin or cause other injuries to your pet. When in doubt, ask your veterinary care team for assistance removing the tick.

Never use flea control products intended for dogs on cats. Some medications can be highly toxic to cats. Only use products on the species for which they are intended, and follow all label instructions.
Fluorescein Stain

- Fluorescein stain can be applied to the eye to detect injuries involving the cornea.
- Corneal scratches, ulcers, or other defects can be diagnosed using fluorescein staining.
- Performing a fluorescein stain takes only a few minutes and is not painful for your pet.

What Is a Fluorescein Stain?

A fluorescein test is a test that can help detect injuries to the cornea, which is the clear, thin layer of tissue that covers the front of the eye. The cornea must remain transparent to support vision, but this transparency makes detecting scratches or other injuries on the cornea very difficult because they are invisible.

Fluorescein is a green-tinted dye that fluoresces (glows) under blue light. A small amount of this dye applied to the surface of the eye (on top of the cornea) can be used to detect corneal injuries.

How Is a Fluorescein Stain Performed?

Fluorescein dye is available in several formulations, including a small paper strip that can be placed directly onto the eye and a liquid solution that can be applied into the eye.

Corneal injuries may be invisible, but they tend to be very painful. Animals with these injuries may have red, swollen, watery eyes, or may squint or rub their eyes. If your veterinarian suspects your pet may have an injury on the cornea, a small amount of fluorescein dye is applied to the surface of the cornea. If the corneal surface is intact, the fluorescein dye will not stick to the eye. However, if there is a scratch, ulcer, or defect on the cornea, the dye sticks to the injured area and can show your veterinarian where and how serious the injury is.

Performing a fluorescein stain takes only a few minutes and is not painful for your pet.

What Does a Fluorescein Stain Tell Your Veterinarian?

Fluorescein staining can tell your veterinarian if your pet has a scratch, ulcer, or other defect on the surface of the cornea. If there is an injury, the results of this test can show your veterinarian where and how serious the injury is.

Because the tear ducts in the eye normally drain through the nostrils, the fluorescein stain test can also help determine if your pet’s tear ducts are clogged. If the tear duct system is functioning normally, the green-colored dye is visible at the nostrils within a few minutes after being applied to the eye. If the dye is not visible at one or both nostrils, this could indicate clogging or other problems with the tear ducts.

Fluorescein staining is not painful and can provide valuable information about the condition of your pet’s eye and tear duct system.
Follow-up Examination

- A follow-up examination is a physical examination that is usually performed a few weeks after the initial examination.
- The examination is scheduled to evaluate the effectiveness of treatment, assess healing after a surgical procedure, or monitor the progression of a disease.
- In addition to the examination, diagnostic tests, such as blood tests or radiography (obtaining x-rays), may be needed.

What Is a Follow-up Examination?

If your pet is being treated by a veterinarian, it’s likely that you will be asked to return for a follow-up examination. This physical examination is usually scheduled a few weeks after the initial examination and may be done for a number of reasons, such as:

- To evaluate the effectiveness of a treatment or medication
- To assess healing after a surgical procedure
- To monitor the progression of a disease
- To determine if a medication is being maintained at the proper blood level
- To modify the treatment, if needed
- To ensure that there are no side effects to treatment

Depending on your pet’s condition, your veterinarian may recommend additional diagnostic tests at this time, such as blood tests or radiographs (x-rays).

What Should I Do Between Examinations?

It is important for you to follow your veterinarian’s directions exactly, including giving all of the medications as directed. Many treatments fail because doses of medications such as antibiotics are missed or stopped prematurely. If you have difficulty administering a medication or if your pet shows signs of side effects, such as lethargy, vomiting, diarrhea, or pain, consult your veterinarian.

You should not discontinue treatment because it does not appear to be working. Some medications require time to take effect. Also, a medication that is effective in one animal may not be effective in the next. Your veterinarian may need to try different medications, and evaluate their effects, before arriving at the one that is best for your pet. A follow-up examination allows your veterinarian to assess your pet’s response to treatment and adjust treatment recommendations as needed.

What Are the Benefits of a Follow-up Examination?

A follow-up examination is important for the comfort and welfare of your pet. Missed follow-up examinations can result in recurrence or worsening of your pet’s condition. The follow-up examination will enable your veterinarian to evaluate your pet’s progress and modify treatment as necessary to ensure that your pet is healthy and comfortable.
Food Allergy

- A food allergy is an immune response to something in the pet’s diet that did not cause problems in the past.
- Food allergies commonly cause itchiness and/or vomiting and diarrhea in dogs and cats.
- Food allergies are diagnosed with an elimination diet trial.
- Long-term treatment can be very successful if the offending ingredient is avoided.

What Is a Food Allergy?

Food allergy (also called *food hypersensitivity*) refers to a type of physical reaction to food. Food reactions are classified into two categories: those that are the result of immune system stimulation and those that are not. **Food allergy** occurs when the immune system begins to overreact to ingredients that the pet has eaten with no problems in the past. **Food intolerance** occurs when what is eaten has a direct, negative effect on the stomach and/or intestines, such as spoiled meat, chewed up toys, food additives, and abrupt changes in diet. Food intolerance is not an immune reaction.

The list of known food allergens (substances that pets can be allergic to) is extensive and includes beef, eggs, poultry, dairy, lamb, pork, fish, corn, wheat, soybeans, preservatives, and dyes.

Overall, the immune system’s job is to find threats to the body and destroy them by sending signals to activate special cells. An allergy results when this system misjudges a safe substance, and the cells cause damage to the surrounding tissues. This is why animals with food allergies often have vomiting and diarrhea. Food allergies can also cause skin problems because the signals released may act in other parts of the body, too.

Signs of a Food Allergy

- **Skin**
  - Itchiness (all over or even just in a few areas)
  - Skin infections
  - Ear infections
  - Hair loss
- **Stomach and intestines**
  - Vomiting
  - Diarrhea
  - Abdominal pain
  - Weight loss

Diagnosis and Treatment

Many diseases can cause either gastrointestinal signs or itchiness, so your veterinarian will want to rule them out to diagnose a food allergy. Food allergies tend not to be seasonal, and signs are
usually seen year round. The most obvious indicator of food allergy is that the signs clear up when the responsible ingredient is removed from the diet.

An **elimination diet** is the only proven way to determine which food is affecting your pet. Elimination diets consist of ingredients that haven’t been offered to the pet in the past, called **novel ingredients**. Your veterinarian will prescribe a diet that contains only novel ingredients. The elimination diet can be thought of as a diagnostic test that may last up to 10 weeks. This test takes so long because the allergen may continue to stimulate your pet’s immune system for weeks after it is eliminated from the diet. The elimination diet will be the only food that your pet is allowed to eat during the trial period. During this time period, **no other food, treats, or bones may be fed to your pet**. Even regular medications, such as heartworm preventives, must be given in a nonflavored form. It may be difficult, but this is very important to help your veterinarian determine the food that is affecting your pet. If you want to give your pet a treat during this period, you can offer him or her a small amount of the same food that is being used in the trial. Talk with your veterinarian about this option.

Your veterinarian will probably also need to treat your pet for concurrent skin infections or diarrhea at the beginning of the diet trial because these problems may not resolve without medication.

If the skin and gastrointestinal problems resolve during the trial, your veterinarian may then “challenge” your pet’s immune system by feeding the previous diet to see if the signs come back. Sometimes, the diet used for the elimination trial may continue to be fed after the trial is over, if it is balanced and formulated to provide complete nutrition for your pet.
Foreign Body Surgery

- A foreign body surgery is a procedure to remove an object from a pet’s digestive tract that will not pass through on its own.
- Diagnosis of a foreign body is usually made by physical examination and radiographs (x-rays).
- This is typically an emergency procedure that must be performed before injury occurs to the esophagus, stomach, or intestines.

What Is a Foreign Body Surgery?

Pets aren’t picky eaters. It’s common for them to eat objects, such as string, toys, rocks, and articles of clothing. Smaller objects may pass through the digestive tract uneventfully. Objects that don’t pass through easily may cause obstructions that can damage or perforate the digestive tract, which can lead to death. A foreign body surgery is an emergency procedure to retrieve an object before it damages the esophagus, stomach, or intestines.

What Types of Objects Are Typically Involved?

Dogs are more likely to eat foreign objects than cats. Common foreign objects found in dogs include bones, rawhides, corn cobs, and fishhooks. Some types of glue are particularly troublesome, because if a dog chews on the glue bottle, the glue expands in the stomach and can be difficult to remove. Of course, large or sharp objects and those containing poisonous substances should be removed as soon as possible.

For cats, eating string (such as dental floss or yarn) is especially dangerous. String can become lodged in the digestive tract and cut through the tender tissue as the continual motion of the intestines attempts to push it along. While most hairballs generally pass through the digestive system, some may become large enough to cause a blockage.

What Are the Signs of a Foreign Body?

The signs may vary depending on the location of the foreign body. If the object is in the esophagus, the pet may gag, cough, salivate, or gulp as if attempting to swallow. If the object is in the stomach or intestines, the pet most likely will vomit and may be lethargic (tired) and/or have a loss of appetite, vomiting, or diarrhea.

How Is a Foreign Body Diagnosed?

In some cases, the veterinarian may be able to feel the object with his or her hands while gently pressing on the pet’s abdomen during a physical examination. Usually, radiographs, or x-rays, are required.

While some objects, such as bones and metal, are obvious on radiographs, others, such as clothing, are not. In these cases, the veterinarian may have the animal swallow barium, which is a liquid that is visible on radiographs. A series of radiographs enables the veterinarian to watch
the barium move through the digestive tract. The barium may actually surround the object and make it visible, or the barium may stop moving, indicating the possible location of the obstruction.

If an animal shows signs of having eaten a foreign object, but the radiographs are inconclusive, a veterinarian may recommend an exploratory surgery. While this surgical procedure may enable the veterinarian to locate and remove the foreign body, occasionally, no foreign body is found.

**How Is the Surgery Performed?**

In most cases, animals suspected of having a foreign body undergo an abdominal surgery under general anesthesia. Depending on where the object is, the veterinarian may need to open the stomach and/or the intestines to remove it.

If the foreign body is in the esophagus within the chest, the veterinarian may recommend endoscopy to remove the object. In this procedure, the animal is anesthetized, and a flexible tube with a camera is placed down the animal’s esophagus. The camera enables the veterinarian to see the object and manipulate prongs or a basket at the end of the tube to grasp and retrieve it.

The advantage of endoscopy is that it is noninvasive and your pet will require less recovery time. If endoscopy is not available, the veterinarian will need to open your pet’s chest.

**What Are the Risks and Benefits of the Surgery?**

There are always risks associated with anesthesia and surgery. Performing blood tests will provide the veterinarian with information that will help him or her stabilize the pet before surgery.

A foreign body surgery is an invasive procedure that involves opening the abdomen or chest, as well as making incisions into the digestive tract. In addition to the risk of infection, there is always the possibility that the sutured area of the incision may come apart, requiring the veterinarian to perform another surgery.

Without emergency surgery, however, an obstruction caused by a foreign body can be fatal. Prompt diagnosis and surgical treatment can help eliminate the problem and set your pet on the road to recovery.

The best way to prevent a foreign body surgery is to remove small or chewable objects from the floor and yard. Keep strings and rubber bands in boxes or drawers, and cover wastebaskets to prevent curious pets from eating the contents.
Fructosamine Testing

- A fructosamine test is a blood test that helps monitor diabetic patients.
- Checking a pet’s fructosamine level can help your veterinarian ensure that a pet’s diabetes is being adequately managed.
- To perform a fructosamine test, a small amount of a pet’s blood is taken and submitted to a laboratory for analysis.
- The fructosamine level is used to estimate a pet’s average blood glucose level over the previous 2 to 3 weeks.

What Is Fructosamine Testing?

Fructosamine testing involves checking the level of fructosamine in the blood, and this testing is one of the ways a diabetic pet is monitored. Fructosamine is a protein that binds very strongly to glucose (sugar) in the blood. Because fructosamine occurs in proportion to blood glucose, it can provide an accurate estimate of the amount of glucose in the blood. When fructosamine is measured, it helps determine the average glucose level for the previous 2 to 3 weeks.

Fructosamine testing is often the preferred method for monitoring the glucose level in cats because it is not affected by stress, which can cause a sharp increase in the blood glucose level in cats. Fructosamine monitoring can be used in combination with blood glucose curve monitoring (which is a series of single glucose level checks) and other tools to help monitor diabetic patients.

How Is Fructosamine Testing Performed?

For a fructosamine test, a small amount of blood is taken from the patient and submitted to a laboratory for analysis. Drawing blood generally takes only a few seconds, and the test result is usually available within a few days. The analysis measures the amount of fructosamine protein in the blood sample. The test results indicate whether the animal has excellent, good, fair, or poor glucose control.

What Are the Benefits of Fructosamine Testing?

Fructosamine testing is a helpful tool for estimating blood glucose control in diabetic patients. Because this testing checks the glucose level for the previous 2 to 3 weeks, the fructosamine level is not affected by the stress that may occur during an office visit or when the blood sample is taken. Pets, especially cats, can become extremely stressed when visiting a veterinary office for any reason. Stress may cause an abnormal increase in the blood glucose level. If a diabetic cat is stressed when the glucose level is checked, the stress-related increase in glucose can result in a high blood glucose reading that doesn’t represent the cat’s true blood glucose level. Checking the fructosamine level is a good way to distinguish between falsely high glucose from stress and truly high glucose from uncontrolled diabetes.

Many veterinarians recommend periodically checking the fructosamine level of stable diabetic patients and of recently diagnosed diabetic patients that are being stabilized (with or without
insulin). Your veterinarian will discuss with you how often this testing should be done. Combining fructosamine test results with other information about your pet, such as appetite consistency, weight gain or loss, and frequency of drinking and urination, helps your veterinarian determine if a pet’s diabetes is being well managed. If your pet is receiving insulin, this information will help your veterinarian determine if the insulin dosage is acceptable or if an adjustment should be made. Sometimes, your veterinarian may recommend additional testing (such as urine testing or direct measurement of the blood glucose level) to see how well your pet is responding to diabetes management.
Fungal Culture

- A fungal culture test is a method of identifying the specific fungus that may be causing an infection in or on the body.
- Performing a fungal culture test poses minimal risk to your pet, and in many cases, the information your veterinarian gains from this test is very valuable.

What Is a Fungal Culture Test?

A fungal culture test is a method of identifying a specific fungus that is infecting an animal. Fungal infections are relatively common in cats and dogs and include conditions such as ringworm. Ringworm can cause hair loss, itching, and a skin rash, but in most cases it is treatable and not life threatening. However, there are other fungal infections that can cause serious illness (such as pneumonia) and death in cats and dogs.

Fungal organisms can enter the body in several ways. Sometimes, they can be inhaled or can invade the body through wounds in the skin. Ringworm is transferred from pet to pet (and from pets to people) through direct contact or contact with contaminated objects such as bedding. Once a fungus infects the body, it sometimes spreads to other areas. Ringworm tends to affect only the skin. However, other fungal organisms can infect the nasal passages, lungs, kidneys, liver, brain, and lymph nodes.

As with any other diagnostic test, results of a fungal culture test must be combined with physical exam findings, a medical history, and other information to assess your pet’s health status and determine the best treatment plan.

How Is a Fungal Culture Test Performed?

Performing a fungal culture test involves putting a sample of the fungal organism into a special substance (called culture medium) and allowing it to grow for a period of time so that the fungal species can be identified.

To perform a fungal culture test, your veterinary team must obtain a sample of the suspected fungal organism from your pet. Many types of fungi can infect dogs and cats, so the type of sample that must be obtained can vary. For example, ringworm is commonly diagnosed by taking hair or skin flakes from an affected area. However, if a fungal organism has invaded the respiratory tract (nasal passages, airways, lungs), samples may include mucus from the nose or a biopsy sample taken from the affected area.

If a fungus has invaded another area of the body (such as the liver, spleen, or lymph nodes), biopsy samples from these tissues, bone marrow samples, blood samples, or other tissue and fluid samples may be needed for fungal culture testing.

Once the test sample is obtained and placed into a culture medium, the specimen is submitted to a diagnostic laboratory for continued processing and identification of the organism. For ringworm, some veterinarians can perform the fungal culture testing in their office. Either way,
results are generally available within 3 to 10 days, depending on the organism and testing procedures.

**What Does a Fungal Culture Test Tell Your Veterinarian?**

Because there are so many types of fungal organisms that can affect dogs and cats, fungal culture testing is a good way to identify the exact species present and help select the most appropriate medication to treat the infection.

**What Is a Fungal Culture Test Used For?**

In many cases, a fungal infection can look like another type of disease or infection. Performing a fungal culture test helps your veterinarian determine if the problem is really a fungal infection or another type of infection, perhaps one caused by a bacteria or virus.

Often, a fungal infection occurs along with another type of illness. For example, if a dog has a bacterial skin infection, the damage to the skin can allow a fungal organism to invade the area and become part of the problem. This is commonly referred to as an *opportunistic infection*, meaning that the fungal organism took advantage of the existing skin problem to set up its own infection. Ear infections are also commonly accompanied by opportunistic fungal infections. Similarly, if a pet’s immune system is not functioning properly due to another medical problem, an opportunistic fungal organism can invade the body. Because fungal infections can be opportunistic, finding fungi in a culture test does not necessarily confirm a fungal infection as the primary problem. Your veterinarian will interpret this information along with clinical signs, medical history, and perhaps other diagnostic testing (such as x-rays, blood work, or bacterial culture testing) to confirm a diagnosis.

**Are There Risks Associated With Performing a Fungal Culture Test?**

Very few risks are associated with performing a fungal culture test, and your veterinary team will take precautions to ensure that your pet is not injured while a sample for the culture is being obtained. In the case of ringworm, sampling may simply involve plucking a few hairs from your pet or scraping the surface of the skin. If sedation is necessary (as for a biopsy), your veterinarian may recommend additional blood work or preanesthetic evaluation before proceeding. Your pet will be monitored closely while sedated to help ensure a safe recovery.

Once the culture specimen is obtained, all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.

Performing a fungal culture test poses minimal risk to your pet, and in many cases, the information your veterinarian gains from this test is very valuable.
Gastric Dilatation-Volvulus

- Gastric dilation–volvulus (GDV), or “bloat,” is a life-threatening condition in which the stomach fills with air and becomes twisted.
- GDV can occur in any breed of dog, but it is more commonly seen in larger-breed dogs with deep chests.
- Dogs weighing 100 pounds or more have a 20% chance of this condition.
- One study showed that Great Danes, St. Bernards, and Weimaraners were the breeds most commonly affected.

What Is It?

Gastric dilation–volvulus (GDV), or “bloat,” is a life-threatening condition in which a dog’s stomach fills with air and becomes twisted. Gas builds up in the twisted stomach and stretches it. This stretching, also called distention, is extremely painful and limits the amount of blood that can reach other parts of the body. When blood can’t reach body tissues to supply oxygen, those tissues can die. GDV is an emergency situation, and if not treated immediately, it can be fatal. While any size or breed of dog can develop this condition, it is more common in larger-breed dogs with deep chests, like German shepherds, golden retrievers, and Great Danes.

Signs of Gastric Dilatation–Volvulus

A dog with GDV may be found collapsed and in severe pain. The dog may try unsuccessfully to vomit and may have a very swollen belly. Dogs with GDV are in extreme pain, so they may whine, grunt, appear distressed, or stand with an arched back. Other signs include:

- Drooling
- Frequent retching
- Anxiousness, restlessness, and pacing
- Lethargy (tiredness)
- Depression
- Vocalizing (sign of pain)
- Arched back (sign of pain)

Diagnosis

GDV is usually diagnosed based on a combination of physical examination findings and radiographs (x-rays). A dog with GDV will have an enlarged abdominal area that is painful to the slightest touch. Your veterinarian will also look for signs of shock, such as weakness, pale gums, and severe depression.

Your veterinarian may take abdominal x-rays to evaluate the position of the stomach. On the x-ray, the stomach will appear full of gas and in an unusual position. X-rays are normally taken only after the patient is stabilized. The longer the pet is in distress, the more likely it is to die or have complications.
Treatment

GDV is an emergency condition and must be treated by a veterinarian immediately. At the hospital, the veterinarian will take steps to gently decompress the stomach and relieve the bloating. Dogs with GDV may be in shock and great pain. The veterinary team will make every effort to stabilize the patient as much as possible. This may include intravenous fluids and pain medication. The patient may require emergency surgery to correct the twisted stomach and check for any internal damage. Sometimes, the twisting of the stomach damages the spleen, intestines, and other nearby organs.

Once the dog’s stomach is untwisted and repaired, the surgeon usually performs a surgical procedure called a gastropexy. In this surgery, the stomach is returned to its normal position and attached to the inside of the abdominal wall, which helps prevent it from twisting again. A gastropexy is very important, since the chance of GDV happening again is extremely high.

Prevention

In breeds with a high risk of GDV, veterinarians often recommend performing gastropexy as a preventive measure. A surgeon may perform this surgery when the dog is being spayed or neutered as a puppy. Recent advances in surgery have allowed veterinarians to perform this surgery through laparoscopy. A laparoscope is a surgical device attached to a long tube (called an endoscope) that has a tiny camera at the tip. This device is inserted into the patient’s abdomen through a very small incision, and the entire gastropexy procedure can be performed using this technology. Laparoscopy has been associated with a faster recovery time than conventional surgery.

GDV can be caused by an abdominal tumor that changes the position of the stomach. In some cases, it can also occur soon after a dog has heavy exercise after eating a large meal. To help prevent GDV, you should feed smaller, more frequent meals and restrict exercise for a period of time after eating.
**Gastrointestinal Parasites in Dogs**

- Gastrointestinal (GI) parasites can cause serious illness in dogs; some parasites can also infect humans.
- Your veterinarian can recommend medications to treat and control GI parasites.
- Any new pet entering your home should be tested for parasites as soon as possible.

**What Are Gastrointestinal Parasites?**

Gastrointestinal (GI) parasites include any parasites that live in the stomach or intestines of a host. A variety of GI parasites affect dogs. They range from roundworms and tapeworms, which are visible with the naked eye, to microscopic organisms like coccidia and *Giardia*. Regardless of their size, GI parasites can cause serious illness in dogs and sometimes even death. Some parasites are even *zoonotic*, which means that humans can become infected. The most common GI parasites in dogs are:

- **Roundworms**: Roundworms are visible with the naked eye and resemble small pieces of spaghetti. In humans, roundworms can cause *larva migrans*, an illness caused by migration of young worms through body organs such as the liver, lungs, and nervous system. Young roundworms may also travel to the eye, where they can cause blindness.
- **Hookworms**: These worms attach to the intestinal wall and suck blood and other nutrients from their hosts. Hookworms can cause severe blood loss and diarrhea in infected dogs. Infective hookworm larvae in the environment can penetrate the skin and infect a new host. When this happens in humans, the condition is called *cutaneous larva migrans*. People with this condition may experience itchy skin lesions with a snakelike pattern.
- **Tapeworms**: Tapeworms are long, flat worms that are actually made up of numerous segments; each segment contains tapeworm eggs. Humans can become infected if they inadvertently eat tapeworm eggs or infected fleas (which can contain tapeworm eggs).
- **Whipworms**: Whipworms live in the large intestines and shed eggs into the environment. Female whipworms can produce over 2,000 eggs daily, and environmental contamination can persist for years.
- **Giardia**: *Giardia* organisms are single-celled parasites that live in the intestines. Fecal-contaminated water, food, or soil can be sources of infection.
- **Coccidia**: Coccidia are microscopic GI parasites. They can cause severe diarrhea in some infected dogs.

**How Do Dogs Become Infected With Gastrointestinal Parasites?**

In most cases, eggs or infective stages of GI parasites are shed in fecal material. Once parasites are in the environment, dogs can be exposed through direct contact with feces or exposure to soil, water, or plants that have been contaminated with feces. Some GI parasite eggs, larvae, and cysts can remain in the environment for months to years.
Some parasites can infect small animals (like rodents), and dogs become infected when they prey on these small hosts and eat them. If a mother dog is infected, some GI parasites can infect puppies during fetal development or during nursing.

Tapeworms are slightly different in that they can be transmitted by fleas. The immature stage of the tapeworm lives inside the flea. When a dog grooms a flea off of its hair, it eats the flea (and the tapeworm). The tapeworm then hatches inside the dog and continues its life cycle.

**What Are the Clinical Signs of Gastrointestinal Parasites?**

Diarrhea, vomiting, and weight loss can be among the clinical signs of GI parasite infection. However, many infected dogs don’t show any clinical signs at all. The best way to tell if your pet is infected is to have him or her tested for parasites.

**How Are Gastrointestinal Parasites Diagnosed?**

Fecal testing can detect GI parasites in most cases. But even if testing doesn’t confirm parasites, your veterinarian may recommend treatment as a precaution; this is not harmful for your pet. Some parasites (like roundworms and tapeworms) can be seen in feces or vomit from an infected pet. Tapeworm segments sometimes cling to the hair around the anus.

**How Can I Treat and Prevent Gastrointestinal Parasites?**

Your veterinarian can recommend several safe and effective medications to treat GI parasites. Fortunately, many monthly heartworm preventive medications also control some of these parasites, but no single medication can treat and prevent all GI parasites. Here are some tips for protecting your dog:

- Use a monthly heartworm preventive that also targets GI parasites.
- Pick up fecal material promptly to reduce the risk of environmental contamination.
- Schedule regular checkups with your veterinarian, and bring a stool sample for parasite testing.
- Encourage children to wash their hands after playing outside and before eating.
- Have any new pet entering the home tested for GI parasites as soon as possible.
- If possible, prevent your pet from killing and eating rodents and other small animals.
- Use effective flea control to reduce the risk of exposure to tapeworms.
Getting Your Dog Back on Its Feet

- The most effective way to treat lameness is to obtain an accurate diagnosis of what is wrong.
- Always strictly follow your veterinarian’s recommendations for rehabilitation and recovery.
- It is critical to keep all of your pet’s recommended follow-up appointments so that your veterinarian can monitor your pet’s progress.

My Dog Is Limping—Now What?

The most effective way to treat lameness is to obtain an accurate diagnosis of what is wrong. If your dog is limping, don’t try to guess what the problem is or wait to see if it gets better on its own. A veterinarian can evaluate your dog by a thorough physical examination; if necessary, laboratory tests can be performed and/or radiographs (x-rays) obtained. Lameness can be caused by many things—infections (e.g., Lyme disease), stress fractures, soft tissue injuries, and arthritis, to name a few. Paying attention to signs that your dog is uncomfortable and having your dog evaluated quickly can help prevent smaller problems from becoming bigger ones.

When your dog is lame from either an injury or a joint problem, the most important point to remember is to strictly follow your veterinarian’s recommendations for rehabilitation and recovery. In some cases, these instructions may help your pet recover fully and perhaps avoid surgery. However, if surgery is required to treat a severe injury or replace a joint, careful rehabilitation becomes even more essential. A fracture or joint replacement site that becomes re-injured or infected can leave few treatment options for your dog.

Sprains, Strains, and Minor Surgery

For minor injuries, such as a torn ligament, your veterinarian may first try prescribing anti-inflammatory/pain medications as well as exercise and activity restrictions for your pet. Exercise restrictions usually include keeping your dog in a small space—for example, a crate—and taking him or her for only short walks on a leash. Closely following such instructions can sometimes keep minor injuries from requiring more involved and expensive surgery and treatment. You should only give your dog medications that are prescribed by a veterinarian.

Traumatic Injury and Joint Replacement

Complicated injuries require a more involved recovery period. Typically, full recovery from a complex fracture repair or joint surgery, such as hip replacement, takes at least 2 to 3 months. Some dogs need 6 months of careful monitoring and rehabilitation before they are completely recovered.

Typically, when a dog is recovering from any kind of complex joint surgery, complete cage rest is prescribed (see box). If your dog has a broken bone, recovery is more complicated and your dog’s leg will be immobilized in a molded splint or cast for 4 to 6 weeks or longer.
If Your Dog Needs Surgery

While your dog is recuperating at home, you will need to give him or her any prescribed medicines. Do not allow your pet to scratch or chew at the sutures or bandage. An Elizabethan collar—also known as an “e” collar—may be necessary to prevent your pet from chewing the wound. You will also need to check the cast or surgical site daily. If you notice any of the following signs, contact your veterinarian immediately:

- Swelling of the limb or surgical site
- Skin rash or pressure sores (red, blistered, or raw areas)
- Unusual smell or leakage from the surgical site

You’ll also want to monitor your dog’s behavior, appetite, and water intake. If any of these seem unusual—for example, if your dog seems strangely tired or agitated—again, contact your veterinarian.

At the end of the cage rest period, your dog will probably need another 4 weeks of exercise restriction. After the exercise restriction period is over, you will get instructions on how to gradually increase your dog’s allowed activity level.

Physical therapy, including massage and hydrotherapy, may also be helpful to your dog’s recovery and may be prescribed.

Follow Up

It is critical to keep all of your pet’s recommended follow-up appointments so that your veterinarian can monitor your pet’s progress. If sutures were used, your veterinarian may need to remove them. If a cast was placed, your veterinarian will want to check it periodically and eventually remove it. Radiographs or other tests may be scheduled to assess healing.

Physical therapy, including massage and hydrotherapy, may also be helpful to your pet’s recovery and may be prescribed.

Keeping Your Caged Dog—and Yourself—Sane

It’s hard to know whether cage rest is harder on the dog or on the owner. Keeping your dog confined can be difficult, but no matter how “sad” or how much “better” he or she seems to be, it is vitally important to follow all the instructions you get from your veterinarian. You can make the time go faster for your pet by keeping him or her occupied with plenty of toys and an occasional low-calorie treat; turning on a radio or television for “company” when no one is home can also help. Daily grooming can also be a welcome distraction for some dogs. If your dog craves company, keeping the crate in a high-traffic area where there is plenty of activity can be another way to keep him or her entertained. If your pet is shy or nervous, you might want to keep the crate in a quiet room to reduce stress.
When taking your dog out for bathroom breaks, keep him or her on a leash at all times. Follow any instructions you get about avoiding stairs and slippery floors, and ask whether you should attach the leash to a collar or harness. Also ask about the best way to lift or support your dog when necessary; your veterinarian may recommend using a towel to support your dog as he or she walks outside to use the bathroom.
Giardiasis

- *Giardia* is a parasite that is found worldwide and in every region of the United States.
- Giardiasis (the disease that *Giardia* causes) can cause diarrhea, appetite loss, and vomiting.
- Giardiasis is transmitted to dogs and cats through contact with infected feces or with water, food, or soil that has been contaminated by infected feces.
- Pets can often be infected with *Giardia* without showing outward signs.
- The risk of infection can be reduced by avoiding high-risk environments and behaviors.

What Is Giardiasis?

Giardiasis is a diarrheal disease that can affect many species, including dogs, cats, and humans. It is caused by *Giardia*, a single-celled parasite that attacks the gastrointestinal tract of infected animals. Among experts, there is some question about (1) the number of *Giardia* subtypes that can cause disease in animals and (2) the potential of these subtypes to also infect humans. While humans are susceptible to infection with *Giardia*, infection by the same subtypes prevalent in animals is thought to be exceedingly rare but remains a point of controversy and investigation.

*Giardia* is found worldwide and in every region of the United States. According to the Companion Animal Parasite Council, approximately 16% of symptomatic dogs and approximately 10% of symptomatic cats have been found to be infected with *Giardia*. The parasite lives in the intestines of infected animals and humans, and infected individuals pass the parasite in their feces, in the form of cysts, into the environment. These cysts can remain infective for months, especially when conditions are cool and humid/moist. The infection is transmitted when a host ingests water from a contaminated pond, lake, or stream or ingests contaminated food or soil. Outbreaks of giardiasis are more common when animals are housed in crowded conditions, such as a kennel or shelter.

Signs of Giardiasis

Clinical signs of giardiasis typically develop within 5 to 16 days after exposure to *Giardia*. In many cases, infected pets show no or slight signs of disease. Signs can include:

- Weight loss
- Inappetence (appetite loss)
- Diarrhea (sometimes severe and with a very bad smell)
- Flatulence
- Vomiting
- Lethargy (tiredness)

Because these signs can also be caused by many other diseases and health problems, a complete physical examination and diagnostic testing may be recommended.

Diagnosis and Treatment
Several types of fecal tests can be used to diagnose giardiasis. In some cases, tests may need to be repeated more than once to obtain a definitive result.

In most cases, the disease course is mild. Some animals—particularly puppies, kittens, or animals with underlying health conditions—may have more severe diarrhea and vomiting and may require supportive therapy with fluids and anti-nausea medications. Dehydration can be a serious concern in such cases.

There are medications for treating giardiasis, but the infection can be difficult to cure, so multiple courses of treatment may be necessary. Pets should be bathed throughout treatment to remove infective cysts from the haircoat. Because pets that have been treated have no “immunity” against future infection, these pets can easily be reinfected. Therefore, living areas should be disinfected; ammonia, dilute bleach solution, or steam cleaning can be effective. If there are other pets in the household, medications may be administered to them as a preventive measure. Contaminated soil can remain infective for months under certain conditions, so walking treated dogs in a different area may reduce the risk of re-infection.

**Prevention**

*Giardia* is common in the environment. Outdoor dogs and cats, working or hunting dogs, and pets that swim or have contact with potentially contaminated water can be at risk for exposure. Preventive measures should include regular removal of feces from the yard or kennel. As much as possible, prevent pets from drinking from, or swimming in, lakes, streams, and ponds.

Your veterinarian may recommend testing new puppies or kittens or adult pets for *Giardia* before they are introduced to your other pets.

While it is considered controversial whether humans and pets can be infected by the same subtypes of *Giardia*, it is always a good idea to wash your hands after playing with your pet or disposing of fecal material.
Glucose and Fructosamine Testing

- Blood glucose and fructosamine tests are helpful tools for monitoring diabetic patients.
- The results of glucose and fructosamine testing can help your veterinarian ensure that your pet’s diabetes is being adequately managed.
- Only small amounts of blood are required to perform these tests.

What Are Glucose Testing and Fructosamine Testing?

In diabetic patients, spot-checking the blood glucose (or blood sugar) is a quick and direct way to tell what the level is. The rapid result permits quick detection and management of a dangerously low or an extremely high level. However, blood glucose testing provides only a “snapshot” of the total blood glucose “picture.” The test result does not indicate what the blood glucose level will be 2 hours later, 8 hours later, or the next day. Your veterinarian needs to do other testing to obtain this information.

Performing a blood glucose curve can provide some of the missing information. A blood glucose curve involves repeatedly measuring the blood glucose level every 1 to 2 hours over a period of time—usually 12 to 24 hours. Like a regular blood glucose measurement, a blood glucose curve also directly measures the blood sugar, but (compared with a single blood glucose reading) it tells your veterinarian more information about how the blood glucose level may be changing over time.

Fructosamine testing involves checking the fructosamine level in the blood, and this testing is another way to monitor diabetic pets. Fructosamine is a protein that binds very strongly to glucose in the blood. Because fructosamine occurs in proportion to blood glucose, it can provide an accurate estimate of the amount of glucose in the blood. When the fructosamine level is measured, it helps determine the average glucose level for the previous 2 to 3 weeks. Fructosamine monitoring is often the preferred method for monitoring the glucose level in cats because it is not affected by stress, which can cause a sharp increase in the blood glucose level in cats. Your veterinarian may recommend using fructosamine level monitoring alone or in combination with blood glucose testing, glucose curve monitoring, and other tools to help monitor your diabetic pet.

How Are Glucose Testing and Fructosamine Testing Performed?

Spot-checking your pet’s blood glucose level takes only a few minutes and requires only a small amount of blood. Your veterinary team will likely ask you when your pet’s most recent meal was eaten and when the most recent insulin injection was given because these variables can affect the blood glucose reading. Blood glucose spot-testing is generally done during an outpatient visit.

Blood glucose curves require a brief stay in the hospital. Your veterinary team will generally ask about your pet’s feeding and insulin schedule so the same schedule (or one as close as possible) can be continued while your pet is undergoing the blood glucose curve. During the blood glucose curve, blood is drawn every 1 to 2 hours, and the blood glucose level is measured and recorded. The resulting chart or table shows how the blood glucose level has changed during the measuring
period. Some veterinarians perform a curve for 8 to 12 hours, and some prefer 24-hour curves. During this time, your veterinary team will try to keep your pet’s stress and anxiety to a minimum, as stress can affect the blood glucose level in some patients, especially cats.

Fructosamine testing is generally done during an outpatient visit and requires a small blood sample that is submitted to a laboratory for analysis. Drawing blood generally takes only a few seconds, and the test result is usually available within a few days. The analysis measures the amount of fructosamine in the blood sample. The test results indicate whether the patient has excellent, good, fair, or poor glucose control.

**What Are the Benefits of Glucose and Fructosamine Testing?**

Diabetes is a complicated illness, and there are many approaches to managing diabetes in pets. Whether your veterinarian prefers to use blood glucose spot-testing, a glucose curve, fructosamine testing, or a combination of these, he or she will consider these results along with other valuable information, such as appetite consistency, weight gain or loss, and frequency of drinking and urination, to determine if your pet’s diabetes is being well managed. If your pet is receiving insulin, this information will help your veterinarian determine if the insulin dosage is acceptable or if an adjustment should be made. Your veterinarian will also discuss with you how often monitoring tests should be repeated. Your veterinarian may recommend additional testing (such as urine testing) to see how well your pet is responding to diabetes management.
Grief in Dogs and Cats

- Based on observed changes in behavior, it is thought that some dogs and cats grieve after losing a close human or animal companion.
- Dogs and cats seem to show a wide variety of responses to losing a companion.
- As in people, signs of grief in pets usually improve with time. However, there are things you can do to help your pet through this difficult period.

Do Dogs and Cats Really Grieve?

Whether animals feel emotions in the same way people do is a mystery. However, their behaviors are commonly interpreted as reliable expressions of mood—for example, relaxed, fearful, or aggressive. Based on observed changes in behavior, it is thought that some dogs and cats grieve after losing a close human or animal companion. In 1996, the ASPCA conducted a study of mourning in companion animals and found that more than half of dogs and cats had at least four behavioral changes after losing an animal companion. Many of these changes, such as eating less and changes in sleep patterns, were similar to behaviors exhibited by grieving people.

If you have recently lost a pet and other pets in the household are acting differently, it is possible that they miss the deceased pet and are experiencing grief.

Signs of Grief

Like people, dogs and cats seem to show a wide variety of responses to losing a companion. Behavior changes observed in the 1996 ASPCA study included:

- Eating less
- Restlessness or sleeping less
- Acting sluggish or sleeping more
- Vocalizing (barking, howling, meowing) more
- Avoiding contact or play with other family members
- Becoming “clingy”
- Seeming disoriented or confused

However, these behaviors are also signs of illness in pets. If your pet is exhibiting any of these behaviors, call your veterinarian and schedule an appointment to rule out health problems.

Some animals appear to look for the missing pet, or, if the deceased pet was taken to the veterinarian to be euthanized, they may wait by the door or window for him or her to come home.

Other changes in behavior among surviving pets may reflect shifts in relationships, especially if the deceased pet was a dominant member of the household.

Helping Your Pet Deal With the Loss of a Companion
Again, as in people, signs of grief in pets usually improve with time. However, there are things you can do to help your pet through this difficult period.

- If your pet is eating less or is not eating, encourage him or her to eat by making food more appealing. For example, slightly warming canned food can make it smell better to pets. However, be very careful to not overheat food, which can burn your pet’s mouth. If your pet refuses to eat at all, call your veterinarian.
- Spend extra time with your pet, whether on walks, during grooming, or playing games.
- Provide distractions for your pet. Hiding toys in his or her favorite places and putting a little dry food inside a puzzle toy are a couple of examples. Try not to accidentally reward behaviors that you do not want to continue. For example, do not try to distract a howling pet with treats, or the pet may learn to howl for treats. Wait until the pet is quiet, and then give him or her your attention.
- If the deceased pet had a favorite blanket or toy, leave it in the house for a while so that other pets understand that the missing pet is not returning.

Because you are also feeling the loss of your pet, it can be hard to concentrate, and your behavior can affect your other pets. Spending extra time bonding with them can help both you and them.

Whether and when to get a new pet is a very personal decision. However, trying to quickly “replace” a pet’s companion is usually not recommended. Pets already in the household may regard a new arrival as an intruder. Consider whether you and your pets are ready for a new family member.
Grooming Your Dog

- Regular brushing, bathing, and trimming can help keep your dog’s skin and haircoat healthy.
- Groom your dog when he or she is relaxed, and start with short sessions.
- Try to make grooming a pleasant experience for your dog. If your dog seems uncomfortable with being groomed, stop and seek professional advice.
- Ask your veterinarian about the best way to care for your dog’s nails, ears, and teeth.
- Visit and talk to groomers before bringing your dog to them. Feel free to ask for references.

Grooming Basics

Grooming does more than make your dog look good. Regular brushing, bathing, and—if necessary—trimming can help keep your dog’s skin and haircoat healthy, and if you can teach your dog to enjoy these activities, grooming can be another way to strengthen the relationship between you and your dog.

If you and your dog are new to grooming, start slow. Choose a time when your dog is relaxed, and keep sessions short (5 to 10 minutes). Give your dog plenty of petting and praise (and perhaps a treat) for good behavior. As you pet your dog, try to handle all parts of his or her body, including the ears and feet, so that your dog becomes used to this activity. If at any time your dog seems uncomfortable with being handled or groomed, stop.

Brushing Your Dog

Brushing your dog helps to remove dirt and loose, dead hair and to prevent mats and tangles. How often you need to brush your dog depends on the length and thickness of his or her hair. Long-haired dogs, like Yorkshire terriers, may need to be brushed daily. Short-haired dogs, such as boxers, may need brushing only monthly. By brushing your dog regularly, you will learn how often he or she needs to be brushed to keep his or her coat clean and tangle-free.

There are several types of brushes and combs, including:

- **Bristle brushes:** Although these brushes can be used on all types of haircoats, the density, length, and stiffness of the bristles affect how well a specific brush works on a specific coat. Longer coats need longer, less dense bristles, and coarser coats need stiffer bristles.
- **Wire-pin brushes:** These brushes work best on medium to long, dense coats.
- **Slicker brushes:** These brushes have angled wire bristles. They can be used on all types of coats, and they help remove mats and tangles and make the haircoat look shiny.
- **Undercoat rakes:** These combs are useful for dogs with double coats. They help thin out the undercoat, especially in the summer.

If you find a mat in your dog’s hair, do not pull on it. Pulling will be painful for your dog, and he or she will not want to be brushed again. Also, do not try to cut mats out—you may end up
accidentally cutting yourself or your dog. Special brushes and combs are available to help split and remove mats; alternatively, consult your veterinarian or a reliable groomer. Sometimes mats must be professionally shaved.

**Bathing Your Dog**

The ASPCA recommends bathing your dog about every 3 months; however, certain breeds and dogs that spend a lot of time outside may need to be bathed more often. Mats and tangles are easier to remove by brushing before bathing. Try to make bathing a pleasant experience for your dog: use warm water, a mild shampoo made for dogs, and toys, treats, and calm praise as rewards for good behavior. Wear old clothes and keep plenty of large, absorbent towels on hand. If necessary, use a rubber bath mat to keep your dog from slipping. Do not pour or spray water directly on your dog’s head.

**Finding a Groomer**

If your dog is a breed that needs regular trimming, or if you need help grooming him or her, you will want to find a good groomer. Ask your veterinarian if he or she can recommend one. Questions you may want to ask potential groomers include:

- Do you have any restrictions (e.g., size, temperament) on the dogs you groom?
- How long have you been grooming dogs?
- Do you have any references?

You may also want to visit the groomer and see whether the work area is clean and where dogs are kept when they are not being groomed. You may need to try a few groomers before you find the right one for your dog.

**Caring for Your Dog’s Nails, Ears, and Teeth**

Nail trimming, ear cleaning, and tooth brushing are also important aspects of grooming. Teaching your dog to accept having his or her feet and ears touched can help make these activities easier.

Ask your veterinarian or a veterinary technician to teach you the safest way to perform these grooming activities.
Heart Murmurs in Dogs

- A heart murmur is an abnormal sound that a veterinarian hears when listening to the heart through a stethoscope.
- A murmur is not always a cause for concern, but it can be an indication of heart disease, so other diagnostic tests may be warranted.
- Found in young puppies, innocent murmurs are essentially harmless and usually disappear by 4 months of age.
- Signs of heart disease in dogs include coughing, difficulty breathing, exercise intolerance, collapse, and abdominal distention.
- To diagnose the cause of a murmur, your veterinarian may recommend tests such as blood tests, chest radiographs (x-rays), and echocardiograms.

What Is a Heart Murmur?

A heart murmur is an abnormal sound that a veterinarian hears when listening to a dog’s heart through a stethoscope. Normally, a veterinarian hears two sounds, a “lub” and a “dub,” which are the sounds of the heart valves closing as blood circulates through the heart. An additional “whooshing” sound, known as a heart murmur, is usually associated with a disturbance of the smooth blood flow through the heart.

Veterinarians rank the intensity or loudness of a heart murmur in grades from one to six, with one being barely audible and six being the loudest. There is also a one-to-five ranking system that works the same way. These grades do not necessarily correlate with the severity of the heart condition; they are merely one of several ways that veterinarians attempt to characterize the murmur.

A heart murmur is not always a cause for concern, but it may be an indication of a heart problem. Depending on the dog’s condition, your veterinarian may want to perform additional diagnostic tests to determine the cause of the murmur.

What Causes a Heart Murmur?

Heart murmurs are caused by any number of conditions that can create turbulence in the flow of blood through the heart. In dogs, common causes for heart murmurs include:

- Heart valve deficiencies or blockages
- Defects in the heart walls
- Dilated cardiomyopathy (weakening of the heart muscle walls)
- Heartworm disease
- Endocarditis (an infection of the heart valves)
- Tumors

What Is an Innocent Murmur?
Occasionally, veterinarians may detect a heart murmur in a young puppy. While this may indicate the presence of a congenital heart condition (a defect that the puppy was born with), in many cases it is an innocent murmur, meaning that it is not related to a heart problem. These murmurs usually disappear by the time the animal is about 4 months of age. If a murmur does not resolve, your veterinarian may recommend diagnostic testing to investigate it further.

**What Are Other Signs of a Heart Condition?**

Not all dogs with a heart condition show outward signs. However, if you have been told that your dog has a heart murmur, you should watch for signs such as:

- Coughing
- Difficult or rapid breathing
- Congestion or “noisy” breathing
- Exercise intolerance (reluctance to exercise)
- Weakness or lethargy (tiredness)
- Fainting episodes
- Gray or blue gums
- Abdominal distention (a “pot-bellied” appearance)
- Collapse

If your dog displays any of these signs, call your veterinarian for advice, or schedule a veterinary exam.

**What Diagnostic Tests May Be Necessary?**

To determine the cause of a heart murmur, your veterinarian may recommend a number of tests, such as:

- Blood tests, including heartworm tests
- Chest radiographs (x-rays) to assess the heart, blood vessels, and lungs
- An electrocardiogram (ECG)
- An echocardiogram (an ultrasound exam to evaluate heart structure and function)
- Blood pressure tests

**How Are Heart Murmurs Treated?**

Treatment depends on the cause of the heart murmur and your dog’s condition. If your dog is not showing any signs of heart disease other than the murmur, your veterinarian may prefer to monitor your dog and provide treatment only if signs occur.

In some cases, such as when heart murmurs are caused by heartworm disease, treatment may resolve the heart murmur completely. If the murmur is caused by a congenital condition, surgery may be recommended. In other cases, the heart murmur may remain, but medications can help make your dog more comfortable and improve your pet’s longevity.
Heartworm Disease in Dogs

- Heartworm disease attacks the lungs, heart, and related blood vessels. It is serious and potentially fatal.
- Dogs are highly susceptible to heartworm. Nearly all exposed dogs will become infected. Heartworm is endemic in all 50 states.
- Heartworm disease is transmitted through the bite of an infected mosquito.
- Treatment can be costly and complicated.
- Illness is easily and effectively avoided by giving preventive medications.

What Is Heartworm Disease?

Heartworm disease is a serious and potentially fatal condition that affects dogs, cats, and up to 30 other species of animals. It is caused by parasitic worms (heartworms) living in the major blood vessels of the lungs and, occasionally, in the heart. These worms are transmitted (as microscopic larvae) through the bite of an infected mosquito. The scientific name for the heartworm parasite is *Dirofilaria immitis*.

Heartworm disease can cause a variety of medical problems affecting the lungs, heart, liver, and/or kidneys. Any of these problems, alone or in combination, can lead to death. Although safe and effective treatment is available, it can be a costly and complicated process depending on how long the dog has been infected and how severe the infection is.

Despite the fact that heartworm disease is virtually 100% preventable, many dogs are diagnosed with it each year. The American Heartworm Society (AHS) estimates that one million dogs in the United States are infected with the disease today, and this number may be rising.

Signs of Heartworm Disease

Some dogs may show no signs of infection. However, depending on the number of worms and the duration of infection, dogs may begin to show the following clinical signs:

- Persistent cough
- Lethargy (tiredness)
- Difficulty in exercising
- Loss of appetite and weight loss

Diagnosis and Treatment

Apart from clinical signs, heartworm disease can be diagnosed using laboratory tests that check the dog’s blood for evidence of infection. These tests are accurate but can sometimes produce false-negative results.

Ultrasound images and radiographs (“x-rays”) can also sometimes show evidence of heartworms in the heart or lungs.
If infection is detected early enough, heartworm disease can be treated before permanent damage to the heart, lungs, and blood vessels occurs. However, if the infection has been present for a long time or consists of a large number of worms, the risk of complications increases. In these cases, treatment can be more expensive and complicated, and dogs may take many months to recover from the infection. Hospitalization may be required.

Untreated heartworm disease can be fatal.

**Prevention**

Safe, easy-to-give, effective medications are available to prevent heartworm disease. Some are given monthly and are either applied to the skin (topical or “spot on” medications) or given as a pill or treat. One product can be injected by your veterinarian every 6 months. Ask your veterinarian which method and schedule of heartworm prevention are best for you and your pet.
Heatstroke

- Heatstroke is a life-threatening condition that occurs when body temperature reaches 106°F to 109°F.
- Being left in a hot car and exercising in hot weather are the most common causes of heatstroke in pets.
- “Cracking” car windows does not keep a car cool.
- Organ failure, seizures, and death are likely if treatment for heatstroke is not started immediately.
- Starting the cooling process at home is key to the pet’s chances for survival.

What Is Heatstroke?

The word stroke comes from “strike,” and heatstroke means “to be struck down by heat.” Heatstroke is a life-threatening condition suffered when a pet is unable to lower its body temperature. Cells in the body become damaged when the core body temperature is between 106°F and 109°F.

Heatstroke is most common in dogs but can happen to cats. Heatstroke may occur when a pet is left in an overheated, enclosed space, like a car, or is exercised in hot, humid weather. Outdoor pets may become overheated if they do not have access to fresh water or shade.

Factors that may make some animals particularly at risk for heatstroke include obesity and a decreased ability to circulate air through the lungs. Animals with narrow airways, such as those with laryngeal paralysis, or a brachycephalic (short-nosed) head, such as bulldogs and pugs, are less able to cool themselves efficiently.

The most common cause of heatstroke in dogs is being left in a parked car. One test performed on a partly cloudy, 93°F day found that cars can heat up to 120°F in just 15 minutes. Cooler days can also be deadly. In another test, conducted on a 71°F day, the temperature inside a car parked in the sun with the windows open a crack went up to 116°F in 1 hour.

Exercising your pet in hot weather can also lead to heatstroke. In hot weather, it is best to exercise pets during the coolest part of the day (early morning and evening) and always provide plenty of fresh water and rest. It is also helpful to cool your pet with a hose or a swim after exercising.

Signs of Heatstroke

Heatstroke affects almost every system in the body. In normal conditions, as the body heats up, a dog pants to cool down. Another way to cool down is to send more blood to dilated blood vessels near the skin. Heat radiates off the body, and cooler blood returns to the body’s core. If a hot environment prevents cooling, blood is diverted away from important organs such as the brain, kidneys, gastrointestinal tract, and liver. When these organs do not receive enough blood, they begin to fail.
Signs of heatstroke include:

- Panting
- Lethargy
- Vomiting/diarrhea
- Disorientation
- Seizures
- Coma
- Death

Treatment

Immediate action must be taken when a pet is found to be suffering from heatstroke. Death occurs within minutes of the body’s core temperature reaching 110°F. In a study of 54 dogs with heatstroke, 50% of the dogs died. However, 100% of the dogs that were given first aid at home and arrived at the veterinary hospital within 90 minutes of being found survived.

If your pet is suffering from heatstroke, before heading to the veterinarian, you should start the cooling at home by using a cool bath or the garden hose. Never immerse a pet in cold water, as this can cause life-threatening complications!

As soon as a pet with heatstroke arrives at the veterinary hospital, a rectal temperature will be taken and further cooling will begin. If at-home cooling was successful, measures will be taken to reverse the effects of heat, dehydration, and low blood pressure. An IV catheter will be placed, and fluids will be given to help get blood flowing to major organs again. Treatment is aimed at supporting these organs in the hope that the damage is not permanent. Sometimes, it can take days to know which organs have been affected. Specific treatments may include antibiotics, blood pressure medications, and blood transfusions.

Prevention

Heatstroke can be prevented by taking extra care to avoid putting animals in dangerous situations. No pet should be left in a car, even if the windows are cracked open. Pets that are outside on hot days should have free access to fresh water, shade, and rest. And because they already have trouble cooling themselves, special care must be taken to avoid overheating in animals that are obese, have airway disease, or have a short-nosed head.
Helping Your Itchy Pet

- In some cases, multiple problems contribute to itching in pets.
- Scratching can quickly lead to skin damage, bleeding, hair loss, scabs, and secondary skin infections with bacteria or fungal organisms.
- Treatment for an itchy pet can require a long-term commitment. You should maintain communication with your veterinarian, especially if a treatment doesn’t seem to be helping, or if your pet seems to be responding negatively to a treatment.
- Itching is one of the most common problems veterinarians encounter in practice. The causes can include allergies, parasite infestation (for example, fleas or mites), skin infections, or a variety of other conditions. Keeping the pet comfortable while trying to figure out what is causing the itching can present a challenge for you and your veterinarian.

What Causes Itching?

Itching can make pets absolutely miserable, but it is actually a sign of an underlying problem. For example, if the pet has an allergy, exposure to the allergen causes a series of events to happen within the animal’s body. Part of this series of events involves causing certain cells in the pet’s skin to release a chemical called histamine. When released into the skin, histamine is very irritating and leads to itching. (Histamine is also involved in allergic reactions in people.) Medications that target histamine are called antihistamines. However, histamine is only part of the story. In pets, allergic reactions also cause the release of several other chemicals that contribute to irritation, inflammation, and itching, but antihistamines can’t counteract the effects of all these other agents. Some bacteria and fungal organisms (which can be introduced into the skin during scratching) also release chemicals that irritate nerve endings in the skin and cause itching. If an itchy pet doesn’t respond to an antihistamine, it may be because histamine is not playing a large role in the itching that the pet is experiencing.

Less commonly, some animals chew or lick themselves excessively as a compulsive behavior, usually as the result of stress. These kinds of behaviors are caused by the brain and are called psychogenic behaviors.

These many factors are important when considering therapy for itching. Some pets with allergies can do fairly well just on antihistamines, but most other pets need other interventions to help control their problem.

What Are Clinical Signs of Itching?

The clinical signs associated with itching can be mild or very severe:

- Licking
- Biting
- Scratching
- Rubbing
- Twitching the skin
Some pets may seem generally agitated, stop suddenly while walking to turn around and scratch, or whine as they are scratching. Scratching can quickly lead to skin damage, bleeding, hair loss, scabs, and secondary skin infections with bacteria or fungal organisms.

How Is Itching Diagnosed?

Itching is a response to another condition, so identifying the cause of the itching is as important as treating the itch. Your veterinarian will likely begin the process with a complete medical history and physical examination of your pet. Your veterinarian may also recommend diagnostic testing that can include the following:

- Combing your pet to look for fleas
- Taking samples of hair and skin cells to look for mites and other skin parasites
- Culture testing to identify bacteria or fungal organisms
- Allergy testing
- Blood work to look for underlying medical issues that can affect the skin

If the problem has been chronic or recurring, your veterinarian will likely ask about what therapies have been tried in the past and whether they were successful. This history can provide useful information about the nature of the underlying problem.

How Is Itching Treated?

Managing an itchy pet can involve combining several approaches, because multiple factors can be contributing to the problem. For example, if a pet has an underlying allergy problem that is complicated by a flea infestation in addition to a bacterial or fungal infection, all of these issues may need to be addressed. In this situation, be sure to clear up any questions about your pet’s diagnosis or therapy to minimize confusion and frustration during the course of treatment.

Treatment for an itchy pet can require a long-term commitment. Because pets respond differently to medications, your veterinarian may need to revise the treatment plan as therapy is progressing. It is important to maintain communication with your veterinarian, especially if a treatment doesn’t seem to be helping, or if your pet seems to be responding negatively to a treatment.

- **Topical products:** Your veterinarian may recommend a topical product of your pet has mild or localized itching, or as supportive therapy for more generalized conditions. Examples may include moisturizers, ointments, and lotions. These products may need to be applied frequently (sometimes several times daily) to help ease itching. Be sure to follow all label directions, and consult your veterinarian with any questions.
- **Shampoos:** Medicated shampoos can help some pets suffering with itchy skin. The effects of medicated shampoos may last for a few days; some shampoos can be used along with a leave-on conditioner to extend the effects. If you are unable to bathe your pet, another option should be discussed.
- **Medications:** For many pets, corticosteroids (steroids) provide more relief from itching than many other forms of treatment. A variety of products are available, and they can be given as pills, liquid, or by injection. However, corticosteroids have some side effects,
and not every pet is a candidate for this treatment. Your veterinarian will evaluate your pet and determine if corticosteroids are a good option. Some pets with itching do well when given antihistamines, and if your pet has a bacterial or fungal skin infection, medications are commonly used to treat those infections. There is also a formulation of cyclosporine that can help dogs with some types of skin allergies.

- **Supplements:** Fatty acid supplements and other nutritional supplements can help some pets with skin itching. However, various formulations are available using fish oils, vegetable oils, and other combinations, and effectiveness can vary. Ask your veterinarian if a nutritional supplement can help your pet.

In some cases, therapies work best for a particular animal when they are combined. One pet may do very well receiving a combination of antihistamines with a shampoo and a nutritional supplement, whereas another pet may not. If your pet is not responding to therapy, contact your veterinarian to see if modifications may be helpful.
Hematuria

- Hematuria is the condition of having blood in the urine.
- Bloody urine may be caused by abnormalities in the urinary tract or by disease processes elsewhere in the body that can affect the urinary tract.
- Hematuria may be an indication of a serious blood clotting or platelet disorder.
- Treatment varies depending on the cause.

What Is Hematuria?

Hematuria is the condition of having blood in the urine. In female dogs that have not been spayed, it is important to differentiate blood associated with a heat cycle from hematuria.

What Causes Hematuria?

Bloody urine may be the result of abnormalities within the urinary tract or of disease processes elsewhere in the body that can affect the urinary tract. Some of the possible causes of hematuria are:

- Bacterial, fungal, or viral infections in the urinary tract, including the prostate
- Bladder and/or kidney stones or crystals
- Idiopathic cystitis (urinary bladder inflammation with unknown cause in cats)
- Polycystic kidney disease (more common in cats)
- Blood clotting disorders (common with consumption of toxins, such as rat poison)
- Thrombocytopenia (an abnormally low number of platelets in the blood)
- Trauma of the abdomen or urinary tract
- Tumors involving the urinary tract

What Are the Clinical Signs of Hematuria?

Urine may range in appearance from normal to pink- or red-tinged, or it may contain obvious blood and actual blood clots. Some of the clinical signs associated with hematuria include:

- Drinking more and urinating more often
- Straining to urinate
- Urinary accidents in the house/outside of the litterbox
- Inability to urinate (a medical emergency!)
- Vocalizing in the litterbox
- Bruising on the skin
- Bleeding from the nose or gums
- Bleeding within the eyes
- Bloody vomit or feces

How Is Hematuria Diagnosed?
Your veterinarian will start by taking a medical history of your pet, including asking about possible trauma or exposure to toxins or infectious diseases. He or she will also perform a complete physical examination.

The basic diagnostic workup includes blood tests, such as a biochemistry panel and complete blood count (CBC), as well as a urinalysis. Depending on the potential underlying disease, your veterinarian may recommend more specific blood tests, such as a test for leptospirosis (a contagious bacterial infection of dogs that is transmissible to humans) or a panel to check for abnormalities in blood clotting. If your veterinarian suspects a urinary tract infection, a urine culture test can help identify the specific bacteria that may be present. Abdominal radiographs (x-rays) or an abdominal ultrasound study may also help find urinary tract stones, tumors, or other abnormalities.

**How Is Hematuria Treated?**

Treatment varies depending on the specific cause. For example, urinary tract infections may be treated with antibiotics. Kidney or bladder stones may require a therapeutic diet or surgery. Blood clotting and platelet disorders can be extremely serious and often require hospitalization and intensive care.
Hookworms

- Hookworms are internal parasites that live in the small intestines of dogs and cats.
- People can be infected with hookworms when a hookworm larva penetrates their skin or when they unknowingly swallow infective hookworm eggs.
- Signs of hookworm infections in pets may include pale gums, tarry diarrhea, poor coat, lethargy, and failure to gain weight.
- Hookworm infections can be diagnosed with a veterinary fecal exam.
- Several antiparasite medications can be used to treat hookworm.
- To protect your pet from hookworms, administer a monthly preventive that includes an antiparasite medication for hookworms and schedule regular fecal exams at least once or twice a year.
- To protect your family from hookworms, remove pet feces from the yard promptly and dispose of it properly. If you have a sandbox, keep it covered when children are not playing in it.

What Are Hookworms?

Hookworms are internal parasites that generally live in the small intestines of puppies, kittens, dogs, and cats. These worms attach to the intestinal tissue and suck blood and other nutrients from their hosts.

How Do Pets Become Infected With Hookworms?

Infected mother dogs can transmit hookworm larvae to their puppies during nursing. These larvae migrate through the puppy’s body to the lungs, where they are coughed up and swallowed, finally arriving in the small intestine. Other larvae stay in the tissues of the body. Kittens are generally not infected this way.

Infected dogs also release hookworm eggs into the environment with their feces. In the environment, hookworm larvae develop into the infective stage and hatch from the eggs. When pets lie down in a contaminated environment, they can pick up hookworm larvae in their coats and become infected during grooming.

Hookworm larvae in the environment can also penetrate the pet’s skin and travel through the bloodstream to the lungs. As in puppies, they are coughed up and swallowed, eventually arriving at the small intestine. Finally, pets can become infected with hookworms by eating infected animals, such as rodents, or insects, like cockroaches.

What Are The Signs of a Hookworm Infection?

Hookworm infections are most severe in young puppies, and, in large numbers, hookworms can be fatal. Signs of a hookworm infection include:

- Pale gums
- Dark, tarry diarrhea
• Thin, dull coat
• Failure to gain weight
• Lethargy
• Coughing
• Red, itchy skin lesions, especially on the paws

Can People Get Hookworms From Their Pets?

Hookworm infections are considered zoonotic, meaning that they can be transmitted from animals to humans. Typically, people are infected when hookworm larvae from the environment penetrate the skin. The larvae then migrate under the skin, resulting in a condition called cutaneous larva migrans. People with this condition may experience itchy skin lesions with a snakelike pattern.

Occasionally, ingested larvae may migrate to the intestine, causing abdominal pain. However, hookworms do not mature to adults in humans, and the infections usually resolve on their own.

To prevent human infection, pet owners should remove and dispose of feces from the yard and sandboxes as soon as possible. Gloves and shoes should be worn at all times while gardening.

How Are Hookworm Infections Diagnosed?

Your veterinarian can diagnose a hookworm infection by identifying hookworm eggs during a fecal examination.

How Is an Infection Treated?

Puppies and kittens are routinely treated every 2 weeks with an antiparasite medication that eliminates hookworms and other internal parasites, until they can be placed on a monthly preventive medication. Because hookworms can cause anemia (decreased red blood cells), puppies with severe infections may require fluids, iron supplements, and blood transfusions.

Several antiparasite medications can be used to treat hookworm infections in adult dogs and cats.

How Can I Protect My Pet From Hookworm Infections?

Remove pet feces from the yard promptly and dispose of it properly. If you have a sandbox, keep it covered when children are not playing in it. If possible, keep cats indoors and dogs on leashes to keep them from hunting prey that could be infected with hookworms.

Ask your veterinarian about monthly preventives that include protection against hookworms. It is also very helpful to schedule regular fecal exams at least once or twice a year.
How to Administer a Topical Medication to Your Dog

- Many conditions in dogs require medicine to be applied to the skin.
- Follow your veterinarian’s recommendations closely.
- Always put health and safety first. If the procedure seems dangerous to you or very painful for your pet, stop and consult your veterinarian.

The Basics

Many conditions in dogs require medicine to be applied to the skin. This procedure can be relatively easy, as long as you follow a few simple guidelines. The most important guideline is to always put health and safety first. If, for any reason, your pet becomes so agitated that you feel you are at risk of being bitten, stop. If the procedure seems excessively painful for your pet, stop and get your veterinarian’s advice.

Follow Recommendations

Topical medications come in several forms—creams, ointments, lotions, and patches. Applicators may or may not be provided. It is important to closely follow your veterinarian’s recommendations for applying these medications. Treating too frequently or too aggressively can make the problem worse, not better. Sensitive, already inflamed skin can be further damaged. It is important to use only medicines prescribed by a veterinarian and to treat for the full length of time prescribed. Do not stop treatment early, even if the problem seems to be resolved.

What You Need

- Safe work area
- Medication prescribed by your veterinarian
- Latex or other gloves (if recommended)
- Elizabethan collar (if necessary; ask your veterinarian for advice)

Technique

Your veterinarian will recommend the best technique for applying the medication, depending on whether it is a cream, ointment, lotion, or patch. If the medication comes with an applicator, follow the manufacturer’s instructions on how to use the applicator.

When applying topical medications, be aware of the following issues:

- Some medications should be allowed to dry before people (especially children) or other pets come in contact with the treated dog. Follow instructions on how long to wait before allowing your dog to interact with family members.
- If you are applying medication to inflamed or damaged skin, be careful not to further irritate the area with too much rubbing.
- If you are using a patch (e.g., for pain control), be very careful that it does not come off and become stuck to a person or another pet.
• If your dog consistently licks the medication off, ask your veterinarian about using an Elizabethan collar—a cone-shaped collar that fits over your dog’s head to prevent licking.

If your dog will not sit still while you apply the medication, you may find it easier to stand behind him or her so that his or her back is against your legs. Small dogs can be wrapped in a large towel and held against your body, exposing only the head and the area to be treated. Be sure not to wrap your small dog too tightly
How to Administer Ear Medication to Your Dog

- Many outer ear infections in dogs require medicine to be put directly into the ear.
- Follow your veterinarian’s recommendations closely.
- Always put health and safety first. If the procedure seems dangerous to you or very painful for your pet, stop and consult your veterinarian.

The Basics

Many outer ear infections in dogs require medicine to be put directly into the ear. This procedure can be relatively easy, as long as you follow a few simple guidelines. The most important guideline is to always put health and safety first. If, for any reason, your pet becomes so agitated that you feel you are at risk of being bitten, stop. If the procedure seems excessively painful for your pet, stop and get your veterinarian’s advice.

Some dogs are prone to ear infections and may also need regular ear cleanings at home. Your veterinarian can tell you whether and how often to clean your dog’s ears.

Severe infections or ones that involve the middle or inner ear may require oral medication in addition to ear medication.

Follow Recommendations

The ear is a very delicate structure. It is very important to closely follow your veterinarian’s recommendations for medicating your dog’s ear. Treating too frequently or too aggressively can make the problem worse, not better. Sensitive, already inflamed parts of the ear can be damaged. It is important to use only medicines prescribed by a veterinarian.

What You Need

- Old clothes
- Safe, easy-to-clean work area (e.g., tile or linoleum floor, water-resistant walls)
- Towel
- Ear medication prescribed by your veterinarian
- Cotton balls or tissues

Technique

There are several techniques for applying ear medication. The simplest one is described here. Please follow your veterinarian’s instructions.

- Choose a space that’s easy to clean (e.g., bathroom, laundry room, shower stall), or take your dog outside. Applying the medicine can be messy.
- Wear old clothes and keep a towel handy.
- If necessary, gently restrain your dog (see Restraining Your Dog, below). You may need a helper.
• Hold the medication bottle or tube just over the opening of the affected ear and gently squeeze the prescribed amount of medicine into the ear. For liquid medicines, do not squeeze the bottle too hard, as a powerful stream can irritate tender, inflamed ear structures. **Note:** If an ear medication requires refrigeration, do not store it at room temperature; however, allow it to reach room temperature before use to make it more comfortable for your pet.

• Fold the ear flap down against your dog’s head and try to prevent your dog from shaking his or her head too much. Gently massage the very base of the ear to distribute the solution as far as possible into the ear canal. Ask your veterinarian to demonstrate this massage.

• Keep the medicine in the ear for the prescribed amount of time.

• Allow your dog to shake his or her head to remove some of the medicine. (This is the messy part.)

• Use cotton balls or tissues to gently wipe away any discharge, loosened debris, and remaining medicine from the ear flap, side of the neck, hair below the ear, and opening of the ear canal. Do not use cotton swabs because a sudden shake of the head or slip of the hand could result in a cotton swab puncturing the delicate eardrum or pushing debris inside the inner ear canal.

Please contact your veterinarian if you are experiencing difficulties administering any medication.

**Signs of Ear Trouble**

- Odor
- Scratching/rubbing at ears or side of head
- Discharge
- Debris
- Shaking/tilting of the head
- Pain
- Head shyness (not wanting the head or ears to be touched)
- Irritability

**Restraining Your Dog**

Although some dogs are willing to sit or lie quietly while you clean their ears, most object, at least at first. Here are some tips on how to keep your dog from wiggling while you work:

• Place your dog on a stable work surface that you can stand next to, and allow him or her to lie down, either in an upright “sphinx” position or flat on his or her side. While standing next to your dog, put the arm you will use to treat the ear over your dog’s shoulders, and use your upper arm and elbow to press your dog against your torso to help keep him or her still. You can wrap your other arm under your dog’s neck to hold the ear open and ear flap back. If necessary, move to your dog’s other side or turn your dog around to treat the other ear.
• If you don’t have a high work surface, you can use the same method while seated on the floor, either holding the front of your dog’s body partially against your body or on your lap. If you have a large dog, you can stand behind your dog and have him or her sit back against your legs. Sometimes it helps to back your dog into a corner.
• Small dogs can be wrapped in a large towel and held against your body, leaving only the head free. Be sure not to wrap your small dog too tightly.
• If your dog struggles, talk to him or her calmly. Stop if he or she becomes extremely agitated. Massaging the base of the ears (unless they are painful) should feel good to your dog and may help calm him or her enough that you can resume treatment.
• Be sure to reward good behavior.
How to Administer Eye Medication to Your Dog

- Many eye conditions in dogs require medicine to be put directly into the eye.
- Follow your veterinarian’s recommendations closely.
- Always put health and safety first. If the procedure seems dangerous to you or very painful for your pet, stop and consult your veterinarian.

The Basics

Many eye conditions in dogs require medicine to be put directly into the eye. This procedure can be relatively easy, as long as you follow a few simple guidelines. The most important guideline is to always put health and safety first. If, for any reason, your dog becomes so agitated that you feel you are at risk of being bitten, stop. If the procedure seems excessively painful for your dog, stop and get your veterinarian’s advice.

Follow Recommendations

The eye is a very delicate structure. It is very important to closely follow your veterinarian’s recommendations for medicating your dog’s eye. Treating too frequently or too aggressively can make the problem worse, not better. Sensitive, already inflamed parts of the eye can be damaged.

It is important to use only medicines prescribed by a veterinarian and to treat for the full length of time prescribed. Do not stop treatment early, even if the problem seems to be resolved.

What You Need

- Safe work area
- Eye medication prescribed by your veterinarian
- Moist cotton balls or tissues

Technique

There are several techniques for applying eye medication. Only one is described here. Ask your veterinarian to demonstrate application of the prescribed medicine and follow his or her recommendations.

- If necessary, gently restrain or muzzle your dog (see Restraining Your Dog, below). You may need a helper.
- Using moistened cotton balls or tissues, gently wipe away any discharge from around the eye.
- Hold the affected eye open with the fingers of one hand. If the medication is liquid (eye drops), hold the upper and lower eyelids apart; if the medication is an ointment, gently pull down on the lower eyelid to create a small gap between the lid and the eye.
- With your other hand, gently squeeze the prescribed amount of medicine into the eye. Drops can be applied to the center of the eye or in the gap between the eye and the lower
lid; ointment can be placed in the gap. Do not touch your dog’s eye with the medicine container or your fingers.

• Note: If an eye medication requires refrigeration, do not store it at room temperature; however, allow it to reach room temperature before use to make it more comfortable for your pet.
• Either allow your dog to blink to move the medicine across the eye, or, using a very light touch, hold the eye closed for a moment and gently massage.
• Use cotton balls or tissues to gently wipe away any excess medication or discharge.
• Reward your dog with a treat.

Contact your veterinarian if you have questions or difficulty administering any medication.

Signs of Eye Trouble

• Excessive tearing
• Discharge
• Red eyelids
• Third eyelid visible
• Squinting or closing eye
• Cloudy or dull-looking eye surface; visible mark on eye surface
• Pawing at face
• Swelling or bulging around, near, or in eye

Restraining Your Dog

Keeping your dog still while you medicate his or her eye is important so that you do not accidentally damage the eye or touch the eye with the medicine container. Here are some tips:

• Place your dog on a stable work surface that you can stand next to, and allow him or her to lie down, either in an upright “sphinx” position or flat on his or her side. While standing next to your dog, put the arm you will use to treat the eye over your dog’s shoulders, and use your upper arm and elbow to press your dog against your torso to help keep him or her still. If necessary, move to your dog’s other side or turn your dog around to treat the other ear.
• If you don’t have a high work surface, you can use the same method while seated on the floor, either holding the front of your dog’s body partially against your body or on your lap. If you have a large dog, you can stand behind your dog and have him or her sit back against your legs. Sometimes it helps to back your dog into a corner.
• Small dogs can be wrapped in a large towel and held against your body, leaving only the head free. Be sure not to wrap your small dog too tightly.
• If your dog struggles, talk to him or her calmly. Stop if he or she becomes extremely agitated.
How to Find a Reputable Breeder

- Thorough research is important to ensure the breed fits with your lifestyle.
- Ask for recommendations, research websites, then interview and visit several breeders before making a decision.
- Reputable breeders will specialize in only one or two breeds, raise a limited number of litters a year, and offer a written contract with a health guarantee.
- A visit to the breeder is important to ensure that animals are raised in a clean, well-socialized environment.
- Many purebred animals are also available through rescue organizations and shelters.

How Do I Find a Reputable Breeder?

Before you even look for a breeder, it’s important to fully research the breed you are considering. Ensuring that the breed’s temperament, exercise needs, and grooming requirements are a good match with your own lifestyle will make for a better long-term relationship for both you and the pet. Talk to owners who have the breed you are considering and observe them interacting with their pets to aid your decision if this is the right breed for you.

Start by asking for recommendations from local and national breed clubs and breed rescue groups, as well as from your veterinarian. Most reputable breeders will have a website you can refer to for more information. It is important for you to interview and visit more than one breeder before you make your choice. Breed shows can be a good starting point and allow you to talk with many breeders at one time.

Be aware that many people who sell pets through newspaper ads and pet stores may be running puppy or kitten mills. As you may know, animals in these facilities are often inbred, unsocialized, and raised in overcrowded cages in unsanitary conditions. Even though they are only there for a few weeks, these animals can often have a lifetime of health and behavior problems. That’s one more reason why you will want to visit the breeding facility before deciding on a puppy or kitten.

What Are the Qualities of a Reputable Breeder?

A responsible breeder:

- **Is selective about where their puppies and kittens are placed.** A good breeder will interview you as much as you interview them. They will want to know if you are prepared to house, train, and care for the pet for a lifetime, and if you understand the exercise and grooming needs of the animal.

- **Provides an individual veterinary health record for the pet, and a health guarantee.** The pet should have received at least one set of vaccines and have been checked and treated for parasites, which are very common in young animals. The record should show that there are no obvious birth defects, diseases, or other health issues, such as heart murmurs. The breeder should specify what they have done to protect animals from infectious diseases such as distemper, parvovirus, feline leukemia, and feline
immunodeficiency virus, and how you would be compensated should the pet become ill in the weeks after you take it home. A good breeder will offer proof of screening, such as OFA (Orthopedic Foundation for Animals) and PennHIP hip certification, for potential genetic problems that are common to that breed.

- **Raisess the litter in the home with the family.** Early socialization with people and animals is crucial for young pets. Animals who are isolated in cages or pens outside the home may have difficulty forming relationships with people and animals later. What’s more, pets who are raised in small cages are often harder to housetrain.

- **Only specializes in one or two breeds.** A breeder with multiple breeds and multiple litters has different motivations than the breeder who focuses on a single breed. You want a breeder who is extremely knowledgeable about the breed and is willing to honestly discuss the positives and negatives you may encounter, including potential genetic problems.

- **Produces a limited number of litters a year.** Even though you may be placed on a waiting list for a new puppy or kitten, you can feel more confident that the breeder is placing much thought, planning, and care into each animal.

- **Does not sell kittens and puppies before 8 weeks of age.** Young animals that are separated from their mother and the rest of the litter too early may have difficulty with socialization. By eight weeks of age they should be weaned from the mother and eating a commercial puppy or kitten food.

- **Provides a written contract.** The contract should not only outline the financial details, but provide information on registration, rights, ownership, spay or neuter requirements, and a return policy, should the need arise.

### What Questions Should I Ask the Breeder?

It’s important for you to visit the breeding facility where your puppy or kitten has been raised. During your visit, consider asking questions such as:

- **Can I see where puppies or kittens are housed?** Obviously, you will want the area to be clean and well-maintained, with room for exercise. Kittens and cats should have clean litter boxes and be well groomed. The animals should be happy and healthy, and comfortable around people.

- **Can I call other families who have purchased pets from you?** A reputable breeder will be happy to provide you with a long list.

- **What kind of food are you feeding?** Good breeders don’t skimp on the quality of the food during the important developmental months.

- **Can I see the mother and other adult animals?** Look for well-socialized adult animals that are at ease with people. The breeder should also know the ancestry of not just the parents, but prior generations.

- **Can I bring my family?** You should be encouraged to bring your entire family, on multiple visits, to ensure the animal will fit into your household.

Another option to working with a breeder is to search shelters and rescue sites. It’s estimated that one in every four dogs in animal shelters is purebred. It’s a great way to give a good animal a second chance at life.
How to Give Your Dog a Pill

- Medicines in pill or capsule form are prescribed to treat a variety of conditions.
- It is important to use only medicines prescribed by a veterinarian and to treat for the full length of time prescribed.
- Do not stop treatment early, even if the problem seems to be resolved.

The Basics

Medicines in pill or capsule form are prescribed to treat a variety of conditions, but many dogs dislike taking pills. Some medicines that are usually prescribed as pills or capsules can be changed (compounded) to a liquid or a powder for easier administration. Some medicines for dogs come in a chewable “treat” form. If you have trouble giving your dog pills, ask your veterinarian if compounding is possible or a treat form is available for specific medicines.

Follow Recommendations

It is important to use only medicines prescribed by a veterinarian and to treat for the full length of time prescribed. Do not stop treatment early, even if the problem seems to be resolved. You can ask your veterinarian to demonstrate how to give the prescribed medicine.

Technique

Some dogs will eat a pill or capsule if it is hidden in a soft treat or in their regular food. However, if the pill is in food, it may be hard to tell whether your dog has taken the pill on time (or at all) if he or she eats throughout the day. Dog treats designed to hide pills are available in many stores. Ask your veterinarian if the prescribed medicine can be given with treats or food and if there are any restrictions on what your dog should eat while taking the medicine.

Another method of giving a dog a pill is:

- For a small dog, put one hand on top of your dog’s head, holding firmly—but not too tightly—so that the tips of your thumb and middle finger touch the corners of the mouth.
- For a large dog, put your hand on top of your dog’s nose and hold the upper jaw.
- Tilt the head back.
- Hold the pill between the first finger and thumb of your other hand. Use the tips of the other fingers of this hand to push down on your dog’s lower jaw to open his or her mouth. Be careful to place your finger on the short teeth at the very front of the mouth, not on the longer (canine) teeth at the corners.
- If you have a large dog, you may be able to fold the upper lip over his or her teeth as you open the mouth. This may discourage your dog from closing her or her mouth.
- Drop or quickly place the pill as far back in your dog’s throat as you can. Do not push the pill down.
- Hold your dog’s mouth closed and stroke his or her throat (or blow on his or her nose) to encourage swallowing.
• Give your dog a reward (like a treat approved by your veterinarian) to make it a more pleasant experience.

When using this technique, be aware of your dog’s mood. If he or she gets agitated and seems likely to bite, stop and try again later or contact your veterinarian.

**Contact your veterinarian if you have questions or difficulty administering any medication.**

**Restraining Your Dog**

You may need help keeping your dog still while you administer medicine. If you don’t have a helper handy, place your dog in your lap. Put one arm—the one you will use to hold the head—over your pet’s shoulders, and use your upper arm and elbow to help keep him or her still. Do not use excessive force to hold your dog still.

If your dog will not stay in your lap, or is too big, you can use the same method while seated on the floor, either holding the front of your dog’s body partially against your body or on your lap. If you have a large dog, you can stand behind him or her and have him or her sit back against your legs. Sometimes it helps to back your dog into a corner.

If your dog struggles, talk to him or her calmly. Stop if he or she becomes extremely agitated.
How to Give Your Dog Liquid Medicine

- Liquid medications are prescribed to treat a variety of conditions.
- It is important to use only medicines prescribed by a veterinarian and to treat for the full length of time prescribed.
- Do not stop treatment early, even if the problem seems to be resolved.

The Basics

Liquid medications are prescribed to treat a variety of conditions. Some medicines that are usually prescribed as pills or capsules can be changed (compounded) to a liquid for easier administration. If you have trouble giving your dog pills, ask your veterinarian if compounding is possible for specific medicines.

Follow Recommendations

It is important to use only medicines prescribed by a veterinarian and to treat for the full length of time prescribed. Do not stop treatment early, even if the problem seems to be resolved. You can ask your veterinarian to demonstrate how to give the prescribed medicine.

Technique

- Liquid medications should come with a dropper or syringe for administration. Fill the dropper or syringe with the prescribed amount of medicine.
- Holding your dog’s head still with one hand, insert the tip of the dropper or syringe into a corner of the mouth, between the cheek and the teeth, aiming toward the back of your dog’s head.
- **Do not** tilt your dog’s head back; this may cause him or her to inhale the medicine.
- Squeeze the dropper or syringe to empty it.
- Hold your dog’s mouth closed and stroke his or her throat (or blow on his or her nose) to encourage swallowing.
- Give your dog a reward (like a treat approved by your veterinarian) to make it a more pleasant experience.

Contact your veterinarian if you have questions or difficulty administering any medications.

Restraining Your Dog

You may need help keeping your dog still while you administer medicine. If you don’t have a helper handy, you may want to sit on the floor and hold the front of your dog’s body partially against your body or on your lap. If you have a large dog, you can stand behind your dog and have him or her sit back against your legs. Sometimes it helps to back your dog into a corner.

Small dogs can be wrapped in a large towel and held against your body, leaving only the head free. Be sure not to wrap your small dog too tightly.
If your dog struggles, talk to him or her calmly. Stop if he or she becomes extremely agitated.
How to Tell if Your Dog Is Sick

- Any change in your dog’s normal behavior, such as increased lethargy, loss of appetite, or weight loss, may indicate that your dog is ill.
- If you suspect that your dog is sick, contact your veterinarian for advice.
- If your dog becomes ill after your veterinarian’s normal business hours, call an emergency veterinary clinic for guidance.
- Some illnesses require immediate veterinary attention, so when in doubt, call a veterinary professional.

How Can I Tell If My Dog Is Ill?

Despite the adage about a dog’s nose being warm, cold, wet, or dry, any of those signs may, in fact, be normal. Many other signs can give you a better indication of illness in a dog. For example, any changes such as decreases in energy level (e.g., sleeping more), decreased appetite, or weight gain/loss may signal that your dog is not feeling well. Other signs to look for include:

- Vomiting
- Diarrhea or bloody stools
- Constipation
- Coughing or sneezing
- Excessive panting or difficulty breathing
- Limping
- Exercise intolerance
- Fainting episodes
- Increased drinking and/or urination
- Bloody urine or accidents in the house
- Unusual lumps, bumps or swellings
- Bad breath or excessive drooling

If you are concerned that your dog may have a fever, you can take its temperature with a thermometer in the rectum. The normal temperature for a dog is 99.5° to 102.5° Fahrenheit. If your dog’s temperature is above or below this range, contact your veterinarian.

What Should I Do If I Suspect That My Dog Is Ill?

If your dog shows signs of illness, don’t wait—call your veterinarian at once. If it is after your veterinarian’s normal business hours, contact an emergency veterinary clinic. It is very important to locate a veterinary emergency and referral hospital before you need one so that if you have an emergency and your veterinarian is closed, you will know where to take your dog for evaluation. Some illnesses may require immediate veterinary attention, so when you call, it’s important to ask if your pet needs to be evaluated right away.

If your pet has recently experienced any kind of trauma—for example, being hit by a car or attacked by another dog—but does not appear to be injured, you should still call your
veterinarian. An examination may be necessary to detect any internal injuries that are not immediately obvious.
Human Foods That Are Dangerous for Dogs and Cats

- Some human foods can cause serious illness (and even death) in dogs and cats.
- Pets should not be given human food unless recommended by your veterinarian.
- If you suspect your pet may have eaten a dangerous food, contact your veterinarian immediately.

What Do I Need to Know About Foods That Are Dangerous for My Pet?

A number of human foods are dangerous to pets. Many of these foods may seem tasty to our pets but can prove deadly if eaten. It can be very tempting to offer pets food from the table, but pets should not be given human food unless recommended by your veterinarian.

If you suspect your pet may have eaten a dangerous food, contact your veterinarian immediately. In many cases, early recognition and treatment are critical.

**Xylitol**

Xylitol is an artificial sweetener found in products such as gum, candy, mints, toothpaste, and mouthwash. Xylitol is harmful to dogs because it causes a sudden release of insulin in the body that leads to hypoglycemia (low blood sugar). Xylitol can also cause liver damage in dogs. Within 30 minutes after eating, the dog may vomit, be lethargic (tired), and/or be uncoordinated. However, some signs of toxicity can also be delayed for hours or even for a few days. Xylitol toxicity in dogs can be fatal if untreated. It is unknown whether xylitol is toxic to cats.

**Chocolate, Coffee, and Caffeine**

Chocolate contains theobromine, a chemical that is toxic to dogs in large enough quantities. Chocolate also contains caffeine, which is found in coffee, tea, and certain soft drinks. Different types of chocolate contain different amounts of theobromine and caffeine. For example, dark chocolate and baking chocolate contain more of these compounds than milk chocolate does, so a dog would need to eat more milk chocolate in order to become ill. However, even a few ounces of chocolate can be enough to cause illness in a small dog, so no amount or type of chocolate should be considered “safe” for a dog to eat. Chocolate toxicity can cause vomiting, diarrhea, rapid or irregular heart rate, restlessness, muscle tremors, and seizures. Death can occur within 24 hours of ingestion.

**Grapes and Raisins**

Grapes and raisins can cause acute (sudden) kidney failure in cats and dogs. It is unknown what the toxic agent is in these fruits. However, clinical signs can occur within 24 hours of eating and include vomiting, diarrhea, and lethargy (tiredness). Other signs of illness relate to the eventual shutdown of kidney functioning.

**Avocados**
The avocado tree leaves, pits, fruit, and plant bark are likely all toxic. Clinical signs in dogs and cats include vomiting and diarrhea.

**Garlic and Onions**

Garlic and onions contain chemicals that damage red blood cells in cats and dogs. Affected red blood cells can rupture or lose their ability to carry oxygen effectively. Cooking these foods does not reduce their potential toxicity. Fresh, cooked, and/or powdered garlic and/or onions are commonly found in baby food, which is sometimes given to animals when they are sick, so be sure to read food labels carefully.

**Macadamia Nuts**

Macadamia nuts are common in candies and chocolates. The mechanism of macadamia nut toxicity is not well understood, but clinical signs in dogs include depression, weakness, vomiting, tremors, joint pain, and pale gums. Clinical signs can occur within 12 hours after eating. In some cases, signs can resolve without treatment in 24 to 48 hours, but patient monitoring is strongly recommended.

**Prevention**

Many cases of human food toxicity in pets are accidental. A pet may find and chew on a package of gum or candy, or steal food from a countertop or table. The best way to prevent this is to keep all food items in closed cabinets or in areas that are inaccessible to pets. This may be particularly difficult during the holiday season, when more candy, chocolate, fruit baskets, and other food items are around. During these times, increased vigilance can help prevent pets from finding and eating dangerous foods.

Unfortunately, some cases of food toxicity in pets occur when pets are given a human food that contains a dangerous component. In general, human food items should not be given to pets unless recommended by your veterinarian. Children should also be taught to never give candy, gum, or other human food items to pets.

**If you suspect that your pet has eaten a potentially hazardous item, contact your veterinarian immediately.**

For more information on human foods that are dangerous for pets, visit the ASPCA (American Society for the Prevention of Cruelty to Animals) Animal Poison Control Center at http://www.aspca.org/pet-care/poison-control/.
Hypertension and Your Pet

- Hypertension, also known as high blood pressure, can affect dogs and cats.
- In people, the most common type of hypertension is known as primary or essential hypertension, which means that high blood pressure is the main disease process.
- Cats and dogs, on the other hand, rarely develop primary hypertension. Instead, hypertension in pets is usually the sign of another illness. This is known as secondary hypertension.
- Because hypertension in dogs and cats is usually secondary to another illness, some of the clinical signs may be due to the hypertension, while other signs are attributable to the underlying illness.
- Hypertension can be difficult to diagnose based on clinical signs because many of the associated signs can be attributed to any number of diseases.
- Once your veterinarian identifies hypertension in your pet, he or she will search for the underlying cause of the condition. Often, treating that illness can correct the hypertension.

What Is Hypertension?

Hypertension, or high blood pressure, occurs when blood moves through the body’s arteries with too much force. Blood pressure can be increased by several factors, including faster heart rate and increased cardiac output (the amount of blood that is sent out into the body with each heartbeat). In animals with hypertension, the increased force or “pressure” of the blood damages the arteries as the blood tries to move through. Imagine a firefighter trying to force a high-powered stream of water through a garden hose. The pressure would tear the hose apart. Similar damage to the body’s arteries is possible if high blood pressure is left untreated.

For example, blood vessels in the retinas (in the eyes) can become damaged from hypertension. This damage can eventually cause blindness. For some pet owners, sudden blindness can be the first noticeable sign of hypertension in a pet. The heart and brain can also be damaged by hypertension.

What Causes Hypertension?

Hypertension in pets is often the result of other illnesses. Some possible causes in dogs include kidney disease, adrenal gland disease, and diabetes. In cats, the most common causes are kidney disease, hyperthyroidism (overactive thyroid gland), and heart disease.

What Are Possible Signs of Hypertension?

Because hypertension in dogs and cats occurs secondary to an underlying illness, some of the clinical signs may be due to the hypertension, while other signs are attributable to the underlying illness. Clinical signs of hypertension (or associated illness) may include the following:

- Redness in one or both eyes
- Vision loss
- Seizures
- Lethargy (tiredness)
- Depression
- Difficulty breathing
- Increased thirst and urination
- Weight loss
- Increased or decreased appetite

**How Is Hypertension Diagnosed?**

Hypertension can be difficult to diagnose based on clinical signs because many of the associated signs can be attributed to any number of diseases. If your veterinarian suspects a problem, he or she will measure your pet’s blood pressure.

Initial blood pressure readings in pets are sometimes artificially high due to the animal’s anxiety level in the veterinary clinic (often termed *white coat hypertension*). Your pet may need to stay a few hours in the clinic until he or she calms down enough to get an accurate reading.

**How Is Hypertension Treated?**

Once your veterinarian identifies hypertension in your pet, he or she will search for the underlying cause. Often, treating that illness can correct the hypertension. In other cases, medication to treat high blood pressure may be prescribed. Typically, drugs control hypertension by slowing the heart rate, modifying cardiac output, or relaxing the walls of the arteries to make blood flow more easily. Sometimes, combinations of drugs are required to control a pet’s blood pressure. In pets in which high blood pressure has caused eye problems, eye drops may be prescribed as well.

Your veterinarian may also recommend a diet with reduced salt, which may mean feeding your pet a prescription diet.

Pets being treated for hypertension should be checked regularly to ensure that their blood pressure remains within a healthy range. Your veterinarian will recommend a schedule for recheck examinations. Repeat blood testing or other diagnostic testing may also be recommended periodically. As in people, pets with hypertension may require medication for life.
Ibuprofen and Naproxen Toxicosis

- Ibuprofen and naproxen can be toxic to dogs and cats, but cats are much more susceptible to this toxicity than dogs are.
- A single 200-milligram ibuprofen tablet can be toxic to a cat or small- to medium-sized dog; toxic effects can occur rapidly and damage the kidneys and stomach.
- Ibuprofen and naproxen are drugs intended for humans that should not be given to pets.
- Never administer human medications to your pet unless instructed to do so by your veterinarian, and keep all medications in the home secured to help prevent accidental swallowing by pets.

What Is Ibuprofen and Naproxen Toxicosis?

Ibuprofen is the active ingredient in medications like Advil and Nuprin. Naproxen is similar to ibuprofen but is longer-acting; it is the active ingredient in medications like Aleve and Naprosyn. Ibuprofen and naproxen are widely used to treat pain, fever, and inflammation in people. Unfortunately, these drugs can be extremely toxic (poisonous) to cats and dogs. Toxicosis occurs when a cat or dog eats enough of one of these drugs to cause damaging effects in the body.

The damaging effects of ibuprofen or naproxen in pets include inhibiting blood flow to the kidneys and interfering with the production of compounds that help protect the inner lining of the stomach. Therefore, toxic effects of ibuprofen and naproxen in dogs and cats include kidney damage that can lead to kidney failure and severe stomach irritation that can progress to stomach ulcers.

How Does Toxicosis Occur?

Many cases of ibuprofen and naproxen toxicosis in dogs and cats are accidental. A pet may find and chew on a bottle of pills or eat a pill that has fallen on the floor. Because these drugs are so potent, a single 200-milligram ibuprofen tablet can be toxic to a cat or small- to medium-sized dog.

Sadly, some cases of toxicosis occur because pet owners give human medication to their pet without being instructed to do so by a veterinarian. Ibuprofen and naproxen are intended for human use and should not be given to pets.

What Are the Clinical Signs of Ibuprofen and Naproxen Toxicosis?

Once swallowed, ibuprofen and naproxen are rapidly absorbed from the stomach and intestines. Depending on the amount of drug ingested, toxic effects can occur within an hour, but some signs can take a few days to appear. The most common side effect is stomach irritation. In mild cases, this may cause vomiting. In severe cases, it can cause the pet to vomit blood; the irritation can also be severe enough to cause stomach ulcers and stomach perforations (punctures in the stomach wall that allow stomach acid to leak into the abdomen). If stomach bleeding is severe, blood transfusions may be necessary to save the patient.
Ibuprofen and naproxen toxicosis can also inhibit blood flow to the kidneys, which can cause kidney failure. Extremely high toxic doses of these drugs can also affect the brain, causing altered mental status, seizures, and coma. Other clinical signs associated with toxicosis can include the following:

- Vomiting (sometimes with blood)
- Diarrhea (may be darker in color due to digested blood)
- Appetite loss
- Dehydration
- Abdominal pain
- Pale gums (secondary to blood loss)

**How Is Ibuprofen and Naproxen Toxicosis Diagnosed?**

Diagnosis of ibuprofen and naproxen toxicosis is commonly based on a history of recent swallowing of one of these drugs. Your veterinarian may recommend diagnostic testing, such as blood work (a chemistry panel and complete blood cell count [CBC]) and urinalysis to assess the extent of the damage. If stomach perforation or kidney failure are suspected, additional diagnostic testing is warranted.

**What Are the Treatment and Outcome for Ibuprofen and Naproxen Toxicosis?**

Ibuprofen and naproxen are absorbed by the body very rapidly. If swallowing is recognized right away, vomiting can be induced to remove the drug from the stomach before the body can absorb it. Another option may be to sedate the pet to flush out the contents of the stomach. Your veterinarian may also administer a special preparation of liquid-activated charcoal to slow absorption of material from the stomach and intestines. This step may need to be repeated every few hours, as these medications have a long-lasting effect.

There is no specific antidote for ibuprofen or naproxen toxicosis. Treatment may include intravenous fluid therapy, blood transfusions, medications to help heal stomach damage, and other medications to help support and stabilize the patient. Hospitalization may be required so that blood values, urine output, and vital signs can be monitored.

Ibuprofen or naproxen toxicosis can be fatal. However, pets can survive if the condition is recognized, diagnosed, and treated quickly. The amount of drug involved also has a direct effect on recovery and long-term outcome.

Most cases of ibuprofen or naproxen toxicosis are preventable. Never administer human medications to your pet unless instructed to do so by your veterinarian, and keep all medications in the home secured to help prevent accidental swallowing.
**Immune-Mediated Hemolytic Anemia**

- Immune-mediated hemolytic anemia (IMHA) is a condition in which the body’s immune system attacks and destroys red blood cells.
- IMHA can be a primary condition, or it can be caused by another illness or event (including cancer, certain tick-transmitted diseases, or some viral and bacterial infections).
- IMHA can be fatal, even with aggressive treatment. For pets that survive, relapses can occur. Your veterinarian may recommend periodic recheck examinations and repeat blood work for the life of your pet to help identify and treat relapses early.

**What Is Immune-Mediated Hemolytic Anemia?**

Immune-mediated hemolytic anemia (IMHA) is a type of illness known as an **autoimmune disease**. Autoimmune diseases result when the body’s immune system does not recognize itself; cells that normally attack invading viruses and bacteria begin attacking the body’s own cells, causing damage. In dogs and cats with IMHA, the body’s red blood cells come under attack. When red blood cells are severely damaged, they can burst; this is known as **hemolysis**. Therefore, IMHA is a condition in which red blood cells are attacked by the body’s immune system and destroyed by hemolysis, resulting in anemia (an inadequate quantity of red blood cells). Red blood cells can be destroyed within the blood vessels or in the spleen, liver, or bone marrow (where they are produced).

IMHA can be a primary condition, or it can be caused by another illness or event. Primary IMHA is sometimes called **autoimmune hemolytic anemia** (AIHA); it is the most common type of IMHA in dogs but is relatively rare in cats. The underlying cause of primary IMHA is rarely determined. Certain breeds of dogs (including cocker spaniels, Old English sheepdogs, and Irish setters) are genetically prone to developing primary IMHA. Secondary IMHA can be associated with certain cancers (including lymphoma); exposure to certain drugs (including some antibiotics); tick-transmitted diseases (such as ehrlichiosis and babesiosis); bee stings; and some viral and bacterial infections, including leptospirosis in dogs and feline leukemia (FeLV) in cats. Blood transfusion reactions have also been associated with IMHA in pets.

**What Are the Clinical Signs of Immune-Mediated Hemolytic Anemia?**

Red blood cells are responsible for carrying oxygen to the body’s organs, so anemia causes the body to become deprived of adequate oxygen. Many of the clinical signs associated with IMHA are related to anemia. If the condition is caused by another illness, additional clinical signs can result from the underlying condition. IMHA can occur relatively slowly (over a period of weeks), or it can progress rapidly in just a few days. Clinical signs can vary in severity:

- Weakness
- Lethargy (tiredness)
- Appetite loss
- Vomiting and diarrhea
- Fever
- Pale gums
- Rapid heart rate
- Rapid breathing
- Yellow discoloration of the skin (known as jaundice, resulting from destruction of red blood cells)
- Collapse

How Is Immune-Mediated Hemolytic Anemia Diagnosed?

Your veterinarian will likely recommend blood testing to confirm a diagnosis of IMHA. Some veterinarians can perform initial testing at the office. In other cases, tests are sent to a diagnostic laboratory and results are available in a few days. If your veterinarian suspects an underlying illness (such as FeLV or ehrlichiosis), more testing may be recommended.

What Are the Treatment and Outcome for Immune-Mediated Hemolytic Anemia?

Because IMHA is caused by an overactive immune system, initial treatment is aimed at suppressing the immune system and stabilizing the patient. Steroids (given at high doses) are the most common medication prescribed. If the patient is severely anemic, blood transfusions may be required. Additional therapy may include intravenous fluids, antibiotics, and supportive therapy. If the underlying cause of the IMHA can be treated, such therapy is also generally initiated.

Some pets don’t respond adequately to steroids. In these cases, additional medications can be given to manage the condition.

During the treatment process, frequent blood testing is required to ensure an adequate response to therapy. Once a pet responds to treatment, medication dosages are gradually adjusted and blood testing repeated periodically to monitor for relapses.

IMHA can be fatal, even with aggressive treatment. For pets that survive, there is always a possibility of relapse. Your veterinarian may recommend periodic recheck examinations and repeat blood work for the life of your pet to help identify and treat relapses early.
Immune-Mediated Thrombocytopenia

- Immune-mediated thrombocytopenia (IMT) is a condition in which the body’s immune system attacks and destroys blood platelets.
- IMT can be a primary condition, or it can be caused by another illness (including cancer, certain tick-transmitted diseases, and some viral and bacterial infections).
- IMT generally responds to treatment, but it can be fatal. For pets that survive, relapses can occur. Your veterinarian may recommend periodic recheck examinations and repeat blood work for the life of your pet to help identify and treat relapses early.

What Is Immune-Mediated Thrombocytopenia?

Immune-mediated thrombocytopenia (IMT) is a type of illness known as an autoimmune disease. Autoimmune diseases result when the body’s immune system does not recognize itself; cells that normally attack invading viruses and bacteria begin attacking the body’s own cells, causing damage. In dogs and cats with IMT, the body’s platelets are attacked and destroyed, resulting in reduced numbers of platelets in the blood vessels. Platelets (also called thrombocytes) are cells that are needed to form blood clots and repair damaged blood vessels. Thrombocytopenia occurs when there are too few platelets in the blood.

Adequate numbers of platelets are essential for survival. Platelets help repair obvious injuries, such as open wounds, as well as microscopic injuries that occur in day-to-day life. If platelet numbers are too low, uncontrolled bleeding can occur, and if treatment is unsuccessful, the patient can die from excessive blood loss.

IMT can be a primary condition, or it can be caused by another illness or event. The underlying cause of primary IMT is rarely determined. Certain breeds of dogs (including German shepherds and Old English sheepdogs) may be genetically prone to developing primary IMT. Female dogs are more likely to be diagnosed with IMT, but female cats are not. Secondary IMT can be associated with certain cancers (including lymphoma); exposure to certain drugs (including some antibiotics); tick-transmitted diseases (such as ehrlichiosis, babesiosis, and anaplasmosis); and some viral and bacterial infections, including canine distemper virus in dogs and feline leukemia (FeLV) and feline immunodeficiency virus (FIV, or “feline AIDS”) in cats.

What Are the Clinical Signs of Immune-Mediated Thrombocytopenia?

Platelets are responsible for helping to form blood clots and repair damaged blood vessels, so IMT can cause spontaneous bleeding or inability to stop bleeding. If IMT is caused by another illness, additional clinical signs can result from the underlying condition. Clinical signs of IMT can vary in severity:

- Weakness
- Lethargy (tiredness)
- Appetite loss
- Vomiting blood
- Bloody diarrhea or melena (digested blood that appears in feces)
- Bruising on the skin
- Bleeding from the nose
- Bleeding from the gums
- Bloody urine, or bleeding from the penis or vulva
- Coughing blood, or difficulty breathing

Bleeding can also occur within the brain, causing seizures; within the eyes, causing blindness; or within the abdomen or chest cavity. Severe bleeding can be fatal, especially if it occurs rapidly. If significant blood loss occurs, additional clinical signs (such as pale gums) may be associated with anemia (inadequate numbers of red blood cells).

Owners may also notice other evidence of bleeding, such as minor cuts and scratches that continue to bleed, a heat cycle that seems prolonged or excessive, or skin bruising after playing or grooming.

**How Is Immune-Mediated Thrombocytopenia Diagnosed?**

There is no specific test to diagnose IMT. Your veterinarian will likely recommend blood testing to help confirm a suspected diagnosis of IMT and rule out other conditions that can cause low platelet numbers. Some veterinarians can perform initial testing at the office. In other cases, tests are sent to a diagnostic laboratory and results are available in a few days. If your veterinarian suspects an underlying illness (such as FeLV or ehrlichiosis), more testing may be recommended.

**What Are the Treatment and Outcome for Immune-Mediated Thrombocytopenia?**

Because IMT is caused by an overactive immune system, initial treatment is aimed at suppressing the immune system and stabilizing the patient. Steroids (given at high doses) are the most common medication prescribed. Additional therapy may include intravenous fluids and supportive care. If the underlying cause of the IMT can be treated, such therapy is also generally initiated.

Some pets don’t respond adequately to steroids. In these cases, additional medications can be given to manage the condition.

During the treatment process, frequent blood testing is required to ensure an adequate response to therapy. Once a pet responds to treatment, medication dosages are gradually adjusted and blood testing repeated periodically to monitor for relapses.

IMT generally responds to treatment, but it can be fatal. For pets that survive, relapses can occur. Your veterinarian may recommend periodic recheck examinations and repeat blood work for the life of your pet to help identify and treat relapses early.
Injectable Medication

- Some medications can only be administered by injection and must be given by a trained veterinary professional.
- Your veterinary care team will be glad to address any questions or concerns you may have about the injectable medication your pet is receiving.
- If your pet has any problems after receiving an injection, notify your veterinarian right away.

Why Does My Pet Need Injectable Medication?

Certain medications, such as insulin, can only be administered by injection. Some injections can be given at home after owners have received necessary instructions. However, in some cases, an injectable medication must be given by a veterinarian or trained veterinary professional.

Examples of injections that are given by veterinary professionals include:

- Chemotherapy
- Certain antibiotics
- Sedatives
- Medication to treat heartworm disease (in dogs)

How Are Injectable Medications Given?

- Injectable medications can be given the following ways:
- Direct injection into a vein (known as intravenous [IV] injection)
- Injection through an intravenous catheter
- Injection into a muscle (known as intramuscular [IM] injection)
- Injection directly under the skin (known as subcutaneous [SC or SQ] injection)

Some injectable medications can be given on an outpatient basis. In other cases, your veterinarian may recommend that your pet remain at the veterinary office for a period of observation after an injection is given. In some cases, blood work before or after an injection may be recommended.

Some injections are only given once, but others need to be repeated according to a schedule. If your pet must receive medication injections on a particular schedule, it is very important to maintain this schedule and notify your veterinarian if a scheduled injection must be postponed.

What Should I Do if I Have Concerns About My Pet’s Injectable Medication?

Your team of veterinary professionals will be glad to answer any questions you may have about the injectable medication your pet is receiving. Any concerns about side effects, pain, and expected outcome after treatment should be discussed so that you understand what is happening with your pet.
If your pet has any problems after receiving an injection, notify your veterinarian right away. In some cases, an alternative medication or treatment schedule may be possible.
Injection of Adequan Canine

- Adequan® Canine, which is referred to as Adequan, is a medication manufactured by Novartis Animal Health.
- Adequan slows cartilage destruction and promotes cartilage repair in dogs.
- Adequan improves the texture of joint fluid, contributing to increased joint comfort and mobility.
- Proper use of Adequan is associated with very few side effects.

What Is Adequan?

Canine osteoarthritis is an incurable disease that worsens over time. This means that managing the signs of osteoarthritis and trying to slow down how quickly the condition progresses are the only ways to improve the quality of life of dogs with this chronic illness. Managing the signs of osteoarthritis may involve giving medications to control pain and inflammation, promoting weight management, and conducting physical therapy sessions with the patient. Other treatments are aimed at slowing the progression of the disease. These products, known as disease-modifying osteoarthritis drugs (DMOADs), can be an important part of the effort to manage osteoarthritis. Adequan is classified as a DMOAD and has been shown to slow or alter the progression of osteoarthritis in dogs.

What Is Adequan Used For?

Adequan is used to help control the signs associated with canine osteoarthritis. It may be recommended for dogs with a variety of traumatic, chronic, or degenerative orthopedic problems, including the following:

- Hip dysplasia (a genetic joint abnormality)
- Elbow dysplasia (a genetic joint abnormality)
- Chronic hip, knee, or back arthritis
- Arthritis resulting from a traumatic injury

How Does Adequan Work?

The active ingredient in Adequan is polysulfated glycosaminoglycan (PSGAG), which has several effects that make it useful in treating osteoarthritis.

After injection, Adequan is distributed very well into cartilage and joint fluid, in addition to other areas of the body. How Adequan works is not completely understood, but studies have shown that it inhibits the action of enzymes (proteins) that destroy cartilage. In this way, Adequan slows cartilage breakdown. Adequan also provides the body with a helpful joint substance called chondroitin sulfate, stimulates the production of collagen (an important substance in joint cartilage), and promotes the production of other building blocks that the body needs to create new joint cartilage. The combined effect is that Adequan slows cartilage breakdown and promotes cartilage production, effectively slowing the progression of canine osteoarthritis.
Adequan also improves the texture of joint fluid, resulting in more joint lubrication and, therefore, improved joint mobility and comfort for dogs with osteoarthritis.

**How Are Adequan Injections Given?**

Adequan is a solution that is injected into a dog’s muscle. The recommended treatment schedule is one injection every 3 or 4 days for a total of eight injections. Generally, injections are given by your veterinarian during an outpatient visit.

Although some dogs may show improvement after only a few injections, it is recommended that the entire treatment course be completed for optimal results.

**What Are the Benefits and Risks of Adequan Injections?**

When administered properly and at label dosages, Adequan is associated with very few side effects. Although adverse effects are uncommon and usually resolve without treatment, pain or swelling at the injection site has been reported. Delayed blood clotting has also been reported in some dogs receiving Adequan. For this reason, Adequan should not be used in dogs with a history of bleeding abnormalities. The safety of Adequan in pregnant or nursing dogs has not been evaluated, and it should be used with caution in dogs with liver or kidney impairment.

For most dogs, the benefits of Adequan administration greatly outweigh the possible risks. Along with weight management, physical therapy, and medications to manage pain and inflammation, Adequan can be a valuable addition to the available therapies for dogs with osteoarthritis.
Intervertebral Disk Disease

- Intervertebral disk disease (IVDD) occurs when a disk between the vertebrae (bones of the spine) ruptures and pushes against the spinal cord.
- While IVDD can happen in cats, it’s more common in dogs, especially breeds such as dachshunds, basset hounds, and Welsh corgis.
- The signs of IVDD vary depending on the location and the degree of spinal cord compression.
- Signs may include severe pain, difficulty walking, limb paralysis, and urinary and/or fecal incontinence or retention.
- Diagnosis may require radiographs (x-rays) and/or a myelogram, as well as a CT or MRI scan.
- Treatment varies from strict rest and medication to surgery.

What Is Intervertebral Disk Disease?

In dogs and cats, the vertebrae (bones of the spine) are cushioned on either end by disks of soft cartilage. Occasionally, these disks can rupture, or herniate, into the vertebral canal, causing compression of the spinal cord. This condition is known as intervertebral disk disease (IVDD). Spinal cord compression is painful and can affect nerve supply to the legs and other areas of the body.

This condition occurs most commonly in dogs and less often in cats. Any dog can be affected, but dog breeds with longer torsos, such as dachshunds, basset hounds, and Welsh corgis, are most often affected.

What Are the Signs of Intervertebral Disk Disease?

The signs of IVDD vary depending on the location and degree of spinal cord compression. In mild cases, the pet may appear to be stiff or in pain. More severe cases can result in:

- Severe pain and reluctance to move
- Difficulty walking
- Abnormal walking, knuckling under of paws
- Dragging of rear limbs, paralysis (the front limbs may also be affected in some cases)
- Urinary and/or fecal incontinence or retention
- Aggression (due to pain)

Disks may rupture anywhere along the spinal column, from the neck down to the hip/tail area. The middle of the back, where the last part of the ribcage attaches to the spinal column, is the area most commonly affected. Disks that rupture in this area tend to affect the rear limbs and, sometimes, the nerves controlling the urinary or digestive tracts. Disks that rupture in the neck may affect both front and back limbs, or the front and back limbs on one side.

If your pet is unable to use his or her back legs, seek veterinary help immediately. Your veterinarian will be able to determine if it is a disk problem and if your pet has feeling in the
affected limbs. In severe cases, loss of feeling/sensation is a medical emergency, and permanent paralysis can result if surgery is not performed as soon as possible.

**What Causes This Condition?**

Generally, wear and tear on the disks causes them to degenerate and eventually push out (rupture/herniate) into the vertebral canal. Arthritis can contribute to the condition. Trauma, such as being hit by a car, may also cause disks to bulge from their normal location.

**How Is Intervertebral Disk Disease Diagnosed?**

If your pet is showing signs of IVDD, your veterinarian may recommend a radiograph (x-ray) to assess the spine. Your veterinarian may administer sedation or anesthesia to your pet so that x-rays can be taken without causing pain or further damage to the spine. Although disks (being made of cartilage) are not directly visible on x-rays, a narrowing of the space between two vertebrae may indicate the potential site of the problem. Other abnormalities associated with IVDD, such as arthritis in the back, tumors, or abnormal positioning of vertebrae, may also be visible on radiographs.

To determine the exact site of the disk rupture, your veterinarian may recommend performing a test called a *myelogram*. In this procedure, a special type of sterile dye that is visible on x-rays is injected into the spinal canal while your pet is under anesthesia. Radiographs are then taken. On the radiographs, the dye will be visible in the fluid-filled space between the spinal cord and the bones of the spine. Locations where the dye space becomes thin or disappears may indicate where a disk is pushing against the spinal cord.

For even greater detail, a CT (computed tomography) or MRI (magnetic resonance imaging) scan may be recommended. These procedures also require anesthesia. Because CT and MRI equipment are not available at all veterinary practices, your veterinarian may need to refer you to a specialist for these tests to be performed.

**How Is This Condition Treated?**

Treatment depends on the severity of the signs. If pain is mild to moderate and your veterinarian determines that your pet has adequate feeling/sensation in the affected limbs, conservative management is usually recommended. Strict rest and confinement for 2 to 4 weeks or more may be needed. Your veterinarian may recommend medications such as muscle relaxants to reduce spasms and possibly steroids or pain medications to reduce swelling and control pain.

If your pet is unable to walk, make sure to place soft padding under the body and turn your pet over (while supporting the spine) every few hours to prevent the formation of pressure sores. Make sure your pet continues to urinate and defecate, and clean the bedding often. If your pet is not urinating or defecating, contact your veterinarian. Periodic reexaminations may be recommended to assess how well your pet is responding to treatment.
If your pet is unable to walk and you are unable to provide nursing care at home, your veterinarian may recommend hospitalization until your pet’s condition improves enough for you to manage at home.

With conservative management, many pets recover in time. Occasionally, the signs may worsen and require a recheck appointment with your veterinarian. However, you should be aware that once your pet has experienced IVDD, it’s more likely to happen again. Pets with a history of IVDD should be kept from leaping, jumping, and engaging in other activities that jolt the spine to prevent a recurrence of the condition.

If your pet has lost significant feeling/sensation, surgery is usually recommended as soon as possible. Once the disk material is removed from the spinal canal and is no longer pressing against the spinal cord, the animal usually regains the use of its legs over the course of several weeks.
Joint Arthroscopy

- Joint arthroscopy is a diagnostic and/or therapeutic technique that allows the veterinarian to look inside your pet’s joints through a very small skin incision.
- A pet’s joints can be examined for signs of degeneration or trauma. In some cases therapeutic procedures can be performed.
- Recovery time from arthroscopic versus “open” joint surgery is generally easier and shorter.
- The procedure is minimally invasive but the pet must be under anesthesia.

What Is Joint Arthroscopy?

An arthroscope is a specially designed instrument that allows a veterinarian to look inside joints using a tiny, sterile, illuminated fiber optic camera. Arthroscopy is a minimally invasive procedure that can be used to examine joint structures for signs of degeneration and trauma without having to perform open surgery on a joint. It can be used for both diagnostic and therapeutic purposes. For example, if a veterinarian is examining your pet’s joint for signs of degeneration, he or she can remove painful cartilage fragments or bone chips as part of the procedure.

How Is It Performed?

Because joint arthroscopy requires anesthesia, your veterinarian may recommend pre-anesthetic blood work and other pre-anesthetic testing before performing joint arthroscopy for your pet.

Before performing joint arthroscopy, the patient is placed under anesthesia. All hair is removed from the skin over the joint (to avoid introducing hair particles into the joint) and the skin is cleaned thoroughly with a surgical scrub solution to kill bacteria and other germs. The area around the joint is covered with sterile surgical drapes, to reduce the risk of accidentally introducing bacteria into the joint. Finally, the veterinarian scrubs his or her hands before dressing in a sterile surgical gown and sterile gloves.

One or two tiny incisions are made through the skin and into the joint to allow access for the sterile camera and instruments. A sterile saline solution is then typically pumped into the area to inflate the joint. This helps the veterinarian visualize the area. Once the scope is inserted, the veterinarian can examine the joint with the illuminated camera. Special lenses allow areas of interest to be magnified and images captured (photographed) for later review. Small surgical instruments can also be inserted through the incision to allow the veterinarian to perform therapeutic procedures.

What Is It Used For?

Arthroscopy is useful because it can allow a veterinarian to directly visualize areas that cannot be examined completely using x-rays or ultrasound. Diagnostic and therapeutic arthroscopy can be performed in virtually any joint, including the elbow, hip, shoulder, and knee.
Medical conditions that can be diagnosed using arthroscopy include:

- Elbow dysplasia
- Hip dysplasia
- Arthritis
- Cruciate ligament injuries
- Other ligament injuries

Arthroscopy can be used to help determine if a patient is a good candidate for certain orthopedic procedures. It can help your veterinarian assess the amount of joint degeneration and help determine which surgical option for treatment may be the most appropriate.

**Benefits of Arthroscopy**

The recovery time for pets after an arthroscopic procedure has been performed is generally brief compared to recovery time for pets that have undergone open joint surgery. Rather than a large incision, arthroscopy requires only one or two small incisions to be made in the skin. Many pets experience minimal discomfort after the procedure. Arthroscopy also causes less disruption of fragile tissues surrounding the joint and as a result there is a reduced chance of swelling. An additional benefit is that diagnostic or therapeutic arthroscopy may negate the need for a more invasive surgery if a problem can be accurately diagnosed and treated.

Despite the fact that arthroscopy is a minimally invasive procedure and your pet may experience little to no discomfort afterwards, it is very important to carefully follow your veterinarian’s instructions regarding recovery, including any limitations placed on activity.
Keeping Your Pet at a Healthy Weight

- Nearly 50% of adult dogs and cats in the United States are overweight or obese.
- Obesity increases the risk for other serious health problems.
- Follow your veterinarian’s advice on which diet to feed your pet, how much, and how often.
- Give your pet plenty of opportunities for regular exercise that is appropriate for his or her age and health status.

Why to Watch Your Pet’s Weight

Pet obesity has become a very common problem. Studies indicate that nearly 50% of adult dogs and cats in the United States are overweight or obese, and that percentage increases among older pets. Obesity increases the risk for other serious health problems, including osteoarthritis, diabetes (in cats), heart and respiratory diseases, and many types of cancers. Overweight pets are also at increased risk for complications during anesthesia if they need to undergo surgery or other procedures. And if a pet already has a health condition, obesity makes the problem that much harder to manage. Being overweight can also lower your pet’s energy level and hamper his or her ability to enjoy an active lifestyle with you and your family.

What Causes Weight Gain?

Simply put, weight gain results when an animal eats more calories than it burns off during normal activities or exercise. Factors that can contribute to weight gain include:

- Overfeeding or overeating
- Inactivity or low activity levels
- Breed
- Age
- Reproductive status (intact versus spayed/neutered)
- Preexisting diseases (e.g., hypothyroidism, diabetes mellitus, Cushing disease)

Certain breeds, especially smaller ones, are more prone to being overweight or obese, as are many senior pets.

How to Assess Your Pet’s Weight

Whether your pet is a dog or a cat, and regardless of what size or breed it is, you should be able to feel—but not see—its ribs. Being able to feel some ribs is a sign that your pet is at a healthy weight. Additionally, if your pet is at a healthy weight, it should have a distinct “waist” where the body narrows, just behind the rib cage and in front of the hindquarters, when viewed from above. When viewed from the side, your pet’s abdomen should appear to be slightly tucked up behind the rib cage. If your pet has fat deposits over its back and at the base of its tail, or if it lacks a waist or an abdominal tuck, chances are that it has a weight problem.
Veterinarians typically use a measurement called a *body condition scale* or *body condition score* to assess whether a pet is underweight, overweight, or just right. Your veterinarian can use this scale to show you what to look for when checking your pet’s weight.

**Know What You Feed**

Excess weight is generally due to a very simple problem—too much food! Treats and other tidbits are also major culprits. Although commercially produced pet foods must meet AAFCO (Association of American Feed Control Officials) nutritional standards, which ensure that they contain protein, fats, carbohydrates, vitamins, minerals, and water in the proper proportions, treats are often not nutritionally complete and balanced and can contain a lot of calories. Therefore, it is important to be aware of how much your pet is eating each day. This information can help your veterinarian if he or she determines that your pet needs to lose weight.

To track how much your pet eats, it may be helpful for your family to keep a “food diary.” Everyone in the family should write down how much he or she feeds the pet every time the pet is fed. Treats count; so do rewards given during training sessions or when encouraging a pet to take medication.

It is also important to feed your pet the right food for his or her species, age, and size. For example, an adult dog or cat should not be fed a formula for puppy or kitten growth. Ask a veterinary professional for advice on what products offer the right nutritional mix for your pet, and how much and how often to feed. Most diets come with feeding guidelines, but every pet is different. Your veterinarian can make recommendations specifically for your pet.

Feeding “people” food to pets can not only contribute to weight gain but also cause other medical problems. Some foods that are perfectly healthy for people, like grapes, can be toxic to pets. Even foods that aren’t toxic can contribute to stomach problems, food allergies, or other problems for pets. Additionally, feeding table food to a pet that is already receiving a nutritionally balanced pet food changes the “balance” of that pet’s diet. Consult your veterinarian before feeding any human food to your pet.

**A Note on Exercise**

It is also essential to give your pet plenty of opportunities for regular exercise that is appropriate for his or her age and health status. A vigorous daily walk—if approved by your veterinarian—is an excellent place to start for many dogs. Most cats won’t tolerate leash walking, but regular play periods with fun toys, such as a light pointer or tossed ball, can provide satisfactory activity levels and help maintain their health.

**Reading Labels**

Under federal Food and Drug Administration (FDA) regulations, every pet food must include a label listing its ingredients and a guaranteed analysis of how much protein, fat, and other important nutrients are in it. Reading the percentages can get complicated, so one of the best quick ways to assess the quality of a diet is to look at the ingredient list. By law, the pet food
manufacturer must list the ingredients by weight. For more information on reading pet food labels, visit [www.fda.gov/AnimalVeterinary/ResourcesforYou](http://www.fda.gov/AnimalVeterinary/ResourcesforYou) and click on “Pet Food Labels—General” under “Information for Consumers Fliers.”

**Avoiding the Battle of the Bulge**

- Feed a well-balanced, veterinarian-approved diet. If necessary, feed a calorie-restricted diet.
- When you treat your pet, give healthy treats.
- Consult your veterinarian before giving your pet any human food.
- Make sure your pet gets plenty of regular age- and health-appropriate exercise.
- Don’t allow your pet to have unrestricted access to food—its own or another pet’s!
- Make sure all family members are on the same page when it comes to feeding—and treating—your pet.
Kenneling Your Dog

- Even being in the best kennel is stressful for many dogs. If your dog does not tolerate boarding well, consider using a pet sitter or arranging for your dog to stay with a friend or relative while you are traveling.
- Before kenneling your dog anywhere, be sure to visit the facilities to see whether they appear comfortable, clean, and well staffed.
- If your dog has special needs, such as a special diet or medication, ask whether the staff can accommodate these needs.
- Dogs that will be kenneled must be free of contagious diseases. The kennel may require a health certificate from your veterinarian and proof of your dog's most recent vaccinations.
- When kenneling your dog, provide emergency contact information and take your dog’s food, collar and leash, medication, favorite toy, and bed.

Even being in the best kennel is stressful for many dogs. If your dog does not tolerate boarding well, consider using a pet sitter or arranging for your dog to stay with a friend or relative while you are traveling. If kenneling your dog is your only option, the following guidelines can help improve your dog’s stay at a kennel.

Ask Your Veterinarian

If you need to kennel your dog, your veterinarian may have a kennel or may be able to recommend one. The advantage to kenneling your dog at your veterinarian’s practice is that if your dog becomes ill, his or her regular veterinarian and health records are on site.

Some kennels are associated with specific veterinarians. Ask the kennel how your dog will be cared for in case of illness. If the kennel isn’t associated with your veterinarian’s hospital, you may be able to request that your regular veterinarian be contacted if your dog becomes ill.

Visiting a Kennel

Before kenneling your dog anywhere, visit the facilities to see whether they appear safe, comfortable, clean, and well staffed. Kennel facilities range from basic cages to more elaborate accommodations, but the most important considerations are the safety and cleanliness of the facility and the competence of the staff. Ask how many animals are routinely kenneled at a time and how many staff members care for them. More staff members and fewer pets may mean more attention per pet. Your questions should be answered to your satisfaction so that you feel comfortable leaving your dog at the facility. Some facilities have cameras that allow owners to view their pets through the Internet.

When you visit a kennel, the air should not smell unpleasant. Proper air ventilation significantly decreases the risk of transmission of upper respiratory infections. Animals that are currently boarded should appear clean and well cared for.
The cage sizes should seem adequate. Each dog should have his or her own cage and should not be too close to other dogs. This helps prevent aggression and the spread of disease. Some kennels play music, which may help keep dogs calm.

Kenneled dogs need to be provided with stimuli and the opportunity for exercise. Ask the staff how often the animals are fed and exercised (How often are dogs walked? Are they given time in a large enclosed area?).

Kennels may offer extras, such as more exercise, treats, or grooming, at an additional cost. Ensuring that your dog gets plenty of exercise may be worth the extra cost.

If your dog has special needs, such as a special diet or medication, ask whether the staff can accommodate these needs. Some kennels may not be able to give medication as often as your dog requires.

**Kenneling Requirements for Dogs**

Dogs that will be kenneled must be free of contagious diseases. The kennel may require a health certificate from your veterinarian and proof of your dog's most recent vaccinations. Some kennels have specific vaccination requirements. Don't assume that your dog has had all of the required vaccinations without checking with the kennel first. Most of the time, a letter from the regular veterinarian is all that is required. Sometimes, additional vaccinations may be needed. As a general rule, most kennels require dogs to be current on DHLPP (distemper, hepatitis, leptospirosis, parainfluenza, and parvovirus) and kennel cough (*Bordetella bronchiseptica*) vaccinations as well as rabies vaccinations, which are administered according to state law. The kennel cough vaccination is usually administered yearly, but some kennels may also require it shortly before kenneling.

If your dog has fleas or other external or internal parasites, he or she should be treated before arrival or on admission to the kennel.

If your dog has a medical problem that is stable or is being treated, tell the kennel when making reservations to ensure that the facility is comfortable with the responsibility for your dog.

**What to Take to the Kennel**

Take your dog's food. An abrupt change in a dog’s food may cause diarrhea or a lack of appetite, especially when the dog is in a stressful environment.

Give the kennel the phone numbers of several contacts in case of an emergency. Provide the number(s) at which you can be reached while you’re away. Provide a friend’s or relative's number to call if you’re unavailable. This person should be able to make emergency decisions; discuss your wishes with this person before you leave. In addition, give the kennel your veterinarian's number.
If your dog receives medications at home, they should be continued during kenneling. Take the medications to the kennel, and ensure that the kennel is aware of the problem being treated.

Ask the kennel if you can bring your dog’s favorite toy and/or bed as well as a shirt that a family member has worn. Familiar items and smells from home can help make your dog feel more comfortable.
Kidney Disease in Pets

- *Kidney disease* is a very general term used to describe any one of several conditions that can affect the kidneys or damage kidney cells.
- Clinical signs associated with kidney disease can vary depending on the presentation (acute or chronic) and the underlying cause.
- Pets can sometimes experience a good quality of life for many years after being diagnosed with kidney disease. Your veterinarian will evaluate your pet and discuss the best methods of treatment with you.

What Is Kidney Disease?

*Kidney disease* is a very general term used to describe any one of several conditions that can affect the kidneys or damage kidney cells. If kidney disease progresses, it can eventually lead to kidney failure and death. Here are just a few medical conditions that can be associated with kidney disease:

- Nephritis: infection of the kidneys
- Nephrotoxicosis: kidney toxicosis; damage to kidney cells associated with a drug or poison (such as antifreeze)
- Polycystic kidney disease: a genetic condition in which functioning kidney cells undergo degeneration to become cysts and lose their ability to function properly
- Kidney stones
- Heart failure: decreased blood supply to the kidneys (secondary to heart disease) can cause kidney cell damage, leading to kidney disease

The kidneys are responsible for several important functions in the body, including the following:

- Eliminating waste products through the urine
- Producing a hormone involved in the production of red blood cells
- Helping to maintain the body’s fluid balance/hydration
- Participating in the metabolism and elimination of many types of drugs
- Helping regulate levels of important electrolytes such as potassium and sodium

When kidney disease develops, these functions don’t occur properly, resulting in illness and (frequently) further progression of disease.

How Is Kidney Disease Different From Kidney Failure?

The term *kidney disease* describes many conditions that can affect the kidneys. However, *kidney failure* describes a condition in which kidney function decreases to such an extent that the kidneys are no longer able to effectively eliminate waste products, maintain hydration, and help regulate the balance of electrolytes in the blood.

Despite how the term may sound, *kidney failure* does not mean that the kidneys stop producing urine. In fact, because the kidneys can no longer concentrate urine, *increased* urine production
Kidney failure can occur acutely (over a period of hours or days) or chronically (usually over a period of weeks to months or longer). Antifreeze toxicosis is an example of a condition that can cause acute kidney failure. If diagnosed quickly and treated aggressively, acute kidney failure can be reversed in some cases. In contrast, chronic kidney failure is not reversible. Chronic kidney failure can result from a variety of causes (such as polycystic kidney disease or kidney stones), but it also commonly occurs in senior pets as a result of age-related decreased kidney functioning. The terms *chronic kidney disease* and *chronic kidney failure* are sometimes used interchangeably. These chronic kidney conditions tend to be progressive, meaning that they get worse over time. Although chronic kidney failure is not reversible, it can be successfully managed in many cases.

**What Are the Clinical Signs of Kidney Disease?**

The severity of clinical signs associated with kidney disease can vary depending on the presentation (acute or chronic) and the underlying cause. The clinical signs of kidney disease include the following:

- Vomiting
- Appetite loss
- Increased drinking and urination
- Lethargy (tiredness)
- Weight loss
- Unkempt haircoat (due to decreased grooming)
- Back pain or abdominal pain (may be associated with acute kidney failure)

**How Is Kidney Disease Diagnosed?**

As with many other medical conditions, diagnosis of kidney disease frequently begins with your veterinarian obtaining a medical history from you. The following can help your veterinarian determine if your pet may be dealing with a kidney problem: information about any medications or supplements your pet has received; anything unusual that your pet may have eaten, drunk, or chewed; previous illnesses; or any current signs of illness.

Diagnosis of kidney disease may require a combination of several tests. Your veterinarian may not recommend all of these tests, but the following are some tests that are frequently performed:

- **CBC and chemistry profile**: These tests are commonly performed together as part of a wellness screen or initial blood testing when a pet is ill. These tests provide an overview of many of your pet’s organ systems, including the kidneys. The CBC (complete blood cell count) shows the number of red blood cells (needed to carry oxygen to all the body’s tissues), white blood cells (needed to help fight off infection), and platelets. Because the kidneys are involved in the production of red blood cells, the numbers of these cells may
be reduced if a pet has kidney disease (particularly chronic kidney failure). The white blood cell count may also be abnormal if infection is present. The chemistry profile includes several kidney values that can change if there is a problem with the kidneys, such as kidney disease or kidney failure.

- **Radiography (obtaining x-rays):** X-rays of your pet’s abdomen may show abnormally shaped kidneys, kidney stones, or kidneys that are enlarged or shrunken.

- **Sonographic evaluation of the abdomen:** Evaluation of the abdomen by ultrasonography is a very useful test for examining the kidneys. The ultrasound machine is connected to a small handheld probe that is held against your pet’s abdomen. The probe sends out painless sound waves that bounce off of structures in the abdomen (such as the kidneys) and return to a sensor inside the ultrasound machine. This creates an image on a screen that shows your veterinarian the structure of your pet’s internal organs. The ultrasound can also “look inside” organs (like the kidneys) to detect masses, stones, cysts, or other problems.

- **Urinalysis:** Evaluation of a urine sample from your pet can provide critical information about kidney functioning. Urine that is too diluted, contains abnormal cellular debris, or contains protein and other material that should not be present can indicate that a pet may have kidney disease.

**How Is Kidney Disease Treated?**

Treatment of kidney disease can vary depending on the underlying cause and the patient’s overall condition. For example, if a pet has kidney stones, surgery may be recommended as the best treatment. Pets that are severely ill from kidney disease or kidney failure may need hospitalization and intensive care to recover. In other cases, antibiotics, fluids, and other medications given on an outpatient basis are effective. There are even special diets and dietary supplements that can help some pets with kidney disease.

Chronic kidney disease and chronic kidney failure are progressive, irreversible conditions. Treatment generally focuses on slowing the progression of disease and improving quality of life for the patient. Pets can sometimes experience a good quality of life for many years after being diagnosed with kidney disease or kidney failure. Your veterinarian will evaluate your pet and discuss the best methods of treatment with you.

Although kidney disease is frequently not preventable, regular physical examinations and wellness screening tests can increase the chances of early diagnosis and treatment.
Laceration Repair

- A laceration is a cut or tear in the skin that may include damage to the muscles and other structures beneath the skin.
- While superficial (surface) wounds may sometimes be repaired using local anesthesia (which affects only the area of the wound), most laceration repairs require general (full) anesthesia of the pet.
- After the wound is cleaned and assessed, the cut edges are generally held together with suture material or skin staples.
- Lacerations should be repaired as soon as possible after injury to help ensure good healing.

What Is a Laceration Repair?

A laceration usually occurs as the result of a sharp object penetrating the skin and, possibly, the tissues beneath the skin. The resulting wound may be superficial, which involves a cut or tear in the skin only, or it may be deep, with damage to the tissues below the skin, such as muscles, tendons, blood vessels, or nerves. To repair a laceration, a veterinarian must clean and assess the wound before bringing the cut edges together with either suture material or skin staples.

When Should a Laceration Repair Occur?

If your pet has a laceration, see your veterinarian immediately. The longer the time between injury and repair, the more likely the tissues will become infected and healing will be delayed. Infections must be resolved before the laceration is repaired, to prevent bacteria from becoming trapped under the skin and forming an abscess (a localized area of pus and inflammation).

The skin may also contract and form scar tissue over time, which can make it more difficult to bring the tissue edges together. Prompt treatment will enable the veterinarian to determine if there is internal damage to bones and other structures that may not be visible on the surface.

How Is a Laceration Repair Done?

A laceration repair can be a minor surgery if the laceration is small or a major surgery if the laceration is large, deep, or infected. Superficial cuts can sometimes be repaired using local anesthetics, which affect only the area of the wound. However, thorough cleaning and exploration of lacerations usually require general (full) anesthesia of the pet. This allows immobilization of the area and minimizes stress and pain for the pet.

The veterinarian will clean the laceration and evaluate the extent of injury. In some cases, radiographs (x-rays) may be required to make sure there is no internal damage. The laceration is then repaired by bringing the ends of the severed tissue together with sutures (stitches) or skin staples. Deep wounds may require the placement of a temporary drain to prevent fluid buildup as the laceration heals.
Your pet may need to wear an Elizabethan collar to prevent licking or chewing of the surgical site until it is healed. Sometimes bandages or other protective coverings are used to protect the area after surgery. Pain medications or antibiotics may also be prescribed if needed.

**What Are the Benefits of a Laceration Repair?**

A laceration repair will help the severed tissues heal faster, with less likelihood of infection or excessive scar tissue. If tissues beneath the skin, such as muscles and tendons, have been damaged, the repair should help ensure that your pet regains full function of these tissues.
Laryngeal Paralysis

- The larynx is the structure at the back of the throat that opens to allow airflow in and out of the trachea and closes to prevent fluid and food from being inhaled into the lungs.
- In cases of laryngeal paralysis, the cartilage and vocal folds of the larynx are unable to open fully, making breathing difficult.
- While inherited in some breeds, laryngeal paralysis is acquired in breeds such as St. Bernards, Newfoundlands, Labrador retrievers, golden retrievers, and Irish setters.
- Signs of laryngeal paralysis include panting, bark changes, noisy breathing, and difficulty breathing in warmer temperatures or after exertion or excitement.
- In advanced cases, respiratory distress can lead to collapse and sudden death.
- The cause behind most acquired cases of laryngeal paralysis is unknown.
- Diagnosis is made by observing the larynx while the dog is under anesthesia, but blood tests and radiographs (x-rays) may be recommended as well.
- Surgical correction is the most effective treatment.

What Is Laryngeal Paralysis?

The larynx is the structure at the back of the throat (at the entrance to the trachea) that opens to allow airflow in and out of the trachea and lungs. It also closes to prevent the entry of food and liquids into the lungs during swallowing. Also known as the voice box, the larynx enables dogs to bark and howl.

Laryngeal paralysis is a condition in which the cartilage and vocal folds of the larynx are unable to open fully during breathing, making inhalation especially difficult.

The condition can be inherited in some breeds, such as Bouvier des Flandres, Siberian Huskies, and Dalmatians. In these cases, the condition usually occurs within the first 6 months of life.

More often, laryngeal paralysis is an acquired disease that occurs in large-breed dogs later in life. St. Bernards, Newfoundlands, Labrador retrievers, golden retrievers, and Irish setters are often affected. Laryngeal paralysis rarely occurs in cats.

What Are the Signs of Laryngeal Paralysis?

Laryngeal paralysis usually develops slowly, and signs of the condition may be noted before an emergency situation occurs. Signs of laryngeal paralysis include:

- Excessive or loud panting
- Changes in the sound of the bark, such as a hoarse or raspy bark
- Noisy breathing
- Difficulty breathing in warmer temperatures or after exertion or excitement
- Reluctance to walk or exercise due to difficulty breathing

Sometimes this condition is not diagnosed until the dog is in respiratory distress. When this occurs, the dog will struggle for breath, especially with inhalation. This crisis can lead to:
Dogs brought to the veterinary clinic in respiratory distress may need oxygen therapy, steroids to reduce swelling and inflammation of the throat, sedatives, and cage rest before additional diagnostics or treatments can be performed. In severe cases, a temporary tracheostomy tube (a tube inserted into the trachea from the outside of the neck), may be needed to facilitate breathing.

**What Causes This Condition?**

Most cases of acquired laryngeal paralysis are idiopathic, meaning that the cause is unknown. Trauma, inflammation, or cancer in the neck or chest may affect the nerves controlling the larynx and lead to laryngeal paralysis. Certain disorders affecting the muscles and nerves may also contribute to this condition.

It has been suggested that hypothyroidism (a decrease in thyroid hormone) may predispose some dogs to laryngeal paralysis. However, supplementation with thyroid hormone usually does not resolve the condition.

**How Is This Condition Diagnosed?**

The best way to diagnose laryngeal paralysis is to observe the larynx while the dog is under anesthesia. Usually, the veterinarian will notice that one or both sides of the larynx do not open normally when the dog inhales.

The veterinarian may also want to perform diagnostic tests to determine if there are underlying diseases or complications that can occur as a result of laryngeal paralysis. Blood tests may be recommended to screen for other diseases. Radiographs (x-rays) are helpful to rule out potentially cancerous masses in the neck and chest.

It is common for dogs with laryngeal paralysis to develop pneumonia from accidentally inhaling fluids or food particles when struggling to breathe. Dogs with laryngeal paralysis are also more likely to develop megaesophagus, an enlargement of the esophagus, which can also lead to pneumonia and may indicate other nerve or muscle abnormalities.

**How Is Laryngeal Paralysis Treated?**

Surgery is the best option for treating laryngeal paralysis. In the most common procedure, one side of the cartilage is tied back with sutures, creating a larger opening for air in the larynx.

Most dogs do quite well after this procedure. However, there is still a slight risk that the dog may inhale fluids or food particles, since the cartilage and vocal folds remain somewhat open during swallowing. The long-term outcome is better for dogs that do not have underlying muscle or nerve disorders.
If the condition is mild or the pet is not a candidate for surgery, clinical signs can sometimes be minimized by reducing exposure to stress, heat, or exertion. Medication to reduce inflammation can be helpful. Keeping weight under control can help to facilitate easier breathing. Keeping affected dogs in cooler areas of the house and minimizing the amount of time they spend outside during hot weather can also reduce breathing difficulties.
Leptospirosis

- Leptospirosis is a serious and potentially fatal bacterial disease that can be transmitted to humans.
- The disease typically attacks the kidneys and liver of infected dogs.
- It is transmitted to dogs through contact with contaminated water, soil, or surfaces. Localized outbreaks may occur in areas that have recently experienced flooding.
- Infected dogs require treatment with antibiotics and fluid therapy.
- The risk of infection can be reduced by attempting to avoid high-risk environments; vaccination of individual dogs may be recommended.

What Is Leptospirosis?

Leptospirosis is a potentially serious disease caused by the bacterium *Leptospira interrogans*. It affects dogs but can also infect a wide variety of domestic and wild animals and humans. The bacteria can survive for long periods of time in water and are frequently found in swamps, streams, lakes, and standing water. The bacteria also survive well in mud and moist soil, and localized outbreaks can occur after flooding. Infected animals can continue to shed the bacteria in their urine for months or even years after recovery. Carriers of the bacteria include raccoons, opossums, rodents, skunks, and dogs. The disease is transmitted to dogs when they have contact with urine or contaminated water or soil.

Signs of Leptospirosis

Clinical signs typically develop 2 to 12 days after exposure to the bacterium. In many dogs, infection may remain subclinical (without clinical signs) or chronic. In acute, or more serious cases, dogs may experience potentially fatal kidney or liver disease.

Signs include:

- Weight loss
- Fever
- Inappetence (appetite loss)
- Vomiting
- Lethargy
- Muscle and/or joint pain
- Diarrhea
- Bloody urine
- Excessive thirst
- Jaundice
- Excessive bleeding

Diagnosis and Treatment

Leptospirosis can be diagnosed through blood tests; however, tests may need to be performed multiple times to confirm a diagnosis.
Treatment typically consists of a regimen of antibiotics. Complications such as liver or kidney damage or spontaneous bleeding are treated with fluid therapy and other treatments that are appropriate for the individual patient. Hospitalization is required in many cases.

**Prevention**

Exposure to leptospirosis can be reduced by preventing your dog from drinking from puddles of standing water or from swimming in lakes, streams, or other bodies of water that may be contaminated. Unfortunately, for dogs that are accustomed to an active outdoor lifestyle that includes swimming, these precautions may not be practical.

Prevention of leptospirosis is complicated by the fact that there are more than 200 different serovars (subtypes) of the *Leptospira interrogans* bacterium that can cause illness in animals and people. The available vaccines only protect against a handful of the most common subtypes that infect dogs, which can limit the protective value of the vaccines. Nevertheless, the available vaccines are effective and safe when used as directed, and many veterinarians recommend the vaccination for dogs at risk for exposure. Annual revaccination is required.

The leptospirosis vaccine is not required for all dogs. Your veterinarian may recommend this vaccine based on your dog’s lifestyle and exposure risk.

Vaccination, no matter how routine, is a medical procedure. Always monitor your pet for signs of a vaccine reaction and follow your veterinarian’s instructions on what to do if one occurs.

**Caution:** Humans can also become infected with leptospirosis, so handle dogs suspected of having the disease with care. Adhere to good hygiene techniques, such as frequent handwashing and avoiding contact with potentially contaminated urine.
Lick Granuloma

- A lick granuloma is a thickened, hairless area of skin that results from excessive, repetitive licking or chewing.
- Signs of a lick granuloma include brown-stained hair around the lesion and an area of thickened skin that may be inflamed, infected, or ulcerated.
- The lesions usually occur on the lower legs of dogs.
- Excessive licking may be caused by underlying conditions, such as allergies, mites, and infections, or may be from boredom or other behavioral problems.
- Diagnosis may require skin scrapes, skin cultures, biopsies (tissue samples), blood work, and/or radiographs (x-rays).
- Resolving the lesion requires treatment for the underlying condition or behavioral modification and/or medications.

What Is a Lick Granuloma?

A lick granuloma is thickened, raised area of skin that is often hairless, inflamed, infected, or ulcerated, resulting from excessive, repetitive licking or chewing. These lesions are typically found on the lower legs, and may occur alone or on more than one limb.

Lick granulomas tend to occur in dogs more than cats, with a higher incidence in males than females. While lick granulomas may be seen on any dog, breeds with a higher incidence of this condition include Doberman pinschers, Labrador retrievers, Great Danes, German short-haired pointers, German shepherds, and Irish setters.

What Are the Signs of a Lick Granuloma?

The hair around a lick granuloma is often a brownish-red color, caused by saliva staining (substances in saliva stain the fur when licking has been repetitive). The lesion itself is usually bald, and the skin often appears thickened, like scar tissue. The skin may be inflamed, infected, or have sores. Sometimes, the licking has been so severe that the skin is gradually removed and tendons and other structures under the skin are exposed. Pets with lick granulomas may limp on the affected limb.

What Causes Lick Granulomas?

While the lick granuloma is caused by excessive licking, determining the cause of the licking can be a challenge. In some cases, an underlying disease or condition may cause the licking, or it may be a behavioral problem. Possible causes include:

- Allergies
- Mites
- Fungal or bacterial infection
- Foreign body under the skin
- Trauma
- Boredom
• Glandular disorder
• Underlying joint pain

How Is This Condition Diagnosed?

A lick granuloma is usually diagnosed by the appearance of the lesion and a history of the dog licking or chewing at the area. To determine the cause of the licking, your veterinarian may perform a number of tests, including skin scrapes (gently scraping the surface of the skin with a dull instrument to identify mites), skin cultures, skin biopsies (tissue samples), and blood work. He or she may also recommend a radiograph (x-ray) to see if there is a foreign body under the skin or if there has been trauma to the bone or joint beneath the lesion.

How Is a Lick Granuloma Treated?

Treatment for lick granuloma can take many months and usually requires some patience. If an underlying condition has been identified, treatment of this condition should help resolve the granuloma. Treatment may include medications such as antibiotics, antifungals, parasite treatment, antihistamines, pain medication, hormone supplements, or topical steroids.

Of course, preventing the pet from licking the area can help resolve the problem, as well. However, bandages, Elizabethan collars (a cone-shaped hood that fits over the head and prevents the pet from reaching his or her legs with the mouth), and bad-tasting substances can’t always stop a pet that is determined to lick the area.

If your veterinarian believes that boredom is at the root of the licking problem, he or she may recommend increasing human interaction with the pet, the addition of another animal companion to the household, longer periods of exercise, or chew toys to distract the pet from the lesion. In some cases, behavioral medications, such as antidepressants, may be needed.

Because lick granulomas can be difficult to resolve and can have underlying causes, the problem can recur. Notify your veterinarian if your pet seems to be exhibiting the behavior again.
**Lipoma**

- A lipoma is a benign (noncancerous) mass made of fat cells.
- These lumps may appear just under the skin anywhere on the body or inside the chest and abdomen.
- Middle-aged and older female dogs are more likely to have lipomas.
- All skin lumps should be examined by a veterinarian.
- A lipoma is diagnosed with a fine needle aspirate or biopsy sample.
- Since most lipomas are harmless, surgical removal is only necessary if they are large enough to cause discomfort or interfere with walking.

**What Is a Lipoma?**

A lipoma is a benign (noncancerous) mass that is made of fat cells. Owners often notice these lumps on the chest, abdomen, and limbs of their pets, but lipomas can also occur inside the chest and abdomen.

Middle-aged and older dogs, such as Labrador retrievers, Weimaraners, and Doberman pinschers, are more likely to have lipomas, although they can occur in any breed. Female dogs may be more likely than males to have lipomas. These fatty masses rarely occur in cats.

Unlike cancerous tumors, lipomas do not metastasize (spread throughout the body). Lipomas may appear alone, but dogs may have multiple fatty lumps. The exact cause of these masses is unknown.

Although lipomas are relatively harmless, dogs may develop other skin lumps that are more serious. You should never assume that any lump is a lipoma. A veterinarian should examine any new skin lump, especially those that change in appearance or grow rapidly.

**What Are the Signs of a Lipoma?**

Lipomas are typically round and soft, although some may be firm. These masses usually do not cause pain, unless they become large and interfere with the limb movement during walking or they affect organs inside the body.

**How Is a Lipoma Diagnosed?**

There’s no way to tell if a mass is a lipoma just by examining it. Your veterinarian will usually collect a fine needle aspirate, which involves inserting a needle into the mass and extracting cells. These cells are then examined under a microscope. Because fine needle aspirate samples are fairly small, some veterinarians may prefer to perform a biopsy of the mass to confirm a diagnosis.

These same tests will help your veterinarian differentiate a lipoma from a liposarcoma, which is a cancerous tumor arising from fat cells. Liposarcomas, which are uncommon, can invade local tissues and spread to other parts of the body.
How Is a Lipoma Treated?

Since lipomas are benign, it’s not necessary to surgically remove them unless they are large and causing your pet discomfort. If your pet is under anesthesia for another procedure, it may be practical to remove smaller lipomas at the same time.

Lipomas are often self-contained within a capsule, and surgical removal usually prevents their regrowth in a particular location. However, some lipomas may be infiltrative, meaning that they invade the muscle and other tissues. These masses are more difficult to remove with surgery alone. In these cases, radiation therapy may be necessary to prevent regrowth.
Liver Disease Testing

- Liver disease is a very general term used to describe several conditions that can damage liver cells.
- Diagnosis of liver disease may require a combination of several tests.
- If liver disease progresses, it can eventually lead to decreased liver function, liver failure, and death.

What Is Liver Disease?

“Liver disease” is a very general term used to describe several conditions that can damage liver cells. If the problem progresses, it can eventually lead to decreased liver function, liver failure, and death. Here are just a few medical conditions that can be associated with liver disease:

- **Hepatitis**: infection or inflammation of the liver; viruses, bacteria, parasites, or fungal organisms can be involved
- **Liver toxicity**: damage to liver cells associated with a drug or poison
- **Liver shunt**: a change in the flow of blood through the liver
- **Cancer**: cancer can spread to the liver from other places in the body; some cancers can also start in the liver
- **Gallbladder disease**: problems with production and release of bile can affect the liver

The liver is involved in hundreds of processes in the body, so liver disease can disrupt or change many normal body functions, including the following:

- Elimination of waste products from the body
- Metabolism of fats, proteins, and carbohydrates
- Release of red blood cells
- Production of proteins involved in blood clotting (known as “clotting factors”)
- Metabolism and elimination of many types of drugs
- Metabolism of vitamins and minerals

What Are the Clinical Signs of Liver Disease?

Because the liver performs so many functions, the clinical signs tend to be variable and nonspecific:

- Vomiting
- Appetite loss
- Diarrhea
- Weight loss
- Lethargy (tiredness)

Some other signs of liver disease can be more alarming, including fluid accumulation in the abdomen, spontaneous bleeding or bruising, yellow skin or gums (a condition known as “jaundice”), and seizures.
How Is Liver Disease Diagnosed?

As with many other medical conditions, diagnosis of liver disease frequently begins with your veterinarian obtaining a medical history from you. Information about any medications or supplements your pet has received, anything your pet may have eaten or chewed, previous illnesses, or any current signs of illness can help your veterinarian determine if your pet may have a liver problem.

Diagnosis of liver disease may require a combination of several tests. The following tests are commonly performed, but your veterinarian may not recommend all of them.

- **CBC and chemistry profile**: These tests are often performed together as part of a wellness screen or as initial blood tests when a pet is ill. They provide an overview of the health of many organ systems, including the liver. The CBC (complete blood cell count) shows the number of red blood cells (needed to carry oxygen to all the body’s tissues), white blood cells (needed to help fight off infection), and platelets. Some of these values may be abnormal in a pet with liver disease. The chemistry profile includes several “liver enzymes” or proteins that are associated with the liver. The levels of these proteins can change if there is a problem with the liver.

- **X-rays**: X-rays of your pet’s abdomen may show an abnormal liver size (liver enlargement, for example). They can also show free fluid in the abdomen, which can occur sometimes with liver disease.

- **Ultrasound**: Evaluation of the abdomen by ultrasonography is a very useful test for examining the liver. The ultrasound machine is connected to a small probe that is held against your pet’s abdomen. The probe sends out painless sound waves that bounce off of structures in the abdomen (such as the liver) and return to a sensor inside the ultrasound machine. This creates an image on a screen that can give your veterinarian a great deal of information about your pet’s internal organs. The ultrasound can also “look inside” organs to detect masses, abscesses, cysts, or other problems.

- **Bile acids testing**: Bile acids testing is a special diagnostic test intended to measure liver function. Bile acids are chemicals made by the liver. They are released during and after meals and help with digestion of fat. Afterward, they are reabsorbed into the liver and later eliminated from the body. Under normal circumstances, very small amounts of bile acids are present in the blood. However, in a pet with significant liver disease, liver function begins to decrease, leading to higher levels of bile acids. This test generally requires a few hours in the hospital, but it can help your veterinarian determine if your pet’s liver is functioning adequately.

Treatment for Liver Disease

Treatment for liver disease depends on the cause. For example, if a pet has a liver shunt, surgery may be recommended as the best treatment. For a pet with cancer, surgery or chemotherapy may be discussed as treatment options.
Pets that are severely ill from liver disease may need hospitalization and intensive care to recover. In other cases, antibiotics and other medications given on an outpatient basis are effective. There are even special diets and herbal supplements that can help some pets with liver disease. Your veterinarian will evaluate your pet and discuss the best method of treatment with you.
Lyme Disease Tests and Vaccine

- Lyme disease is transmitted to dogs (and humans) through the bite of an infected tick.
- Many veterinarians use a SNAP test to diagnose Lyme disease.
- The SNAP test requires only a small amount of blood and a few minutes to perform.
- Sometimes additional laboratory testing is recommended.
- Vaccination and careful tick control measures can help protect dogs from Lyme disease.

What Is Lyme Disease?

Lyme disease is an infection caused by the *Borrelia burgdorferi* bacterium. Lyme disease is transmitted through the bite of an infected tick and can affect many species, including dogs and humans.

Ticks of the *Ixodes* species (called deer ticks) are known to transmit Lyme disease when they attach to a host and feed. Because the tick must be attached for more than 24 hours to transmit Lyme disease, frequent inspection for ticks (and quick removal) can reduce the risk of disease transmission.

Lyme disease is more common in certain areas of the United States, including the Northeast, Mid-Atlantic, and upper Midwest.

Clinical Signs of Lyme Disease

Clinical signs may not appear for several months after a dog is infected with Lyme disease. In fact, many dogs fail to display any obvious clinical signs at all. When signs of infection are noted, they may include the following:

- Lethargy (tiredness)
- Fever
- Painful joints
- Loss of appetite

Clinical signs may seem to resolve on their own, only to reappear at a later time. Lyme disease has also been linked to long-term complications involving the joints, kidneys, heart, and nervous system.

Diagnosis

Lyme disease is usually diagnosed based on a medical history that includes the possibility of tick exposure, suspicious clinical signs, and results of diagnostic testing.

Several tests can identify the *Borrelia burgdorferi* organism in blood or tissues. In addition, a test (called a *quantitative C6 antibody test* or *QC6 antibody test*) can measure the level of antibodies to help your veterinarian determine whether treatment is recommended. However, many veterinarians test for Lyme disease using a test called a *SNAP test*.
SNAP tests are a group of quick, convenient, blood tests that can be performed at your veterinarian’s office. There are various SNAP tests for different purposes:

- **SNAP Heartworm RT Test**—screens for heartworm infection
- **SNAP 3Dx Test**—simultaneously screens for heartworm disease, Lyme disease, and ehrlichiosis (another tick-borne disease that can affect dogs)
- **SNAP 4Dx Test**—simultaneously screens for heartworm disease, Lyme disease, ehrlichiosis, and anaplasmosis (also a tick-borne disease that can cause illness in dogs)

SNAP testing is very accurate and is a good way to identify dogs that may be infected with one or more of these diseases. SNAP testing is also very convenient because it uses a very small amount of blood and takes only a few minutes to perform.

In some cases, your veterinarian may recommend additional testing to follow up a SNAP test result or to look for other evidence of illness related to heartworm disease or one of the tick-borne infections. Testing may involve sending additional blood samples to a laboratory for further analysis or performing other diagnostic tests to obtain more information about your dog’s condition.

**Why Should Dogs Be Tested for Lyme Disease?**

Tick-borne diseases such as Lyme disease, ehrlichiosis, and anaplasmosis pose a risk to dogs in many areas of the country. Because clinical signs are not always apparent, periodic testing is a good way to identify dogs that have been infected. Even dogs that receive year-round tick control products and don’t spend a lot of time outside are at risk for exposure to tick-borne diseases. Testing helps identify dogs that need treatment for one of these infections or an adjustment in the type of tick control being used.

Your veterinarian can tell you about the risk of Lyme disease, ehrlichiosis, and anaplasmosis to dogs in your area. In some cases, your veterinarian may not recommend testing for all of the diseases. Even if you live in an area where tick-borne diseases are less common, be sure to ask your veterinarian what tick prevention measures can help protect your dog.

**Treatment**

Treatment of Lyme disease generally consists of administration of antibiotics and (if necessary) other medications to temporarily help control joint pain and other clinical signs. Some dogs show dramatic improvement after only a few days of receiving antibiotics, but most veterinarians recommend a 28- to 30-day course of treatment. Relapses are not uncommon, so pet owners are advised to monitor their dogs carefully for signs of illness.

**Prevention**

Several vaccines are available to help prevent disease caused by *Borrelia burgdorferi*, the Lyme disease organism. An initial vaccination is followed by a booster vaccine 2 to 4 weeks later (in accordance with label recommendations) and annual boosters, as long as the risk for disease exposure remains.
The Lyme vaccine is not necessarily recommended for all dogs. Ask your veterinarian about the risk of Lyme disease where you live and whether the Lyme vaccine is recommended for your dog.

There are currently no vaccines to protect dogs from other tick-borne diseases, such as ehrlichiosis and anaplasmosis. Appropriate tick control methods combined with periodic testing may be the best ways to help protect dogs from these diseases. Being “tick savvy” can also help protect your dog from Lyme disease exposure:

- Check your dog (and yourself) frequently for ticks, and remove them promptly.
- Use a reliable method of tick control (several spot-on products kill and repel ticks).
- If possible, avoid tall grass or wooded areas where ticks are likely to hide.
- If you routinely take your dog camping or walking in wooded areas, ask your veterinarian about the best ways to control ticks.
Lymphoma (Lymphosarcoma)

- Lymphoma, or lymphosarcoma, is a cancer of the lymphocytes, which are a type of white blood cell associated with the immune system.
- The exact cause of lymphoma is unknown.
- Cats that are positive for feline leukemia virus (FeLV) are more likely to develop lymphoma than cats that test negative for the virus.
- Boxers, golden retrievers, and basset hounds are at higher risk for the disease.
- Signs vary, depending on the part of the body affected, and may include enlarged lymph nodes, loss of appetite, weight loss, lethargy, coughing, difficulty breathing, vomiting, and diarrhea.
- Diagnosis usually requires a sample of the affected tissue.
- Treatment is usually not curative, but it may cause the cancer to temporarily go into remission.
- Chemotherapy is usually the treatment of choice for lymphoma.

What Is Lymphoma?

Lymphocytes are white blood cells that normally work to protect the body as part of the immune system. Occasionally, a change occurs within the cells that causes them to become destructive and reproduce uncontrollably. This is a type of malignancy, or cancer, called lymphoma or lymphosarcoma.

Dogs and cats may be diagnosed with lymphoma. Boxers, golden retrievers, and basset hounds are dog breeds that are at a higher risk for developing this type of cancer.

What Causes Lymphoma?

The exact cause of lymphoma is not known. However, cats that are positive for the feline leukemia virus (FeLV) are much more likely to develop lymphoma than cats that test negative for FeLV.

What Are the Signs of Lymphoma?

The signs of lymphoma can vary, depending on the part of the body affected. With generalized lymphoma, the pet may have enlarged lymph nodes, which can appear as swellings in the neck at back of the jaw, behind the knees, and other locations. The pet may seem relatively healthy or experience lethargy (tiredness), loss of appetite, and weight loss.

Mediastinal lymphoma occurs inside the chest. Pets with this kind of lymphoma may experience coughing and difficulty breathing. When lymphoma is in the gastrointestinal tract, cats and dogs may show signs of vomiting, diarrhea, and blood in the stool.

Lymphoma can also affect the spinal cord, kidneys, eyes, nose, and skin. Signs are associated with the affected organ, such as impaired movement with spinal lymphoma, increased drinking and urinating with kidney lymphoma, and raised growths on the skin with skin lymphoma.
**How Is Lymphoma Diagnosed?**

Your veterinarian will most likely recommend blood work, including an FeLV test for cats. Radiographs (x-rays) of the abdomen and/or chest can also be important to help identify affected regions of the body. An ultrasound exam of the chest or abdomen may help your veterinarian identify tissue abnormalities and affected lymph nodes.

A biopsy sample from the affected tissue is the best way to diagnose lymphoma. In some cases, lymphoma in dogs can be diagnosed from a lymph node aspirate sample, which involves placing a needle in the lymph node and extracting cells for examination under the microscope. However, a biopsy is the best way to determine the exact type of cell involved, as well as the aggressiveness of the tumor, if treatment will be pursued.

**How Is Lymphoma Treated?**

In many cases, treatment of lymphoma can cause the disease to go into remission, meaning that the signs of cancer resolve. This is usually temporary, and the lymphoma eventually returns.

If you wish to pursue treatment, your veterinarian may refer you to a veterinary oncologist, who specializes in cancer treatment. Additional tests may be needed to stage the disease or to determine how much of the body is involved.

In cases where the lymphoma is limited to one location, such as the nose, radiation therapy may be an option, but most treatment involves chemotherapy. Animals typically tolerate chemotherapy better than humans, but treatment may require several office visits and additional blood tests, which can become expensive.

If you choose not to pursue chemotherapy, treatment with steroids may help reduce the signs of lymphoma and make your pet more comfortable for a time.

**Can Lymphoma Be Prevented?**

There is no known way to prevent lymphoma, but early diagnosis and intervention can improve quality of life for pets with the disease. Early testing for FeLV can identify cats at greater risk for developing lymphoma. Cats that test positive for FeLV should be kept indoors to minimize exposure to other cats.

Cats that test negative for FeLV are less likely to develop lymphoma. If your cat is negative for FeLV and must go outdoors, make sure he or she is vaccinated against FeLV. Keeping your cat indoors can help prevent exposure to FeLV-positive cats and reduce the need for FeLV vaccination.
Macadamia Nut Toxicosis

- Macadamia nuts are a common ingredient in cookies and candies. In dogs, eating macadamia nuts is associated with illness.
- Once eaten, toxic effects can occur within 12 hours.
- It is best to avoid giving human food to your pet unless advised to do so by your veterinarian.

What Is Macadamia Nut Toxicosis?

Macadamia nuts are a common ingredient in cookies and candies. In dogs, eating macadamia nuts is associated with illness. Toxicosis occurs when a dog ingests enough of the nuts to cause damaging effects in the body.

The exact mechanism of macadamia nut toxicosis is unknown. However, even a few ounces of nuts can be enough to cause illness in a small dog.

How Does Macadamia Nut Toxicosis Occur?

Many cases of macadamia nut toxicosis are accidental. A pet may steal food from a countertop or table or find and chew a package of cookies or candy. Unfortunately, other cases of macadamia nut toxicosis occur when dogs are given a product containing macadamia nuts. It is best to avoid giving human food to your pet unless advised to do so by your veterinarian.

What Are the Clinical Signs of Macadamia Nut Toxicosis?

Signs of macadamia nut toxicosis may occur within 12 hours of eating the nuts and include the following:

- Vomiting
- Abdominal pain
- Joint pain, limping, inability to stand
- Fever
- Pale gums
- Weakness, tremors, incoordination when walking

What Are the Diagnosis, Treatment, and Outcome for Macadamia Nut Toxicosis?

Diagnosis of macadamia nut toxicosis is commonly based on a history of recently eating nuts. Specific diagnostic testing is generally not required.

If it is recognized quickly (within 1 hour) that a pet has eaten macadamia nuts, vomiting can be induced to remove the material from the stomach and limit further absorption. Your veterinarian may also administer a special preparation of liquid-activated charcoal to slow absorption of material from the stomach and intestines.
There is no specific antidote for macadamia nut toxicosis. In many cases, clinical signs resolve without treatment after approximately 48 hours. Pets that are elderly or already sick from another condition may do better with hospitalization and supportive treatment. This may include fluid therapy, medications to help control vomiting, and monitoring of vital signs.

Macadamia nut toxicosis tends not to be fatal, and most pets recover fully. However, the clinical signs of toxicosis can be distressing to you and your pet. Fortunately, toxicosis can be easily avoided by preventing your pets from having access to foods containing macadamia nuts.
Malassezia Dermatitis

- Malassezia dermatitis is a yeast infection of the skin.
- It varies in severity from a mild itch to severe skin changes (in its most severe form, the skin thickens to resemble an elephant’s skin).
- It is usually secondary to a problem such as allergies or hormonal imbalances.
- Treatment is aimed at clearing the infection and treating the primary condition.

What Is Malassezia Dermatitis?

Malassezia dermatitis (MD) is a yeast infection of the skin caused by the organism *Malassezia pachydermatis*. *Malassezia pachydermatis* is a yeast organism that normally lives in small numbers in the ears and on the skin. The infection occurs when this organism grows in large numbers. In its most severe form, the infection can cause a thickening of the skin (lichenification), making it resemble an elephant’s skin (hence the name *pachydermatis*).

*Malassezia* dermatitis generally occurs when the skin’s natural defenses break down and allow overgrowth of the skin’s normal bacteria and yeast. Sometimes, MD occurs secondary to an existing bacterial skin infection or skin allergy, as the *Malassezia* organism takes advantage of the skin changes that occur with these conditions. Dogs are more commonly affected by MD, but the condition can also occur in cats.

What Are the Signs of Malassezia Dermatitis?

*Malassezia* dermatitis can occur anywhere on the body. The condition can be confined to the ears, but other common sites include the paws, face, underside of the neck, elbows, groin, and rear. MD can cause waxy or greasy itchy skin, rashes, crusts, scales, and thickening of the skin. Sometimes the pet’s skin and ears develop a sour odor resulting from MD.

What Are the Causes of Malassezia Dermatitis?

Any disruption to the skin’s ability to keep yeast from overgrowing can lead to MD. Environmental and food allergies, greasy skin disorders (such as seborrhea), bacterial skin infections, thyroid disease, and some other medical conditions can lead to MD.

How Is Malassezia Dermatitis Diagnosed?

Once your veterinarian looks at your pet’s skin and suspects MD, diagnostics may be performed in order to confirm a yeast infection and determine the primary cause. These tests may be among your veterinarian’s recommendations:

- **Skin testing**, which may include the following:
  - Adhesive tape prep: Placing a small strip of adhesive tape against the pet’s skin or fur for a few seconds permits skin cells and other debris to stick to the tape. When your veterinarian examines the tape under a microscope, bacteria, yeast,
inflammatory cells, cancer cells, skin parasites, and other abnormalities can often be seen.

- **Skin scrape**: By gently scraping the surface of the skin with a dull scalpel blade or similar instrument, cells just below the skin’s surface can be removed and examined under a microscope.
- **Bacterial culture**: A swab of the skin (or of a pustule) can be sent to the lab to determine what bacteria are present and which antibiotics should be used to treat the infection.
- **Fungal culture**: Hairs from infected skin can be sent to the lab to be tested for ringworm, MD, or other fungal infections.
- **Biopsy**: After administering a local anesthetic or sedation to the patient, a small piece of skin can be removed and sent to the lab for evaluation.

**Blood testing**
- Looks for internal reasons that the skin’s barriers to infection have broken down.
- More extensive testing may be pursued to look for thyroid disease or other specific disorders.

**Allergy testing**
- Determines if an allergy exists and whether specific treatment for the allergy is possible.

**How Is Malassezia Dermatitis Treated?**

It is very important to find the underlying cause of MD in order to keep the yeast under control. This can be difficult especially when the primary condition is resistant to treatment. Antifungal medications can be used to help decrease the numbers of Malassezia organisms on the skin and may be administered orally (as pills), topically (as an ointment or cream), or as a shampoo that your veterinarian prescribes. If the underlying cause for the MD involves a bacterial skin infection, parasites, hormonal imbalances, or allergies, these conditions must be specifically addressed to prevent recurrences. In most cases, if the primary condition is resolved, MD can be prevented from coming back.
Medical Causes of Weight Loss

- A variety of medical conditions can cause weight loss.
- Weight loss is not a disease—it is a sign of an illness. Therefore, the treatment for weight loss depends on the underlying cause.
- Regular physical examinations, routine wellness screening tests, and periodically weighing your pets at home can help with early detection of medical problems that can cause weight loss.

When Is Weight Loss a Cause for Concern?

Weight loss can result from decreased intake of calories, malnutrition (inappropriate diet), inadequate absorption or digestion of food (leading to malnutrition), or alterations in metabolism that make the body burn more calories than it is taking in. However, weight loss is not always an immediate cause for concern—it can be normal for pets to lose or gain small amounts of weight from time to time. For example, dogs may gain a little weight in the winter due to decreased activity and then lose those extra pounds when the weather warms up and activity increases. In fact, many pets fluctuate within a range of a few pounds on a regular basis.

Determining when weight loss is a problem can be quite subjective, but the following criteria are causes for concern:

- A pet is eating normal or increased amounts of quality food but is losing weight.
- The cause of weight loss is unknown.
- The amount of weight lost is significant (especially if it has occurred over a brief period of time).
- Weight loss is accompanied by other signs of illness.

What Medical Problems Can Cause Weight Loss?

Here are just a few of the medical conditions that can cause weight loss in dogs and cats. Some of these conditions are quite common and easily treatable, whereas others are life-threatening and require a long-term commitment to treatment or management:

- Malnutrition due to poor diet or underfeeding
- Anorexia (loss of appetite)
- Intestinal parasites
- Intestinal maldigestion (inability to digest food properly)
- Intestinal malabsorption (inability to absorb nutrition properly)
- Inflammatory bowel disease or other causes of chronic diarrhea
- Thyroid disease (in cats)
- Heartworm disease (in dogs)
- Diabetes
- Kidney failure
- Heart failure
- Liver disease
• Cancer

How Are These Medical Problems Diagnosed?

Medical history and physical examination findings provide valuable information for your veterinarian. The medical history may include trying to determine what and how much the pet is eating, how long the weight loss has been occurring, and whether any other signs of illness have been observed. Physical examination findings may reveal evidence of underlying illness. For example, a cat with thyroid disease may have an increased heart rate and enlarged thyroid glands in the neck.

Initial diagnostic testing to begin looking into the cause of your pet’s weight loss may include blood work, such as a serum chemistry profile, complete blood cell count (CBC), and thyroid panel. Urinalysis and fecal testing can also be helpful early in the diagnostic process. Additional testing for specific diseases, such as cancer, may include taking radiographs (x-rays), performing ultrasound examinations of the chest or abdomen to look for irregularities in these areas, or taking biopsies (small tissue samples) from lymph nodes or other organs.

More targeted testing may be recommended based on the results of preliminary tests.

How Is Weight Loss Treated?

Weight loss is not a disease—it is a sign of an illness. Therefore, the treatment for weight loss depends on the underlying cause. Fortunately, most conditions that cause weight loss are manageable or curable. Sometimes a diet change may be involved, but in other cases effective treatment of the underlying problem resolves the weight loss without altering the pet’s diet at all. If you suspect your pet may be losing weight, schedule an appointment with your veterinarian so that diagnostic testing can begin.

Can Medical Causes of Weight Loss Be Prevented?

Providing high-quality nutrition is a good way to help prevent weight loss in pets. It is also important to make sure (especially in a multipet household) that your pet is eating adequate amounts of food. Sometimes, one pet can “bully” another away from food, or one pet may eat significantly more than another. It may be necessary to feed pets in different rooms or feed cats on an elevated counter or platform to help prevent dogs in the house from stealing the cats’ food.

Some of the medical problems that cause weight loss cannot be prevented. However, regular physical examinations, routine wellness screening tests (including fecal and heartworm testing), and periodically weighing your pets at home (if possible) can help with early detection of medical problems that can cause weight loss. In many cases, early diagnosis means better treatment options and improved quality of life for sick pets.
Medication Monitoring

- Medication monitoring can help ensure that your pet is not experiencing unwanted side effects from a medication. It can also tell your veterinarian whether the medication may need to be adjusted.
- All medications have potential side effects.
- If you are giving your pet more than one medication, the medications may interfere with each other, causing side effects. This is called a drug interaction.
- Making sure that your veterinarian knows about all the medications and supplements you give your pet can help prevent drug interactions.
- If you suspect your pet is having side effects from a medication, contact your veterinarian immediately for advice.

What Is Medication Monitoring?

Medication monitoring can have many components. It can involve testing the levels of a drug in your pet’s blood to ensure that those levels are high enough to be effective, but not too high (which may cause problems or side effects). It may include discussing your pet’s medical history to help ensure that your pet is not experiencing any unwanted side effects from a medication. It may also involve having your veterinarian examine your pet periodically to ensure that the clinical signs associated with the illness being treated are responding appropriately to therapy.

In many cases, medication is given for a short time, like when antibiotics are used to treat infection. However, health issues like heart disease, allergies, arthritis, or epilepsy may require you to give your pet medication every day for months or years. Over time, the way your pet’s body tolerates medication may change, requiring your veterinarian to adjust or sometimes change a medication. Monitoring allows your veterinarian to assess these and other variables to make sure that your pet continues to do well on any medication.

When used appropriately, most medications have minimal ill effects. However, all medications can have unwanted or harmful side effects. Sometimes these effects are caused by sensitivity to an ingredient in the medication. Side effects can be mild, like a simple stomach upset, or they can be life-threatening. Either way, they should be taken seriously and reported at first notice. Part of treating your pet involves monitoring your pet at home so that any side effects can be reported to your veterinarian.

How Is Medication Monitoring Performed?

Medication monitoring begins before you leave your veterinarian’s office with a new medication. When your veterinarian prescribes a medication for your pet, he or she will explain what it is, what it’s for, how to give it to your pet, and details of potential side effects. For example, if your pet is prescribed insulin for diabetes, your veterinarian will spend time with you making sure that you know how to give it, how often it should be given, and what signs to look for that might indicate a potential problem. Before you leave the office, your veterinarian will work with you to make sure that you know exactly what to do, what changes to look for, and what to do if problems arise.
Sometimes medication monitoring involves blood tests. For example, your veterinarian may want to test your pet’s blood to find out information about your pet’s overall health and how well certain organs (such as the liver and kidneys) are functioning before prescribing certain medications. Sometimes, medication can change the results of these tests over time, so for long-term medications, your veterinarian may recommend repeating these tests periodically to help ensure that your pet’s body is continuing to tolerate the medication.

Checking blood levels of specific medications is also sometimes recommended. For example, if your pet is receiving phenobarbital (a medication used to control epilepsy), your veterinarian may recommend having the phenobarbital blood levels checked periodically. This can help ensure that the dosage of phenobarbital is within a range that can successfully control epilepsy but is not too high, which can be associated with unwanted side effects.

Any medication can cause side effects, so monitoring your pet at home for drug-related side effects is a very important part of medication monitoring. If you are giving your pet more than one medication, the medications may interfere with each other, causing side effects. This is called a drug interaction. Making sure that your veterinarian knows about all the medications you give your pet can help prevent drug interactions. Some veterinary practices ask you to fill out a checklist when you bring your pet in for a physical examination or surgery. Often, this list will ask for the names and types of medications your pet is currently receiving. It is very important to list all your pet’s medications. Don’t forget to also list vitamins, supplements, and natural products. This is especially true if you visit more than one veterinarian because the practices will not necessarily have access to each other’s information. You may want to bring your pet’s medications and supplements with you to the office.

Your veterinarian is an excellent source of information about your pet’s medications. Other possible sources of information include:

- The medication label
- Product inserts (these are not always available)
- Client information handouts

You should always read any printed instructions that come with the medication.

**Benefits of Medication Monitoring**

Medication monitoring can have many benefits, including making sure that your pet’s medical problem is responding to treatment, making sure that your pet is tolerating his or her medications, and minimizing the risk of potential side effects.

Observation is an important part of medication monitoring. Being aware of how your pet normally reacts to a medication can help you quickly recognize when something is wrong.

**If you suspect your pet is having a reaction to a medication, contact your veterinarian immediately for advice.**
Microchipping Your Pet

- Many lost pets are never returned to their owners because they do not have any form of identification.
- Microchips are a way of permanently identifying your pet.
- Microchips must be registered with a microchip company to reunite you with your pet.
- Microchipping is a simple, quick procedure that can be performed by your veterinarian.

Why Microchip?

It is recommended that you identify your pet even if you don’t plan to let him or her go outside. Even “indoor” pets can get out by accident, and many lost pets are never returned to their owners because they have no identification. Collars and tags are popular, effective methods of identification, but they can come off. Microchips, which are implanted just under the pet’s skin, are one way to permanently identify pets.

What Is a Microchip?

A microchip is a tiny electronic device—about the size of a grain of rice—that uses radio waves to transmit stored information when it is read by the right kind of scanner. Microchips for pets generally store a unique identification number. They do not need a power source, and they have no moving parts, so they do not wear out. Microchips are made of a material that is compatible with body tissues, so rejection and infection at the site are rare.

After injection, the microchip becomes encased in the tissue at the injection site. It may move slightly, but it usually stays at or near the place it was injected. To read the chip, a compatible scanner must be passed over it. Different microchip companies use different chips; however, there are scanners that can read all kinds of chips.

The Microchipping Procedure

Many veterinary offices have the equipment to implant and scan for microchips. Each microchip comes preloaded in a sterile syringe. To implant the chip, the veterinarian inserts the needle just under the pet’s skin between the shoulder blades and pushes the syringe plunger. The entire procedure, like a regular injection, is very quick and does not require pain medication or anesthesia.

How the System Works

When a lost or injured pet is taken to an emergency room or shelter, he or she can be scanned for the presence of a microchip. If the pet has a chip, the scanner reads the pet’s identification number. If the chip has been properly registered, the shelter or hospital can provide the number to the microchip company, which maintains the owner's contact information. The microchip company then contacts the owner, and the pet can go home.

Microchip Registration and Maintenance
To complete the microchipping process, you must register your pet’s microchip with the microchip company. Some companies charge an extra fee for registration. Unless the microchip company has your information, there is no way for the identification number on the microchip to link you with your lost pet.

- Keep the contact information you give the microchip company (e.g., street address, home and cell phone numbers) up-to-date. You may want to confirm this information every year.

- It is recommended that you continue to keep a collar on your pet and that you put a tag on the collar indicating (1) that your pet has a microchip and (2) the name of the chip manufacturer.

- During your pet’s regular physical examinations by your veterinarian, the microchip should be scanned to ensure that it accurately transmits the identification number. Scanning is painless and only takes a few seconds.
Motion Sickness in Dogs

- Motion sickness can cause your dog to develop a fear of riding in a vehicle.
- If your dog seems to have motion sickness, take him or her to your veterinarian.
- Do not give your dog any medication without first consulting your veterinarian.

The Basics

Just like people, dogs can have motion sickness, which can make even short car rides stressful for dogs and their owners. Fortunately, there are ways to ease or eliminate your dog’s motion sickness, including conditioning your dog to car rides and using medications recommended by your veterinarian.

Motion sickness is more common in puppies and young dogs than in older dogs because the ear structures used for balance aren’t fully developed in puppies. Therefore, many dogs outgrow motion sickness. If the first few car rides of your dog’s life caused him or her to become nauseated, your dog may equate travel with vomiting, even after his or her ears fully mature. Stress can also add to motion sickness; if your dog only rides in cars to go to veterinary visits, he or she may become sick with worry on the way there. If your dog appears to be ill after several car rides, consult your veterinarian about treatment for motion sickness.

Diagnosis

Signs of motion sickness in dogs include the following:

- Inactivity
- Listlessness
- Uneasiness
- Yawning or panting
- Whining
- Excessive drooling
- Vomiting (even on an empty stomach)
- Fear of cars

If your dog develops a fear of cars, your veterinarian can determine whether the cause is motion sickness or something else, such as an orthopedic problem. If your dog is sore, he or she might be reluctant to get in and out of a car, which might appear to be fearfulness.

Prevention and Treatment

To help you prevent or treat motion sickness in your dog, your veterinarian may recommend one or more of the following:

- Help your dog face forward while traveling by strapping him or her into the seat with a specially designed canine seatbelt. If you buckle your dog into the front passenger seat,
position the seat as far as possible from the dashboard or disable the passenger air bag because it could be hazardous to your dog.

- Lower your car windows a few inches to equalize the inside and outside air pressures.
- Keep your vehicle cool.
- Limit your dog’s food and water consumption before travel.
- Give your dog a treat or two every time he or she gets into the car.
- Give your dog a toy that he or she enjoys and can only have in the car.
- Give your dog a 1- to 2-week break from car rides.
- Use a different vehicle to avoid triggering your dog’s negative response to your usual vehicle.
- Take short car rides to places your dog enjoys, such as the park, especially if your dog associates car rides only with trips to the veterinarian’s office.
- Gradually build your dog’s tolerance to car rides. Each of the following steps should take a few days to a week: (1) accustom your dog to approaching the car without getting in it, (2) spend time with your dog in the car with the engine off, (3) take short trips (e.g., around the block), (4) take longer trips. Reward your dog with praise and/or treats every time he or she does something well.

If your dog doesn’t outgrow motion sickness or respond to conditioning techniques, consult your veterinarian about using a medication to help your dog.

What Not to Do

- Do not try to accustom your dog to car rides by subjecting him or her to repeated, long rides. This will only upset your dog and possibly worsen his or her fear or motion sickness.
- Do not yell at your dog if he or she vomits or whines during car rides. Verbal or physical punishment won’t make your dog a better passenger and could heighten his or her fear of car rides.
- Do not give your dog any kind of medication without first consulting your veterinarian.
Neutering

- Neutering is a surgical procedure in which the testicles are removed in a male animal.
- Neutering prevents unwanted reproduction and can help eliminate negative behavioral effects of male hormones, such as roaming and aggression.
- Neutering may also be performed to treat testicular and anal tumors and some prostate problems.

What Is Neutering?

Neutering, also known as castration, is a surgical procedure that involves removal of the testicles. It is a common surgical procedure performed on male dogs and cats to eliminate the ability to impregnate females. Neutering is also used to treat certain medical conditions, such as testicular cancer, anal tumors, and some forms of prostate disease.

How Is Neutering Performed?

**The Presurgical Evaluation:** Your veterinarian may recommend a presurgical evaluation before neutering your pet. The presurgical evaluation may include a physical examination to ensure that your pet is healthy enough for surgery. Preanesthetic blood work may also be recommended. This testing is designed to help identify problems that may increase the risks associated with surgery or anesthesia. Your veterinarian may want to use pre-anesthetic blood work to check for several medical conditions, including infection, anemia (a low number of red blood cells), low blood sugar, inadequate blood-clotting ability, liver disease, and kidney disease.

If your pet has any preexisting medical issues, such as a heart problem, your veterinarian may recommend additional testing to determine if any precautions are recommended or if surgery should be postponed or cancelled due to health reasons.

Sometimes, the presurgical evaluation can be performed on the day of surgery. However, some veterinarians perform this testing a few days or weeks before the procedure is scheduled.

**Surgery Day:** To reduce the risk of vomiting during the procedure, it is generally recommended that pets have an empty stomach before undergoing anesthesia. Your veterinarian will likely ask you to remove your pet’s food and water bowls the night before surgery and to withhold food and water on the day of surgery. If your pet eats or drinks before undergoing anesthesia, tell your veterinarian, as postponing surgery may be recommended. If your pet receives insulin or any other medications, ask your veterinarian what you should do on the day of surgery. You may be advised to adjust the medication dosage or to withhold medication for that day.

Before the surgery begins, your pet will be given anesthesia. This keeps your pet still, asleep, and completely pain free during the operation. There are many types of anesthesia; your veterinarian will choose the one that is best for your pet. Some types are given as an injection, while other anesthetics are gases that are inhaled. During anesthesia, a small plastic tube is inserted into the patient’s airway to support breathing. The tube is connected to the anesthetic gas machine to give the patient a constant flow of anesthetic gas and oxygen. During this time, your veterinary team
may also connect monitoring equipment to constantly measure heart rate, breathing, and oxygen use during anesthesia.

Once your pet is asleep, the surgical site is shaved and scrubbed using a germicidal solution. The area is then draped with sterile cloths that help keep the surgical area sterile. The veterinarian and veterinary assistants then prepare for surgery through repeated handwashing with germicidal soaps and then put on sterile gowns, caps, masks, and gloves. Keeping everything sterile helps prevent infections.

The neuter surgery in a cat is performed through an incision that is made directly into the skin over the scrotum. The testicles are located and separated from surrounding structures. As the testicles are surgically removed, blood vessels are closed and double-checked for bleeding before being replaced into the incision. The scrotum is not sutured and is left open to heal.

For neuter surgery in a dog, the incision is made a few centimeters in front of the scrotum. The testicles are located, pushed up through the incision, and separated from surrounding structures. As with feline neutering, blood vessels are closed and double-checked for bleeding before being replaced into the incision. In canine neutering, the surgical incision is sutured closed.

In some dogs and cats, the testicles do not both descend into the scrotum as they should during normal development. When one testicle (or in rare cases, both testicles) fails to descend, the condition is called cryptorchidism (crypt – orchid – ism). Cryptorchidism is a medical concern because the undescended testicle can remain in the abdomen, where it can become cancerous or cause other medical problems. Neutering is slightly different when the patient has an undescended testicle. The normal testicle is removed as noted above, but the veterinarian generally needs to make a separate incision (sometimes into the abdomen) to remove the undescended testicle.

Whatever procedure your veterinarian uses, every effort will be made to keep your pet as safe as possible during and after the procedure. Once the surgery is completed, the surgical area is cleaned again, and the patient is permitted to awaken from anesthesia. Afterward, he will be monitored in a recovery area until he is awake and stable enough to go home. Additional pain medication is generally given at this time. Some hospitals keep surgical patients overnight, so they can be closely observed and monitored by hospital staff; however, other hospitals allow pets to recover at home.

**At-Home Care After Surgery**

Even the best and most successful surgery can result in complications if postoperative care is inadequate. Your veterinary team will review your home-care instructions before you take your pet home. Be sure to follow all instructions carefully and contact your veterinarian if you have questions or concerns after you get home. Here are just a few tips:

- **Food and water:** You may be tempted to give your pet a large meal after he returns home from being neutered. Don’t! Smaller meals are generally recommended for the first day or so. Ask your veterinarian when normal meals can be resumed.
• **Stitches:** Your pet may have stitches on the outside of the skin after surgery, but some veterinarians choose to bury the stitches underneath the skin or to use surgical adhesive to close the incision. Some suture material is dissolvable and does not need to be removed, whereas other stitches need to be removed after surgery (usually in 7 to 14 days). Your veterinarian will review these details and other at-home care details before you take your pet home from surgery. Even if stitches are not present, check the incision regularly for swelling, bleeding, bruising, or discharge and report any problems to your veterinarian.

• **Protecting the incision:** Your pet should not be permitted to lick or bite the surgical area. This can open the incision or cause a serious infection. Your veterinarian may recommend that your pet wear an Elizabethan collar to prevent tampering with the incision and stitches. This is a plastic cone that fits over your pet’s head (like an upside-down lamp shade) to prevent licking or biting of the surgical area.

• **Medication:** Be sure to give all medications as directed. If your pet vomits after receiving medication or has other complications, call your veterinarian.

• **Activity restriction:** Running, jumping, or using stairs should be avoided (if possible) for approximately 7 to 10 days after undergoing neuter surgery. Excessive activity can cause pain, bleeding, swelling of the incision, and other complications. Even if your pet seems perfectly fine and wants to be active, continue activity restriction as recommended by your veterinarian.

**What Are the Benefits of Neutering?**

There are many benefits to neutering your pet. Most importantly, neutering helps reduce pet overpopulation. Neutering also prevents testicular cancer, is helpful in treating certain anal tumors, and reduces the risk of certain prostate issues. Neutering can decrease negative male behaviors associated with testosterone, such as roaming and aggression. For male cats, neutering reduces the potency of unpleasant “tomcat” urine odors and reduces the likelihood of urine marking and other negative behaviors.

For most pets, the benefits of neutering far outweigh the potential risks. The decision to neuter or not is an important one, so be sure to discuss this health issue with your veterinarian.
Nipping and Mouthing by Dogs

- Nipping and mouthing should be discouraged starting in puppyhood.
- If you suspect that your dog is nipping, mouthing, or biting because of aggressive behavior, please consult a veterinarian or qualified professional.
- Do not use physical punishment on your dog. Hitting your dog could cause him or her to become afraid or aggressive.

The Basics

Nipping and mouthing are natural, usually nonaggressive behaviors that dogs use to communicate during play and normal interaction with other pets and people. However, most people don’t appreciate nipping and mouthing by dogs, and adult dogs can inadvertently cause injury while nipping and mouthing. Therefore, these behaviors should be discouraged starting in puppyhood.

Play Versus Aggression

It can be difficult to tell the difference between nonaggressive and aggressive nipping and mouthing by dogs. Some dogs use their mouths out of fear or frustration, which can indicate a problem with aggression. In most cases, playful dogs have a relaxed body and face. During play, your dog’s muzzle might look wrinkled, but the facial muscles shouldn’t look tense. Playful dogs have a playful body posture, and their tail may be held low and wagging. Playful nipping or mouthing is usually not painful. However, an aggressive dog often has a stiff body, a wrinkled muzzle, and exposed teeth. Its tail may be held up high and waving in the air. Aggressive bites are usually quicker and more painful than playful nipping or mouthing.

If you suspect that your dog is nipping, mouthing, or biting because of aggressive behavior, please consult a qualified professional, such as your veterinarian, a certified applied animal behaviorist (CAAB or ACAAB), or a board-certified veterinary behaviorist (DACVB).

What to Do

Puppies often chew on people’s hands and feet. This behavior may seem cute when your dog is small, but it’s not welcome when your dog is bigger and stronger. Therefore, it’s important to teach your dog not to nip or mouth. The goal is to teach your dog that people have very sensitive skin, so he or she must be very gentle.

Bite inhibition is a dog’s ability to control the force of nipping and mouthing. A dog that hasn’t learned bite inhibition doesn’t recognize the sensitivity of human skin, so the dog nips and mouths too hard, even when playing. Some behaviorists and trainers believe that dogs that have learned bite inhibition are less likely to bite hard and break the skin if they bite someone due to fear or pain.

Young dogs usually learn bite inhibition while playing with other dogs. When dogs play, they nip and mouth each other. Occasionally, a dog nips his or her playmate too hard, causing the
victim to yelp and, usually, stop playing. The offender is often surprised by the yelp and also stops playing for a moment. Usually, the dogs soon begin playing again. Through this kind of interaction, dogs learn to control the force of their nipping and mouthing so that they don’t hurt each other and the play can continue uninterrupted.

Dogs can also learn bite inhibition from people. First, play with your dog, letting him or her nip and mouth your hands. When it becomes too hard, immediately make a high-pitched yelp sound as if you’re hurt, and let your hands go limp. This should startle your dog, causing him or her to momentarily stop nipping and mouthing. If yelping has no effect, say “No!” Praise your dog for stopping or for licking you, and then resume play. If your dog nips or mouths you hard again, yelp and stop play again. Repeat this process no more than three times within 15 minutes.

If yelping alone doesn’t work, try adding a time-out. Time-outs are often effective for reducing nipping and mouthing in adolescent and adult dogs. When your dog nips or mouths too hard, yelp loudly and ignore your dog for 10 to 20 seconds; if he or she starts nipping or mouthing during this period, walk away for 10 to 20 seconds. If necessary, leave the room. After the time-out, encourage your dog to play with you again. It’s important to teach your dog that gentle play continues, but painful play stops. As you continue to play, require your dog to become gentler: Yelp and stop play in response to increasingly softer nipping and mouthing until your dog uses little or no pressure with his or her mouth.

The next step is to teach your dog to stop nipping and mouthing altogether. Try one or more of the following:

- Continue using the time-out procedure described above.
- Give your dog a chewing toy when he or she tries to nip or mouth you.
- If your dog nips or mouths while being petted or scratched, feed your dog small treats from your free hand to accustom him or her to being touched without being able to nip or mouth.
- Engage in noncontact forms of play, such as fetch, with your dog. Ideally, your dog will begin to look for a toy when he or she feels like mouthing.
- Teach your dog impulse control by teaching commands such as “sit,” “wait,” and “leave it” or “off.” This can help you train your dog to resist nipping and mouthing.
- Give your dog opportunities to play with other friendly, vaccinated dogs. This will reduce your dog’s need to play roughly with you.
- Use a taste deterrent. Before you interact with your dog, spray the deterrent on areas of your body and clothing that your dog likes to mouth. If your dog mouths you, stop moving and wait for him or her to react to the bad taste of the deterrent. Praise your dog when he or she lets go of you. If you use the deterrent for about 2 weeks, your dog will likely learn not to mouth you.
- Seek the help of a certified professional dog trainer (CPDT).

**General Precautions**

- Don’t wave your fingers or toes in your dog’s face or slap the sides of your dog’s face to entice your dog to play.
• Don’t discourage your dog from playing with you. Play can build a strong bond between you and your dog.
• Avoid quickly pulling your hands or feet away from your dog when he or she mouths. Instead, let your hands or feet go limp.
• Do not use physical punishment on your dog. Hitting your dog could cause him or her to become afraid or aggressive.
Obesity in Pets: Tipping the Scale in Your Favor

- Approximately half of the pets in the United States are either overweight or obese. The health consequences of obesity include increased risk for joint disease, heart and respiratory problems, and diabetes.
- As with humans, weight management is not a quick fix, and the associated goals and lifestyle changes should be long-term in order to be successful.

Why Is Weight Control Important?

Currently, studies estimate that approximately half of the pets in the United States are either overweight or obese. The health consequences of obesity in pets include increased risk for joint disease, heart and respiratory problems, and diabetes. Some researchers also have redefined obesity as a chronic inflammatory condition that can have other harmful effects in the body. Being overweight is not cute and it is not just a nuisance; it is now being recognized as a medical problem that should be managed long-term to reduce associated health risks.

On the positive side, research has shown that keeping dogs lean can increase their lifespans by as much as 2 years. While the same research has not been done in cats, it stands to reason that eliminating the health risks associated with obesity could extend their lives as well.

Why Is Weight Control So Difficult?

Despite the fact that many of us struggle to help our pets lose weight, the formula for weight management is actually rather simple—if calories burned through activity exceed calories taken in through food and treats, weight loss will occur. Unfortunately, this formula can seem difficult to implement for several reasons.

First, many pet owners don’t know the daily calorie requirements for a dog or cat. Even for a conscientious pet owner, it can be difficult to understand pet food labels and realize how many calories a pet is eating. Sometimes (especially when there are several family members who interact with a pet), it can be difficult to know exactly how much and how often your pet is eating. Even if you think your pet may not be eating too much, weight gain can happen so gradually that you are unaware of it until the problem is obvious to an outside observer. Also, sometimes life just gets in the way and things like exercise can slip by the wayside.

How Is Obesity Diagnosed?

Most human physicians use body mass index scales (tables that compare height to weight) to help determine if a patient is overweight. Many veterinarians are now using a relatively standardized system called body condition scoring to help determine if pets are overweight. There is a 5-point scale in which a dog or cat that has a body condition score (BCS) of 3 is at the ideal weight, a score of 1 to 2 indicates the pet is underweight, and pets with a score between 4 and 5 are overweight or obese. There is also a similar 9-point scale in which a score of 4 to 5 is considered ideal weight, 1 to 3 is underweight, and 6 to 9 is overweight or obese.
If your pet’s BCS is not ideal, your veterinarian may begin the discussion with you by asking what your pet eats each day and how much exercise he or she gets. Some pet owners are surprised when they add up how much food, treats, and table scraps a pet may consume in a day. Your veterinarian may also want to discuss diagnostic testing to investigate any medical problems, such as thyroid disease, that can affect a pet’s body weight.

How Can I Tip the Scale in My Pet’s Favor?

Once you and your veterinarian determine that your pet has a weight problem, and underlying medical concerns have been addressed, the next steps involve deciding how to correct the problem. As with humans, weight management is not a quick fix; the associated goals and lifestyle changes should be long-term in order to be successful. Here are some tips that can help get weight loss started and keep it going:

- **Pick reasonable weight loss goals:** Your veterinarian can help you determine how many calories your pet needs each day, and how many pounds your pet needs to lose. Once this information is understood, your veterinarian can work with you to develop a healthy, reasonable schedule for meeting specific weight loss goals.

- **Start with a plan that is going to work for you and your pet:** Your veterinarian may recommend increased activity (such as leash walks, swimming, or other exercise) along with dietary modifications to help your pet lose weight. Talk frankly with your veterinarian about how much time and effort you can commit to your pet’s weight loss program. If leash walks are not possible, or you can’t change your pet’s diet, ask about other options. If your pet has joint problems, like osteoarthritis, you may need to address joint pain before your pet is willing to become more active. You and your veterinarian need to work together to find the best weight management solutions. There are generally many ways to approach weight loss—there is even a “diet pill” formulated for dogs to help them lose weight. However, there is no diet pill for cats, and exercise can be a particular challenge for indoor cats. Talk to your veterinarian about ways to increase activity that will work for you and your pet.

- **Commit to your pet:** This can be challenging because it means understanding that your pet’s obesity is a problem that you need to commit to solving without making yourself feel guilty. Perhaps some mistakes were made, but having an overweight pet does not mean you are a bad person. So start the process by giving yourself a break. Pointing fingers does not solve the problem—try to focus instead on what is going to happen from today forward!

- **Measure:** Measure the amount of food you are feeding your pet each day. If you don’t know how much you are feeding, there is no way to know how many calories your pet is eating. Don’t forget to check the number of calories in treats, as these can also add up on a daily basis. If you must give treats, consider low-calorie alternatives, like raw carrots, green beans, or air-popped popcorn for dogs.
• **Learn how to overcome barriers to success:** Barriers to success include giving treats or extra food, letting the overweight or obese pet have access to another pet’s food, or feeling guilty and giving in when your pet begs for food. Other barriers are exhibited by the pets themselves and include refusal to eat a diet food or to exercise. Inability to overcome these barriers on a daily basis will doom any weight loss program to failure. Talk to your veterinarian about ways to overcome them.

• **Understand the importance of this lifestyle change:** Being overweight increases the risk of certain medical conditions and can shorten your pet’s life. It may be difficult to withhold treats and table food from a pet that is used to getting them, but before you give in, think about the big picture! If you want your pet to be healthy and to live a longer life, weight management needs to be part of that plan.

• **Make monitoring fun:** Your veterinarian may recommend seeing your pet for periodic weight checks to keep track of how your weight management program is progressing. Try to make this as much fun as possible. Consider scheduling an extra trip to the park for a walk after each weigh-in. Or take a trip to a pet store for a new toy after key weight loss goals are achieved. Some veterinarians offer programs to help encourage you through the weight loss process, like posting “before” and “after” photos of pets. This can give your self-esteem a boost, as well as encourage another pet owner who may still be struggling with his or her pet’s weight problem.
Ophthalmic Exam

- An ophthalmic exam is a thorough examination of the pet’s eyes and the surrounding tissues.
- The exam may be performed by your veterinarian or by a veterinary ophthalmologist (an eye-care specialist).
- The exam is generally non-invasive and painless for your pet.
- The kind of tests performed depend on the nature of the pet’s eye problem.
- Pets with eye or vision trouble should be seen by a veterinarian immediately.

What Is an Ophthalmic Exam?

During an ophthalmic (eye) exam, a veterinarian may perform a number of tests. These tests can help identify (1) problems with the eyes or (2) underlying diseases that may affect the eyes. Your veterinarian may conduct the exam or recommend that a veterinary ophthalmologist (an eye-care specialist) evaluate your pet.

Why Should Pets Receive an Ophthalmic Exam?

Your pet’s eyes should be examined as part of a regular physical exam. However, more thorough testing is needed in the following circumstances:

- There is an abnormal appearance to one or both eyes.
- Your pet shows signs of pain, such as holding an eye closed, or rubbing at the eyes.
- You suspect that your pet is experiencing changes in vision.
- An eye injury has occurred.

How Is an Ophthalmic Exam Done?

An ophthalmic exam may include many different tests. While a complete description is beyond the scope of this article, the most common tests are outlined here. Your veterinarian may choose to conduct some or all of these tests, depending on the nature of your pet’s problem.

The ophthalmic exam often begins with an evaluation of the pet’s vision. The veterinarian may observe how the pet moves around the room or if he or she follows a cotton ball when tossed near the eyes. A menace test may also be conducted to see if the pet blinks when a finger is moved toward, but without touching, the eye.

A pupillary light reflex test is used to evaluate the retina (the sensory membrane that lines the eye), the muscles controlling the iris (the colored portion of the eye), the nerves, and the part of brain that controls visualization. The veterinarian will shine a bright light into each eye and evaluate both eyes for pupil constriction.

If the veterinarian is concerned about tear production, he or she may perform a Schirmer tear test. A small strip of paper is positioned in each lower eyelid and held in place for 60 seconds. This test can help determine if your pet is producing enough tears to lubricate the eye properly.
An ophthalmic exam usually includes a thorough evaluation of the outer eye structures, including the tissues around the eyes, the eyelids, the duct where the tears drain from the eyes, and the cranial nerves that affect the eyes. At the same time, the veterinarian will check the eye for inflammation and infection as well as for foreign bodies and unusual growths. The lens of the eye will also be examined for signs of cataracts.

It is common for pets to inadvertently scratch the cornea (the clear layer on the front of the eye). Because these painful abrasions or ulcers are not always visible with the naked eye, your veterinarian may conduct a fluorescein stain test. When a small amount of lime-green dye is placed in the eye, any defect in the cornea will take up the dye, displaying the location and size of the abrasion.

Another painful condition for pets is glaucoma (high eye pressure caused by improper fluid drainage within the eye). Certain breeds and some diseases, such as diabetes, are associated with glaucoma.

Before testing eye pressures, the veterinarian will first place a few drops on the eye to numb the eye surface. Most likely, the veterinarian will use an instrument that looks like a pen to gently tap the eye surface. This instrument provides a reading of eye pressure. High pressure is a sign of glaucoma, while low pressure may be a sign of uveitis (inflammation of an interior layer of the eye).

An ophthalmic exam also includes a thorough inspection of the fundus (the back of the eye). A few drops will be placed into your pet’s eyes to dilate (enlarge) the pupils. It may take 15 to 30 minutes for the drops to work. The veterinarian will use a special instrument to examine the interior of the eye, including the retina, the blood vessels, and the optic nerve.

**What Are the Benefits of an Ophthalmic Exam?**

If you notice any abnormality in your pet’s eyes or vision, contact your veterinarian immediately. Many eye conditions are extremely painful or could result in the loss of vision, if not attended to promptly. An ophthalmic test will help identify the source of the problem so that your pet receives proper treatment and pain relief as soon as possible.
OraVet' Dental Sealant

- OraVet Dental Sealant is an invisible, polymer sealant that is applied to your pet’s teeth by your veterinarian after a dental cleaning.
- The sealant adheres to teeth to create an invisible physical barrier that helps prevent bacteria from accumulating on teeth.
- The sealant may be followed by OraVet Plaque Prevention Gel, a substance that is applied to the pet’s teeth by the owner on a weekly basis.
- OraVet Dental Sealant has been clinically proven to significantly reduce plaque and tartar formation.

Most dental disease starts with the accumulation of plaque and tartar on a pet’s teeth. These substances contain bacteria, which can get under the gums and weaken the supporting tissue around the teeth. As a result, abscesses (pus-filled swellings) can form, and teeth may loosen, become painful, or fall out. Bacteria may also enter the bloodstream and infect the heart, kidneys, and liver. A professional veterinary dental cleaning is required to remove plaque and tartar from the teeth and beneath the gum line.

What Is OraVet Dental Sealant?

Once plaque and tartar are removed during a dental cleaning, your veterinarian may apply OraVet Dental Sealant. This odorless, tasteless sealant adheres to the teeth to create a physical barrier that helps prevent bacteria from accumulating on teeth. Of course, nothing can replace daily brushing. But OraVet Dental Sealant has been clinically proven to significantly reduce plaque and tartar formation.

What Is OraVet Plaque Prevention Gel?

If your veterinarian has applied OraVet Dental Sealant to your pet’s teeth, he or she may recommend the use of OraVet Plaque Prevention Gel for your pet at home. You can apply this product to your pet’s teeth on a weekly basis. When spread along the teeth and gums, the gel helps prevent further bacterial invasion.

What Are the Benefits of the OraVet System?

Most dental diets and treats are designed to help remove plaque once it has formed on the teeth. The OraVet system is designed to help prevent plaque and tartar from occurring in the first place. Still, it can’t prevent all plaque and tartar. But if you can’t brush your pet’s teeth every day, the OraVet system can help.

The more you can do to keep your pet’s teeth clean, the more you can protect your pet from the pain and discomfort of dental disease. Regular at-home dental care can also prolong the time between professional dental cleansings.

Ask your veterinarian if the OraVet dental care system is right for your pet
Panosteitis

- Panosteitis is a painful inflammation of the long bones in the limbs.
- It affects young, medium- to large-breed dogs, especially German shepherds.
- The cause of panosteitis is not known.
- Signs include lameness in one or multiple limbs.
- Painful episodes may last for days or weeks and recur periodically.
- Diagnosis is based on physical examination (evidence of pain in the bones) and radiographs (x-rays).
- The disease usually resolves on its own by the time the dog is 2 years old.
- Nonsteroidal anti-inflammatory medications (NSAIDs) can help relieve pain during episodes of lameness.

What Is Panosteitis?

Panosteitis is a painful inflammation of the long bones in the limbs of young, medium- to large-breed dogs. The disease is common in German shepherds, German shepherd mixes, and basset hounds. Male dogs are four times more likely to experience panosteitis than females. The condition usually appears between the ages of 5 months to 1½ years.

What Causes Panosteitis?

The exact cause of this disease is unknown.

What Are the Signs of Panosteitis?

Dogs with panosteitis are typically healthy but experience sudden lameness despite having no history of trauma. They will often favor a limb or even carry it to avoid putting any weight on it. If more than one limb is involved, the dog will have shifting leg lameness. In severe cases, the dog may lose his or her appetite and experience weight loss.

The pain may last for a few days or several weeks. Bouts of lameness may recur from time to time, but they usually resolve by the time the dog is 2 years old.

How Is Panosteitis Diagnosed?

During physical examination, dogs with panosteitis may show signs of pain when the veterinarian applies slight pressure to the long bones of the affected leg(s). Usually, radiographs (x-rays) are required to identify bone changes that occur with panosteitis. In rare cases, your veterinarian may recommend a bone biopsy to make sure that a bacterial or fungal infection or bone cancer is not causing the pain.

How Is Panosteitis Treated?

Panosteitis usually resolves on its own, without treatment. However, your veterinarian may recommend nonsteroidal anti-inflammatory medications (NSAIDs) to relieve pain and make
your dog more comfortable during episodes. Periodic recheck appointments with your veterinarian are a good idea to make sure that your pet is comfortable and other orthopedic problems are not involved.
Patellar Luxation

- Patellar luxation occurs when the pet’s patella (kneecap) slips out of its normal position on the femur bone, causing pain, lameness, and instability in the knee.
- Severity of patellar luxation is graded on a scale of 1 to 4.
- Surgical correction may be recommended.
- Failure to treat patellar luxation can result in arthritis and lead to other orthopedic problems.

What Is Patellar Luxation?

Normally, the patella (kneecap) sits in a groove at the bottom of the femur (the major bone of the upper leg), where the femur and tibia (the major bone of the lower leg) meet at the knee. The patella is held in place by tendons and ligaments that keep it relatively stable against the femur. Patellar luxation occurs when your pet’s patella luxates from (slips out of) its normal position. The kneecap can slip to either the inside (medial patellar luxation) or the outside (lateral patellar luxation) of the femur.

Patellar luxation can occur in one or both knees, and many dog breeds can be affected. Cats can also be affected, but not as commonly as dogs. Patellar luxation may be linked to an inherited abnormality or caused by injury or trauma.

What Are the Signs of Patellar Luxation?

Clinical signs associated with patellar luxation may not be obvious. However, one of the classic signs is a characteristic “skipping” gait. Pets will occasionally appear to “skip” as they hold the affected leg up while walking or running. A playing pet may suddenly yip in pain when the luxation occurs and then hold the leg up while continuing to run or play. These episodes can last for a few strides to a few minutes. In more severe cases, pets may remain painful for days.

The severity of patellar luxation is graded on a scale of 1 to 4:

- Grade 1—The patella easily and frequently pops out of its groove and then immediately pops back in.
- Grade 2—The patella pops out of normal position but doesn’t immediately go back. It must be replaced by pushing it back into normal position.
- Grade 3—The patella is out of normal position most of the time. If it is replaced by pushing it back into position, it will immediately pop out again.
- Grade 4—The patella is out of normal position and locked in this luxated position; it cannot be manipulated back into its groove.

The grade of patellar luxation does not necessarily correspond to the dog’s degree of lameness. For example, a dog with a grade 1 or 2 luxation may be lame or may seem to walk completely normally, while a dog with a grade 4 luxation may have figured out how to change his or her gait so that the knee is not painful. In this case, lameness may not be obvious.
How Is Patellar Luxation Diagnosed?

Patellar luxation is sometimes diagnosed during a routine physical examination when a veterinarian feels the knee joint. If the dog is very painful, sedation may be recommended so that a more thorough examination of the knee can be safely performed.

Radiographs (x-rays) are sometimes recommended to further evaluate the kneecap and other structures in the knee. Because a luxating patella affects the stability of the knee, many dogs with this problem develop arthritis over time. Some of these changes may be visible on x-rays.

How Is Patellar Luxation Treated?

Pets that have been diagnosed with patellar luxation but do not exhibit any clinical signs or that show only occasional signs should be monitored. Maintaining an ideal body weight and following a regular veterinarian-approved exercise program may aid in managing the condition. Joint supplements may be recommended, as well as pain medication for occasional episodes. Unless the condition progresses, surgical correction may not be recommended.

Surgery is typically considered for cases where the degree of lameness is significant. Surgical therapy typically seeks to stabilize the patella in its proper groove. Several procedures can be used to accomplish this. Your veterinarian will evaluate your pet and recommend the most appropriate procedure. After surgery, it is important to closely follow your veterinarian’s instructions regarding limitations on activity and containment to allow the surgical site to heal. Pain medications will be provided as needed, and physical therapy may be recommended.

If left untreated, patellar luxation can result in significant damage to the joint, leading to the development of arthritis and other conditions, such as cruciate ligament rupture.
Pemphigus

- Pemphigus is a potentially fatal autoimmune disease of the skin.
- Skin cells are under attack by the dog or cat’s own immune system.
- Pemphigus can be treated with short- or long-term use of immunosuppressive medications.
- Disease resistance to treatment and side effects of medications account for most deaths caused by this disease.

What Is Pemphigus?

Pemphigus is an autoimmune disease in which the body attacks the connections between its own skin cells, causing blisters to form on the skin and mucus membranes. Autoimmune diseases result when the body’s immune system does not recognize itself. Cells that normally attack invading viruses and bacteria begin attacking the body’s own cells, causing damage. The term pemphigus comes from the Greek word for pustule (a blister on the skin that is filled with pus).

In pemphigus, sores form where the skin cells can no longer bind to one another. Several forms of pemphigus affect dogs and cats. The three most common ones are pemphigus erythematosus, pemphigus foliaceus, and pemphigus vulgaris. The first two forms lead to the destruction of the skin’s surface cell connections, resulting in disruption of the skin surface. Pemphigus vulgaris affects the underlying tissues and leads to deep ulcers in the skin.

What Are the Signs of Pemphigus?

The signs of pemphigus vary by form. They include:

**Pemphigus erythematous (mild lesions)**

- Scales, crusts, pustules, redness, and hair loss, generally found on the nose, ears, or face

**Pemphigus foliaceus (moderate lesions)**

- Localized: Scales, crusts, pustules, redness, and hair loss, located on the face, feet, and ears
- Generalized: Skin changes occur over most of the skin’s surfaces, and non-skin related signs may also be seen, such as pain, itching, fever, lameness

**Pemphigus vulgaris (severe lesions)**

- Deep erosions, blisters, and crusts may be located in the mouth, armpits, and groin
- Pain, fever, appetite loss

How Is Pemphigus Diagnosed?
There are several possible reasons for the development of pustules, crusts, or blisters on the skin. They may be caused by allergic reactions to insect bites, food or environmental allergies, ringworm, mites, skin infections, or a variety of other conditions. In order to narrow down the list of possibilities, your veterinarian will ask for a thorough history, including questions about your pet’s previous medical history, diet, medications, supplements, travel, exposure to the outdoors, and the use of flea and tick control products. After a full physical exam, your veterinarian may recommend preliminary tests such as blood work, bacterial culture and sensitivity testing, and skin scrapings.

If initial testing does not identify the cause of the lesions, a skin biopsy (tissue sample) may be recommended. Pemphigus is diagnosed based on the appearance of the skin cells and their attachments to each other. The different forms of pemphigus are determined by the slight variations in these attachments.

How Is Pemphigus Treated?

Because pemphigus is caused by an overactive immune system, treatment is aimed at suppressing the immune system. Steroids (given at high doses) are the most common medication prescribed. Topical treatment may be enough in mild cases, but for more severe cases oral medication is needed to get the disease under control. Ideally, the medication can be tapered over time and eventually stopped altogether. However, many pets must receive medication for the rest of their lives in order to keep the disease in remission.

If infection has occurred in the damaged skin, antibiotics will also be needed. Some severe cases of pemphigus don’t respond adequately to steroids alone and require stronger immunosuppressive drugs similar to those used to fight cancer.

Side effects of immunosuppressive drugs can limit their usefulness. They suppress the immune system as a whole, leaving the rest of the body susceptible to infection. They can also cause other problems such as altered bone marrow functioning. In addition, long-term steroid use can cause other complications. Your veterinarian will discuss his or her treatment plan with you and will recommend the appropriate medication for your pet’s condition.

What Is the Outcome for Pets With Pemphigus?

Pemphigus is a serious disease that, depending on the form, may result in death if left untreated. The most common cause of death is euthanasia, performed when medications are unsuccessful or their side effects are too severe. It is therefore very important to get a correct diagnosis and monitor treatment closely for recurrence and side effects.
Perianal Fistulae in Dogs

- Perianal fistulae are abnormal openings in the skin around the anus that are painful and do not heal on their own.
- This condition occurs most commonly in German shepherds.
- Signs include ulcerated, draining tracts around the anus, difficulty passing feces, reluctance to sit, rectal odor, and loss of appetite.
- Although the exact cause is unknown, it is suspected to be an immune system disorder.
- Tail shape or conformation may contribute to the problem.
- Diagnosis is usually made by examination, but a biopsy (tissue sample) provides a definitive diagnosis.
- Treatment may require oral and topical immune suppressants, antibiotics, and a hypoallergenic diet.
- In severe cases, surgery may be necessary.
- It may take several months to resolve the lesions, and many dogs require some type of therapy for the rest of their lives.

What Are Perianal Fistulae?

Perianal fistulae are draining openings in the skin around the anus that do not heal. The word *fistulae* is the plural of *fistula*, which is an abnormal tract or passageway from an abscess, organ, or body cavity to the body surface. The term *perianal* describes the area around the anus.

This chronic, inflammatory, and painful condition occurs most often in German shepherds, but Irish setters and other breeds can also develop it. Middle-aged to older dogs are more likely to be affected.

What Are the Signs of Perianal Fistulae?

Signs of perianal fistulae include:

- Ulcerated, draining tracts around the anal area
- Rectal odor
- Difficulty passing feces, constipation
- Straining to pass feces
- Painful when sitting, or reluctance to sit
- Bloody stools, diarrhea, or fecal incontinence
- Appetite loss and weight loss
- Excessive licking or grooming around the anal area

What Causes This Condition?

The exact cause of this condition is unknown, although it is suspected to be an immune system disorder.
A dog’s physical conformation may also contribute to the disease. For example, when dogs hold their tails low against the back of their bodies, like German shepherds often do, it may prevent the anal area from getting proper ventilation and may encourage the buildup of feces in the area.

**How Is This Condition Diagnosed?**

A veterinarian will usually make the diagnosis based on examining the area. However, a biopsy (tissue sample) is required for a definitive diagnosis.

**How Are Perianal Fistulae Treated?**

Treatment may include oral and topical medications to suppress the immune system, as well as antibiotics. Stool softeners may also be prescribed to reduce pain during defecation.

If a food allergy is suspected, a hypoallergenic diet may be recommended. When the dog is on this diet, it is important that he or she receives no other foods or treats, including rawhide bones.

Since it may take several months before the lesions are under control, periodic recheck appointments with your veterinarian are usually recommended. Many dogs require some kind of treatment for the rest of their lives.

If the lesions do not resolve, or if they recur, surgery may be necessary to remove the diseased tissue. At the same time, the anal sacs, located near the anus, may also be removed. In some cases, tail amputation can help improve ventilation and cleanliness and help control the problem.
**Periodontal Disease in Dogs**

- More than 85% of dogs over 4 years of age have periodontal disease.
- Periodontal disease is a progressive inflammation of the supporting structures around the teeth.
- Signs of periodontal disease include bad breath, redness or bleeding along the gum line, difficulty chewing, drooling, and loose or missing teeth.
- Periodontal disease is diagnosed by examining the teeth and supporting structures while the pet is under anesthesia.
- Gingivitis (inflammation of the gums) can be reversed with a thorough dental cleaning and polishing.
- Loss of tooth attachment, or bone loss, cannot be reversed.
- Treatment of periodontal disease may include antibiotics and other dental procedures, including tooth extraction.
- Regular, at-home dental care, with periodic veterinary dental cleanings, is the best way to prevent periodontal disease and keep your dog’s mouth healthy.

**What Is Periodontal Disease?**

More than 85% of dogs over 4 years of age have evidence of periodontal disease. Periodontal disease is a progressive inflammation of the supporting structures surrounding the teeth and is the main cause of early tooth loss.

Toy breeds are at higher risk for periodontal disease because of tooth crowding in the mouth.

**What Causes Periodontal Disease?**

Periodontal disease starts when bacteria form plaque on the teeth. Within days, minerals in the saliva bond with plaque to form tartar, a hard substance that adheres to the teeth. The bacteria work their way under the gums and cause gingivitis, which is an inflammation of the gums. Once under the gums, bacteria destroy the supporting tissue around the tooth, leading to tooth loss. Inflammation of the bone and tooth support structures is referred to as periodontitis. The combination of gingivitis and periodontitis is known as periodontal disease. Bacteria associated with dental disease can travel in the bloodstream to infect the heart, kidneys, and liver.

**What Are the Signs of Periodontal Disease?**

The signs of periodontal disease include:

- Bad breath
- Redness or bleeding along the gum line
- Drooling, which may be tinged with blood
- Difficulty chewing
- Pawing at the mouth
- Loose or missing teeth
- Facial swelling, especially under the eyes
• Nasal discharge
• Gum recession

How Is Periodontal Disease Diagnosed?

Your veterinarian can see signs of gingivitis and tartar buildup by examining your dog’s mouth. However, since most periodontal disease occurs beneath the gum line, the only way to truly assess your dog’s mouth is to perform an examination while your pet is under anesthesia. Your veterinarian can use a dental probe to measure any loss of attachment around each tooth and take dental radiographs (x-rays) to assess for bone loss, abscesses, and other problems.

How Is Periodontal Disease Treated?

Treatment depends on the severity of the disease. If your dog has mild periodontal disease, consisting of gingivitis without any bone loss, a thorough dental cleaning that includes the area beneath the gums, followed by dental polishing, can help reverse the problem. Your veterinarian may also recommend a dental sealant that helps prevent tartar from accumulating on teeth.

If there has been a loss of the supporting structures around the teeth, however, this cannot be reversed. Your veterinarian may need to apply antibiotics beneath the gums and perform dental procedures, which may include tooth extraction.

How Can I Prevent My Dog from Getting Periodontal Disease?

An important way to prevent dental disease is regular home dental care. Daily brushing can help remove plaque before it turns into tartar. You can use a child’s toothbrush or purchase a finger brush from your veterinarian. Human toothpastes should be avoided because they contain substances that pets shouldn’t swallow in large quantities. Pet toothpaste is available in flavors such as chicken and malt. If your dog won’t permit brushing, there are mouth rinse solutions (mouthwash for pets) that target plaque bacteria and help promote healthier teeth and gums.

There are several dental diets and treats that can also help keep plaque and tartar to a minimum. These diets tend to have larger kibbles to provide abrasive action against the tooth surface when chewed, or they may include ingredients to inhibit tartar formation. Ask your veterinarian which dental diets or treats are best for your pet.

After a dental cleaning, your veterinarian may also recommend a plaque prevention gel that adheres to the teeth surfaces to inhibit tartar.

Ask your veterinarian what dental hygiene methods are recommended for your dog, and don’t forget to keep scheduled appointments for follow-up dental checkups.
Pet Cardiopulmonary Resuscitation (CPR)

- If your pet has a cardiac arrest, you can help save his or her life by performing cardiopulmonary resuscitation (CPR).
- By distributing much-needed oxygen and blood throughout a pet’s body, CPR can help do the work that the lungs and heart have stopped doing.
- If you think that your pet’s breathing or heartbeat has stopped, if possible, have someone call your veterinarian while you perform CPR.

Cardiac arrest means that the heart is not beating and breathing has stopped, resulting in a lack of oxygen and blood throughout the body. If your pet has a cardiac arrest, you may be able to help save his or her life by performing cardiopulmonary resuscitation (CPR), which is sometimes called cardiopulmonary–cerebral resuscitation (CPCR), until help arrives or you can get your pet to your veterinarian. By distributing much-needed oxygen and blood throughout a pet’s body, CPR can help do the work that the lungs and heart have stopped doing.

If you think that your pet’s breathing or heartbeat has stopped, it is important to stay calm. If someone is with you, have him or her call your veterinarian while you do the following:

Step 1: Check for Responsiveness

First, check your pet’s breathing by placing your hand in front of his or her nose and mouth, but do not cover them and block the airway. Check for a heartbeat by placing your ear against the area where your pet’s left elbow touches the chest.

Step 2: Clear the Airway

If you don’t see or feel your pet breathing, immediately ensure that the airway is clear. Pull the tongue forward out of the mouth, but be careful: even an unresponsive animal can bite. Look into the throat for a foreign object or obstruction. If you find one, remove it carefully. Move your pet’s chin away from the chest until the neck is straight, but don’t move the neck if you suspect it is injured.

Step 3: Artificial Respiration

Place your pet on his or her right side, straighten the head and neck, close the mouth, and breathe directly into the nose, but not the mouth, until the chest expands. If the chest doesn’t expand, check again for a foreign object in the throat and straighten the airway. When you get the chest to expand, perform artificial respiration by holding the jaws closed and blowing into the nostrils once every 3 seconds. Ensure that no air escapes between your mouth and your pet’s nose.

For cats and small dogs, be sure to take very small breaths so the chest moves only a little bit. You can injure small lungs by forcing too much air (under pressure) into them.
**Step 4: Chest Compressions**

Do not begin chest compressions until you’ve cleared the airway, started artificial respiration, and then confirmed that there is no heartbeat. Your pet’s heart is located in the lower half of the chest on the left side, behind the elbow of the front left leg. Place one hand under your pet, below the heart, to support the chest; place the palm of the other hand over the heart. Press down gently on your pet’s heart. Press down about 1 inch for medium-sized dogs; press harder for larger dogs and with less force for smaller dogs. For cats and tiny pets, compress the chest with the thumb and forefingers of one hand. Perform three quick, firm chest compressions between every breath while continuing artificial respiration until you can hear a heartbeat and feel regular breathing. Then call your veterinarian immediately if someone else hasn’t.

**Determining Your Pet’s Heart Rate or Pulse**

Your pet’s heartbeat can be felt around the area where the left elbow touches the chest (between the third and fourth ribs). Place your hand or a stethoscope over this area and count the heartbeats. You can determine your pet’s heart rate per minute by counting the number of beats in 6 seconds and then multiplying the number by 10.

Your pet’s pulse can be felt by lightly touching (1) the inner thigh about half way from the hip to the knee, (2) the artery just above an outer ankle on a rear limb, or (3) the artery just below an inner wrist and above a large footpad on a front limb.

**Normal Heart or Pulse Rates**

- Puppies (up to 1 year of age): 60–220 beats per minute
- Small-breed dogs (less than 30 lb): 100–220 beats per minute
- Medium- and large-breed dogs (30 lb or more): 60–180 beats per minute
- Cats: 140–220 beats per minute

**Normal Breathing Rates**

- Dogs: 10–30 breaths per minute, and up to 200 pants per minute
- Cats: 24–42 breaths per minute; in cats, panting can be a sign of serious illness and requires immediate veterinary attention
Pet Health Insurance: What's Right for Your Pet?

- Pet insurance can help you budget for unforeseen medical expenses for your pet.
- It’s important to take a hard look at your budget and decide what you need in an insurance policy.
- “Bare bones” plans typically offer coverage for illnesses and emergencies; “comprehensive” policies tend to include reimbursement for routine care as well.
- Make sure you know what any insurance policy excludes before you purchase one.

The Assurance of Pet Insurance

Pet insurance can help you budget for unforeseen medical expenses for your pet. Generally, the premium cost for a good policy is low compared with the relative peace of mind and financial help it can offer. Sorting through the various plan choices and options, however, can be daunting. Here are some tips to help you make sense of the process.

It’s All About You

There is no cookie-cutter insurance policy that works for every pet owner. It’s important to take a hard look at your budget and decide what you need in an insurance policy. For example, do you want help with paying for routine care, such as well visits and vaccinations, or are you more worried about being able to afford emergency care for accidents or sudden illnesses? Perhaps you want help with both. Different insurance companies have different benefits packages, and it is helpful to research them until you find the one that best matches what you want. “Bare bones” plans typically offer coverage for illnesses and emergencies, like being hit by a car or ingesting a poisonous substance; “comprehensive” policies tend to include reimbursement for routine care as well. In some cases, insurance reimbursement for routine care expenses over the course of a year can significantly defray the cost of the annual premium.

Read the Fine Print

Make sure you know what any insurance policy excludes before you purchase one. Find out what the prospective insurer’s position is regarding preexisting or congenital (present since birth) conditions, and determine if there are any age limits for coverage. Some insurance companies won’t cover pets over a certain age, which can leave your pet without coverage at a time when he or she may need it most. Other policies may charge more if you own a specific breed or live in certain areas of the country. Be sure the policy does not limit you in your choice of veterinarian and that it offers you coverage for any needed specialty care, such as a visit to a veterinary dermatologist or ophthalmologist.

Avoid Sticker Shock

To avoid surprises, find out how your prospective insurer sets premiums. Do they change from year to year or do they stay the same? For example, some companies offer low initial premium payments when a pet is young but increase them exponentially as the pet ages. Others increase your premiums as you submit claims. Some policies also set high deductible limits, which is
something to consider if you don’t want to spend hundreds of dollars out of pocket before your coverage begins.

Assess True Value

The only way to assess the real value of your policy is to determine exactly what you’ll get in return for your premium payments. A prospective insurer should be “transparent” about what they will pay for and how much they will cover. Find out if the company determines reimbursement based on a straight percentage of your bill, if it uses a customary fee schedule, or a combination of both. If the insurer uses a fee schedule, consider showing it to your veterinarian to make sure that what the insurance company considers to be a reasonable fee is in alignment with what your veterinarian actually charges. Otherwise, you could wind up paying a lot more out of pocket than you realize.

What’s the Limit?

All insurers place a lifetime maximum on how much they will pay out for health care costs over the course of a pet’s lifetime. So, even if the amount quoted seems generous, keep in mind that one or two major surgeries or illnesses over the course of a few years can really cut into that amount. Insurers also have different guidelines on how those limits are reached. For example, insurers may place limits on how much they will reimburse by claim, diagnosis, or total incident. Generally, the simpler the guideline, the easier it will be for you to keep track of it and estimate what reimbursement you can expect.

Examining Exclusions

If your pet has a preexisting condition or belongs to a breed well known for specific health problems, such as hip dysplasia, selecting insurance can be a little more complicated. However, even if your pet’s preexisting or congenital condition is excluded, pet insurance is still of value. It’s important, though, to question company representatives carefully on how the presence of a preexisting or congenital condition may affect reimbursement for other types of problems that may be considered related. Be sure to get responses in writing. Some insurers will insure a pet for a preexisting condition if enough time has elapsed since the initial incident or a cure can be documented. These waiting periods, however, can be quite extended. Also be aware that some policies “reset” at renewal time, meaning that a chronic illness that has developed during the course of the year will be considered a preexisting condition that will no longer be covered.

More Insurance Tips

- Find out how long the insurance company has been in business and how stable it is.
- The company’s claim submission process should be user friendly. Are the claim forms clear and easy to use? Can they be faxed in? Can you submit multiple claims on one form?
- Does the company offer multi-pet discounts?
- Does the policy cover your pet when traveling or in the care of a pet sitter or neighbor?
• Does the policy offer any value-added features, such as coverage of kennel fees if you become sick or treatment of behavior issues?
Pet Sitter Instructions

- To help ensure that your pet is properly cared for, give your pet sitter detailed written instructions, and discuss them with the sitter.
- Make sure the sitter knows the dates of coverage, the preferred times for visits, and the number of visits needed.
- Give the sitter clear instructions on every aspect of your pet’s care, including feeding, medicating, cleaning up, waste disposal, and activities and walks that your pet enjoys.
- Ask the sitter to look at your pet at each visit; seeing an empty food bowl is not enough to confirm that your pet is all right.

The Basics

The best way to develop a good relationship with your pet sitter is through open, honest communication. To help ensure that your pet is properly cared for, give your pet sitter detailed written instructions, and discuss them with the sitter. Ask the sitter whether he or she has any questions regarding the instructions. Give the sitter the written instructions before your trip and leave a copy in plain view in your house.

Make sure the sitter knows the dates of coverage, the preferred times for visits, and the number of visits needed. You may want to ask the sitter to call or e-mail you after the first visit to confirm that you are on his or her schedule.

Give the sitter clear instructions on every aspect of your pet’s care, including feeding, medicating, cleaning up, waste disposal, and activities and walks that your pet enjoys.

Ask the sitter to look at your pet at each visit; seeing an empty food bowl is not enough to confirm that your pet is all right.

Inform the sitter of your pet’s illnesses or idiosyncracies. For example, if your pet hides from strangers, where are his or her favorite hiding spots? Does your pet try to escape from the house? Does your pet bite?

Contact Information

Except for emergencies, always contact your sitter during his or her listed hours. Be especially considerate of sitters who operate their businesses from their homes. Make sure to check time zone differences before you call.

Give the sitter your contact information: cell phone number, land-line number(s) of where you will be, and e-mail address. Make sure that you have the sitter’s contact information.

Give the sitter your house key and the name and phone number of someone who has a spare key.

Provide the names and phone numbers of your veterinarian and an emergency contact. It is also very helpful if you call your veterinary practice before you leave. Give them your contact
information and tell them what type of emergency care to provide your pet if it is needed and they are not able to reach you. Make sure the sitter knows where your pet’s carrier and/or leash is in case of an emergency.

If another sitter will be checking on your pet or home, give the sitters each other’s name and phone number and clarify their responsibilities and schedules.

List the names and phone numbers of contractors (for example, electrician, plumber, maid service, yard or pool maintenance service) in case a problem arises.

**Around the House**

Show the sitter where you keep your pet’s food, medicine, treats, bowls, bags for waste, toys, carrier, leash, and litterbox. Let the sitter know where to find cleaning items (for example, vacuum, mop, broom, dustpan, sponges, cleaners, trash bags).

If you need the sitter to handle household details other than your pet’s care (for example, bring in the mail/newspaper, water plants, take the trash/recycling to the curb), leave instructions.

If there are areas in your home that are off limits to the sitter and/or your pet, let the sitter know.

Show the sitter where the fuse box and circuit breakers are and where to find new fuses.

**If Your Return Is Delayed**

If no one else in your area has your house key, have the sitter keep it until you've returned. This way, you’ll know that the sitter or someone else will be able to care for your pet even if you’re delayed.

If your return is delayed, call the sitter and ask if he or she can care for your pet for the additional time. If the sitter can’t cover the extra time, he or she might have a backup sitter. When you return, let the sitter know that you’re home.

**Pet-Sitter Organizations**

**National Association of Professional Pet Sitters**

Web site: www.petsitters.org

Email: napps@ahint.com

Phone: 856-439-0324

15000 Commerce Parkway, Suite C
Mt. Laurel, NJ 08054
**Pet Sitters International**

Web site: [www.petsit.com](http://www.petsit.com)

Phone: 336-983-9222

**Sittercity**

Web site: [www.sittercity.com](http://www.sittercity.com)

Phone: 888-748-2489
Pet Toy Safety

- To keep your pet safe, it’s important to know about pet toy hazards and how to avoid them.
- If you are worried about the safety of your pet’s toys, talk to your veterinarian.
- Contact your veterinarian if you see your pet swallow a piece of a toy or if your pet vomits, has diarrhea, or has abdominal pain after playing with a toy.

The Basics

Pet toys, whether homemade or purchased, can pose hazards to your pet, so it’s important to know what the hazards are and how to avoid them. When possible, supervise your pet while he or she plays with a toy. In addition, help keep your pet safe by following these toy safety tips:

- Read and follow all safety information that comes with a toy.
- Avoid toys with small parts that could detach and become a choking hazard.
- Avoid toys with sharp edges and points.
- Never give your pet balloons.
- Never give your pet balls small enough to swallow.
- Never point a laser pointer at your pet’s eyes. Laser pointers can damage a pet’s (or person’s) eyes.
- Purchase well-constructed plush toys with tightly secured parts.
- Toys with strings, ribbons, straps, or cords could wrap around your pet's neck. Always monitor your pet when he or she plays with these types of toys.
- Discard all packaging for toys as soon as they have been opened.
- Regularly inspect your pet’s toys to ensure that they are not damaged. Repair or discard damaged toys before your pet plays with them again.
- Do not use your hands or fingers as pet toys. Teaching your pet that hands and fingers are toys could lead to unwanted biting or scratching of any person’s hands or fingers.
- Use Frisbees specially made for dogs. Frisbees for humans are too hard and could chip a dog’s teeth.
- Do not let your pet play with Christmas tree icicles, ribbon, rubber bands, paper clips, or plastic bags.
- Give your pet chew toys that are indestructible or are designed to be safely digestible.
- Do not give your pet chicken bones, which can splinter when chewed, possibly resulting in damage to the gastrointestinal tract.
- Do not let your pet play with children’s toys because they may not be safe for pets. In addition, pet toys may not be safe for children.

When to Contact Your Veterinarian

Feel free to ask your veterinarian for advice in choosing safe toys for your pet. Contact your veterinarian if you see your pet swallow a piece of a toy or if your pet vomits, has diarrhea, or has abdominal pain after playing with a toy.

Testing for Toxins
The American Pet Products Association (APPA) checks with its suppliers to ensure that products are tested for lead and other toxins. In addition, some pet supply companies randomly test their products for lead and other toxins. However, there are no national standards for allowable levels of lead and other toxins in pet toys. Most pet supply companies use the same standards used by the children's toy industry. If you are worried about lead or toxin levels in your pet’s toys, talk to your veterinarian.
Phenobarbital Level Test

- Phenobarbital is a medication that is used to control and prevent seizures.
- Pets requiring a phenobarbital level test need to have a blood sample drawn at the hospital.
- The test measures the level of phenobarbital in the blood to determine if the dose is within the correct range to prevent seizures without causing harmful side effects.
- Long-term phenobarbital use can result in liver damage.
- In pets with phenobarbital toxicosis, the medication should be discontinued.

What Is a Phenobarbital Level Test?

Animals that have seizures are often given phenobarbital to help control and prevent seizure activity. Many animals, especially those with epilepsy, require lifelong therapy with phenobarbital. Because animals can absorb and metabolize this medication differently, it's important to monitor blood levels on a regular basis.

To check the phenobarbital level, your veterinarian will draw a blood sample from your pet. This can be done on an outpatient basis. The blood sample is usually sent to an outside laboratory for analysis, and the results are typically available within a few days.

When Do Pets Need This Test?

Once phenobarbital therapy is initiated, it usually takes a few weeks for the medication to build up to a therapeutic level in the blood. Most veterinarians recommend that a phenobarbital level test be performed 2 to 4 weeks after the pet begins receiving the medication. Additional phenobarbital level tests may be required:

- Every 6 months if seizures are controlled
- More often, if breakthrough seizures occur
- Two to 4 weeks after any dose change
- If signs of phenobarbital toxicosis occur

What Are the Signs of Phenobarbital Toxicosis?

When pets first begin receiving phenobarbital, they may experience side effects such as drowsiness, anxiety, increased drinking and urination, increased appetite, and lack of coordination. These signs usually subside within 2 to 4 weeks. If these signs do not resolve or if the signs are severe, a phenobarbital level test should be performed.

While phenobarbital can be extremely helpful in controlling seizures, this medication can be harmful to the liver. If your pet has been prescribed phenobarbital, your veterinarian will recommend regular blood tests to monitor liver function.
However, pet owners should be on alert for signs of liver toxicosis, such as vomiting, diarrhea, loss of appetite, and a yellow tint to the skin, eyes, or gums. If you notice any of these signs in your pet, contact your veterinarian immediately.

**How Is Phenobarbital Toxicosis Treated?**

If a pet experiences signs of toxicosis, phenobarbital should be discontinued and replaced with another anti-seizure medication. Depending on the severity of the signs, the pet may need to be hospitalized for fluid therapy and other supportive treatments.
Physical Therapy and Rehabilitation

- Physical therapy and rehabilitation involve the use of therapeutic exercises to help patients recover from acute and chronic health conditions resulting from illness, trauma, or surgery.
- Physical therapy can reduce pain and improve joint range of motion.
- Physical therapy can include hydrotherapy, massage therapy, cold/heat therapy, therapeutic ultrasound, and electrical stimulation therapy.
- Be sure to follow the prescribed treatments recommended by your veterinarian.

What Is Physical Therapy and Rehabilitation?

Physical rehabilitation for pets is the use of therapeutic exercises and range-of-motion therapy combined with additional treatments (see the list below for examples) to improve the recovery of patients with acute or chronic health conditions. Physical therapy may be recommended for patients recovering from fractures, orthopedic surgery (including cranial cruciate ligament repair, total hip replacement, or spinal surgery), and neurologic events (such as spinal injury).

Why Might My Pet Need Physical Therapy?

Physical rehabilitation can help restore, maintain, and promote proper functioning and mobility for your pet. It can also enhance recovery after surgery, reduce pain, increase circulation, and improve coordination and range of motion. It can help keep geriatric patients more comfortable and provide a last-chance option for patients who have not had success with other treatments.

The benefits of physical therapy may include:

- Decreased pain
- Improved strength
- Improved functioning of weak limbs
- Healing of injured or inflamed tissues
- Restoration of joint range of motion
- Prevention of muscle atrophy (wasting)

Pets of all ages, sizes, and breeds can benefit from physical rehabilitation. Physical rehabilitation can help improve the quality of life for many animals suffering from chronic pain, osteoarthritis, obesity, or muscle weakness.

What Are Some Common Types of Physical Therapy?

Many types of physical therapy are used in pets. These are some of the more common ones:

- **Hydrotherapy**: Hydrotherapy is the use of water to aid in the healing and/or conditioning of a patient. Pets either swim in a pool or tank for prescribed periods of time or walk on an underwater treadmill. The water level above the treadmill is high enough to provide buoyancy but low enough so that the pet’s head and shoulders are above water.
Swimming or walking underwater provides pets with the benefits of exercise—building muscle strength and improving coordination, cardiovascular health, and endurance—without the same degree of stress or pressure on joints that would be encountered while walking on the ground. Swimming and underwater treadmills allow pets to make use of the natural resistance of water and the benefit of buoyancy to experience gentle, low-impact exercise. The therapist can control water depth, treadmill speed, and ramp incline to increase or reduce the level of exercise. Hydrotherapy can help pets make the transition to land-based therapy more quickly.

- **Cold and heat therapy:** Application of cold and heat can help damaged areas heal more rapidly, reduce swelling, and provide local pain relief.

- **Therapeutic ultrasound:** Therapeutic ultrasound produces heat deep within tissues. This therapy is useful in treating joint and soft tissue injuries and chronic conditions.

- **Electrical stimulation therapy:** Small electrical currents can be used to help prevent muscle wasting in very weak patients by encouraging the muscles to contract. This therapy can also be used to help manage pain and to increase circulation and promote healing.

- **Massage therapy and supervised exercise:** Physical therapists may also use massage therapy, passive range-of-motion exercises, stretching, and physical therapy tools, such as balls, ramps, boards, poles, and wedges, to help rehabilitate your pet.

- **Home care:** Passive range-of-motion exercises, simple massage therapy, and activity goals can all be accomplished at home to support the success of therapy. Your physical therapist can develop a home treatment plan for you and your pet.

Be sure to follow your veterinarian’s recommendations regarding who should perform what types of therapy for your pet.
Pica and Coprophagy

- Pica is the eating of nonfood substances such as rocks and clothing.
- Coprophagy is the consumption of feces, and it is more common in dogs than in cats.
- When eaten, some objects may block the digestive tract and require surgical removal or retrieval with an endoscope.
- The cause of these behaviors is unknown, but, rarely, underlying diseases may lead to them.
- Diagnosis of underlying diseases may require blood work and fecal tests.
- Owners can prevent pets from eating objects by eliminating access to the objects, making the objects unpleasant to taste, enriching the pet’s environment to prevent boredom, or, for dogs, using muzzles or leash walks.
- In some cases, owners may choose to work with a veterinary behaviorist to eliminate the behavior.

What Are Pica and Coprophagy?

Pets with pica or coprophagy eat substances that are not considered food. Pica involves the eating of objects. Dogs may be more likely to eat objects such as rocks and toys, while cats may eat clothing, strings, and kitty litter. Oriental breeds of cats are more likely to eat fabrics and wool.

Coprophagy is the consumption of feces. It is a natural behavior for nursing mothers to eat the feces of their puppies or kittens. Coprophagy is more common in dogs than in cats, and female dogs are more likely to display this behavior than males.

While coprophagy is generally more distasteful than it is harmful to the pet, eating of nonfood objects may result in vomiting, diarrhea, or a blockage in the digestive tract, which may require an emergency surgery or use of an endoscope to retrieve the object while the pet is under anesthesia.

What Causes These Behaviors?

The exact cause of pica and coprophagy is unknown. Some pets chew on objects out of stress or boredom. Dogs may eat feces because they are not being fed enough or if they go too long between meals, but it is usually not because they are lacking a nutrient in the diet. Dogs that have been punished for defecating in the house may eat their feces to avoid further punishment.

Rarely, an underlying condition such as anemia, intestinal parasites, gastrointestinal disorders, or liver disease may lead to an animal eating strange objects. Administration of some drugs, such as steroids, can increase hunger and lead to pica as well.

What Are the Signs of Pica and Coprophagy?

Usually, owners either see the pet eating the objects or find remnants of the objects around the house. Cats are especially likely to eat linear objects, such as strings, dental floss, rubber bands,
and yarn, which can cause serious problems in the digestive tract. Signs that a pet may have ingested an object that is causing a blockage in the digestive tract include:

- Vomiting
- Diarrhea or constipation
- Loss of appetite
- Drooling
- Lethargy (tiredness)

If you suspect that your pet may have this problem, see your veterinarian immediately.

**How Are These Conditions Diagnosed?**

While most cases of pica and coprophagy are simply a behavior problem, it’s important for veterinarians to determine if there is a medical cause. Your veterinarian will perform a complete physical exam and ask about your pet’s diet, appetite, and environment. Additional tests may include blood work, fecal tests, and, possibly, an intestinal biopsy. Usually, treating the underlying disease will help eliminate the behavior.

If your veterinarian suspects a blockage in the digestive tract, he or she will probably recommend radiographs (x-rays) and other tests to evaluate the intestinal tract.

**How Can I Prevent My Pet From Eating Objects?**

If there isn’t an underlying medical problem leading to the behavior, the best thing to do is to eliminate access to objects the pet likes to eat. Make sure to store clothing, plastics, wool, and linear objects where your pet cannot find them. If your dog eats objects in the yard, consider a basket muzzle. However, never leave a dog with a muzzle unattended.

You can also try covering the objects with an unpleasant-tasting substance, such as cayenne pepper or bitter apple products, which are available at most pet stores.

If you find your pet chewing on something inappropriate, say “no” firmly, and give him or her a more appropriate chew toy. Avoid punishment, which can cause stress and further exacerbate the problem.

If you suspect that your pet is eating objects out of boredom, increase the amount of attention and exercise your pet receives every day, and enrich his or her environment with appropriate toys that can’t be swallowed.

For dogs with coprophagy, remove and dispose of feces from the yard immediately. Better yet, increase the number of daily leash walks and reward your dog with a treat after he or she defecates to distract him or her from the feces. Then pick up and dispose of feces appropriately.

Some owners may try sprinkling feces with cayenne pepper or bitter apple so the dog experiences an unpleasant taste, but it’s generally a better idea to just remove the feces.
Your veterinarian can supply you with a product that can be sprinkled on the dog’s food to give the feces an unpleasant taste, but once the product is no longer added to the food, the dog may go back to eating feces.

In some cases, a change of diet may help eliminate the problem. Consult your veterinarian before changing diets.

Because eating foreign objects may cause serious gastrointestinal problems, you may want to work with a veterinary behaviorist to eliminate the behavior.
Pneumonia in Dogs

- When the lungs are infected or inflamed, fluid and other material can accumulate, resulting in pneumonia.
- A variety of bacterial, viral, and fungal organisms can cause pneumonia in dogs.
- Pneumonia is treatable in most cases. However, if the dog is very young, very old, or already sick with another condition, the outcome may not be as favorable as if the patient was healthy before pneumonia developed.

What Is Pneumonia?

Most lung tissue is made up of tiny clusters of air “balloons” (called alveoli). Each balloon is lined by a thin layer of cells and surrounded by a network of very small blood vessels. When you breathe in, air fills the balloons. The cells in the lining and the small blood vessels exchange oxygen from the air for carbon dioxide, which you then breathe out. The main pathway from the lungs to the outside of the body consists of the trachea (the large airway that begins at the back of the throat and continues down into the lungs) and the nostrils.

When foreign organisms, such as certain bacteria, viruses, and fungal organisms, invade the nostrils or trachea, they sometimes cause infection and inflammation there. If this infection and inflammation continues down the respiratory tract to involve the alveoli, material such as fluid, pus, and cellular debris can accumulate in the lungs. When this occurs, the patient has developed pneumonia.

A variety of bacterial, viral, and fungal organisms can cause pneumonia in dogs. Examples include canine distemper virus, canine influenza virus, Bordetella bronchiseptica (the bacteria associated with kennel cough), and the fungus Cryptococcus. Sometimes, a virus or fungus can cause such damage to the respiratory tract that a secondary bacterial infection can take hold, so the pneumonia can be caused by more than one organism. The condition can also occur if fluid is present in the lungs, such as after a near-drowning incident or as a result of heart failure. Pneumonia can also occur if a pet inhales vomit or any type of caustic or irritating substance.

What Are the Clinical Signs of Pneumonia?

Pneumonia can be confined to a small area of the lungs, or it can spread throughout them. Depending on the severity of the pneumonia, clinical signs can be relatively mild or severe and can include the following:

- Coughing
- Difficulty breathing, or rapid breathing
- Discharge from the nostrils
- Lethargy (tiredness)
- Reduced appetite
- Fever
Because a variety of organisms can cause pneumonia, additional clinical signs may be associated with the causative agent. For example, canine distemper virus can cause pneumonia, but additional clinical signs might include vomiting and diarrhea.

**How Is Pneumonia Diagnosed?**

Obtaining a medical history and performing a physical examination are the first steps in diagnosing pneumonia. When your veterinarian examines your dog, he or she will listen to your pet’s chest with a stethoscope to determine whether the air sounds in the lungs and airways sound normal. Your veterinarian will also use the stethoscope to check your pet’s heart for murmurs or changes in rhythm and heart rate.

Many veterinarians use results of chest radiographs (x-rays) to help confirm a diagnosis of pneumonia. Once pneumonia is diagnosed, your veterinarian may recommend additional testing to help identify the organism responsible and look into possible underlying causes for the illness.

**What Are the Treatment and Outcome of Pneumonia?**

Treatment for pneumonia can involve several goals:

*Stabilize the patient:* If the patient is having significant trouble breathing or is otherwise unstable, oxygen therapy and other treatments may be necessary to stabilize the pet.

*Treat the pneumonia:* Antibiotics are often prescribed to begin treating bacterial infections while additional test results are pending. If a pet is seriously ill from pneumonia, hospitalization may be recommended so that the patient can be supported and monitored as treatment is progressing.

*Address underlying illnesses:* If specific bacteria, viral, or fungal organisms are identified, additional medications may be prescribed to address the infection. Your veterinarian may also recommend repeating chest x-rays periodically to monitor how well the pneumonia is resolving.

Pneumonia is treatable in most cases. However, the outcome for a dog with pneumonia can depend heavily on the cause of the pneumonia and the overall health status of the pet. If the dog is very young, very old, or already sick with another condition, the prognosis may not be as favorable as if the patient was healthy before pneumonia developed.

Additionally, if the underlying cause of the pneumonia was canine distemper virus or another potentially fatal illness, the patient may recover from pneumonia but die from other complications of the underlying disease.
Polyuria and Polydipsia

- Polyuria (PU) and polydipsia (PD) refer to excessive urination and excessive drinking, respectively.
- Polyuria and polydipsia can be associated with a variety of medical conditions.
- Polyuria and polydipsia are signs of illness, so the treatment depends on the underlying cause. Fortunately, most conditions that cause polyuria and polydipsia are manageable or curable.

What Are Polyuria and Polydipsia?

*Polyuria* (PU) and *polydipsia* (PD) are the medical terms used to describe excessive urination and excessive drinking, respectively. Because these two abnormalities tend to occur together, the abbreviation PU/PD is commonly used.

What Causes Polyuria and Polydipsia?

With rare exceptions, any time an animal drinks increased amounts of water, urination increases. This is part of the body’s natural way of maintaining fluid balance. Similarly, if the body is unable to retain appropriate amounts of water for some reason, the pet receives signals from his or her body to drink more water to combat dehydration.

The processes that control fluid regulation are complex and involve the kidneys, brain, and other organs, as well as hormones and other chemicals in the body. Polyuria and polydipsia can be associated with a variety of medical conditions that may involve alterations in any of these regulatory processes. Conditions associated with PU/PD include the following:

- Diabetes
- Kidney disease
- Thyroid disease (in cats)
- Adrenal gland disease
- Pyometra (uterine infection)

Certain medications, such as steroids, can also cause increased drinking and urination as a side effect.

What Are the Clinical Signs of Polyuria and Polydipsia?

Polyuria and polydipsia are not always easy to detect, particularly if there are multiple pets in the home. PU/PD can also be mistaken for other medical issues, like urinary incontinence or a bladder infection. If your pet seems to be spending more time at the water bowl, or asking to go outside more often than usual, PU/PD may be occurring. Other signs of a problem may include the following:

- Urinary accidents in the house
- Urinating outside the litterbox (cats)
• Drinking from toilets, sinks, or other water sources besides the water bowl

Additional clinical signs may result from the underlying condition that is causing the PU/PD. For example, pets with kidney disease may vomit, lose weight, or stop eating in addition to exhibiting PU/PD. Unless directed by your veterinarian, you should never limit your pet’s access to water.

**How Are Polyuria and Polydipsia Diagnosed?**

A medical history and physical examination findings can provide valuable information for your veterinarian. The medical history may include trying to determine how long the problem has been going on and whether any other signs of illness have been observed. Physical examination findings may reveal evidence of underlying illness. For example, a female dog with a uterine infection may have a vaginal discharge, and a cat with thyroid disease may have an increased heart rate and weight loss.

Your veterinarian may recommend a urinalysis, serum chemistry profile, complete blood count, or other initial diagnostic tests to begin looking into the cause of your pet’s PU/PD. Additional testing for specific diseases, such as adrenal gland disease, may be recommended based on the results of preliminary tests.

**How Are Polyuria and Polydipsia Treated?**

Polyuria and polydipsia are not diseases—they are signs of illness. Therefore, the treatment for PU/PD depends on the underlying cause. Fortunately, most conditions that cause PU/PD are manageable or curable. If you suspect your pet may be drinking or urinating excessively, schedule an appointment with your veterinarian so that diagnostic testing can begin.
Porphyromonas in Canine Dental Disease

- Periodontal disease is a serious, progressive dental condition in dogs and cats; it can result in tooth loss and other complications.
- Periodontal disease occurs when gingivitis (inflammation of the gums) and periodontitis (inflammation of and damage to tooth-support structures) develop.
- *Porphyromonas* is a family of bacteria that have been implicated in the development and progression of periodontal disease in dogs.

What Is Periodontal Disease?

When a dog’s teeth are not properly cleaned or cared for on a regular basis, plaque and tarter can build up on the tooth surface and underneath the gumline. This material can irritate the gums, causing inflammation known as gingivitis. If left untreated, gingivitis can lead to the development of periodontitis, which is the infection and inflammation of structures that support the teeth. Periodontal disease tends to include both gingivitis and periodontitis.

Periodontal disease damages the ligaments and other tissues that hold each tooth in its bony socket. It is a progressive and ongoing disease that, if not treated, can lead to pain, abscesses (pus-filled swellings), and tooth loss. Periodontal disease has also been linked to illness affecting the heart and kidneys.

Signs of Periodontal Disease

Clinical signs of periodontal disease include:

- Bad breath
- Red, swollen, or bleeding gums
- Gum recession (pulling away from the crown of the tooth)
- Pain while chewing
- Drooling
- Discolored teeth
- Broken teeth
- Tooth loss

Periodontal disease is a common problem in pets. According to the American Animal Hospital Association, periodontal disease affects 85% of dogs older than 3 years. Dental problems are painful, but you’ll want to catch dental problems before your pet has pain or discomfort. Being on the lookout for clinical signs of periodontal disease is helpful, but preventive care is the best way to keep your pet’s teeth healthy.

What Is *Porphyromonas*?

*Porphyromonas* is a family of bacteria that have been implicated in the development and progression of periodontitis in dogs. The bacteria subtypes are *Porphyromonas gulae*. 

Porphyromonas salivosa, and Porphyromonas denticani. These bacteria have been implicated in most cases of dogs with periodontal disease.

Prevention

The best way to prevent periodontal disease is to follow your veterinarian’s recommendation for regular dental examinations and cleanings. As pets age, or if your dog is particularly prone to dental problems (some breeds are), examinations and cleanings may be recommended more frequently.

A routine visual dental examination can be performed during a wellness visit. However, a full dental evaluation requires sedation or anesthesia. During a thorough examination, your pet’s mouth and teeth are carefully examined. Dental instruments are used to detect gaps or pockets around the teeth. Full mouth x-rays may be recommended, as many dental problems can lie hidden below the surface of the gums.

Your veterinarian may recommend a teeth cleaning, which includes using dental instruments to clean the teeth and the area below the gumline. Broken, damaged, or loose teeth can sometimes be restored, but in some cases, your veterinarian may recommend removal.

To be most effective, dental examinations and cleanings should be paired with a regular home toothbrushing program.
Potassium Bromide Level Test

- Potassium bromide is a medication used to control or prevent seizures.
- A potassium bromide level test is used to determine if the dose is appropriate to control seizures without causing harmful side effects.
- The test requires a simple blood sample at your veterinarian’s office.
- Signs of potassium bromide toxicosis include sedation, rear-limb weakness, and incoordination (lack of coordination of muscular action, such as limb movement).
- In animals with signs of potassium bromide toxicosis, the medication should be discontinued and then restarted at a lower dose or changed to another medication.

Potassium bromide is used alone or in combination with other anti-convulsant medications to help control and prevent seizures. Potassium bromide is administered primarily to dogs and less frequently to cats.

What Is a Potassium Bromide Level Test?

A potassium bromide level test is a simple blood test that measures the amount of potassium bromide in the blood. Your veterinarian may recommend this test to determine if the dose of potassium bromide is appropriate to control your pet’s seizures without producing harmful effects. The blood test can be performed at your veterinarian’s office on an outpatient basis.

When Should Pets Receive This Test?

After starting potassium bromide therapy, it usually takes 2 to 3 months for the medication to reach an optimal level in the blood. A potassium bromide level test may be recommended:

- 1 to 2 months after initiating treatment
- 4 months after initiating treatment
- Any time a dose is changed
- If concurrent medications are altered
- If the patient gains or loses weight
- If seizures aren’t controlled at the current dose
- If the patient experiences signs of toxicosis
- Every 6 months after seizures have been controlled

What Are the Signs of Potassium Bromide Toxicosis?

When animals begin potassium bromide therapy, especially while receiving phenobarbital, they may experience some sedation. These signs should resolve in a few weeks. Other potential side effects include increased drinking and urination, changes in appetite, vomiting, and constipation.

Older animals with additional diseases may be more prone to side effects. Signs of toxicosis include sedation, mental dullness, tremors, incoordination, and hindlimb weakness. If you notice any of these signs in your pet, contact your veterinarian immediately.
Signs of potassium bromide toxicosis may also appear if the pet is switched to a low-salt diet. At the same time, increases in dietary salt, from a dietary change or high-salt treats may reduce the potassium bromide level, increasing the risk of seizures. If your pet is receiving potassium bromide therapy, dietary changes should not be made without consulting your veterinarian.

**How Is Potassium Bromide Toxicosis Treated?**

When animals experience signs of potassium bromide toxicosis, the medication is usually discontinued for a few days. The veterinarian may recommend that the pet be hospitalized to receive intravenous fluids. The medication may then be restarted at a lower dose, or the animal may be given a different medication instead.
Pregnancy in Dogs

- In dogs, pregnancy lasts 56 to 70 days, or about 2 months.
- Diagnosis is usually made by manually feeling the puppies in the uterus or by radiography (x-rays) and/or ultrasound.
- While toy breeds tend to have smaller litters of one to four puppies, larger breeds may carry as many as eight to 12 puppies.

What Is Pregnancy?

Pregnancy is the time between conception and birth when puppies develop and grow inside the mother’s uterus. By day 40, the fetus has eyelids, claws, and hair, and the gender is apparent. While toy breeds tend to have smaller litters of one to four puppies, larger breeds may carry as many as eight to 12 puppies. After 56 and 70 days, or about 2 months, puppies are ready to be born.

What Are the Signs of Pregnancy?

During the first few weeks of pregnancy, dogs may show few or no signs of it. Occasionally, pregnant dogs lose their appetite or vomit, much like morning sickness in humans. Physical changes are most obvious in the last 3 weeks of pregnancy, when the abdomen and breasts (mammary glands) begin to enlarge. In the days before birth, there may be a milky discharge from the nipples.

You may notice behavioral changes in your dog during the last few weeks of pregnancy. A pregnant dog may shred bedding and papers to create a nest. She may also become irritable and seek privacy. At this time, it is best to limit her contact with small children.

What Is a False Pregnancy?

Hormones may cause some female dogs to show signs of pregnancy, even when no mating has occurred. These signs include changes in appetite, weight gain, nesting, mothering inanimate objects, and even milk production and labor. Usually, signs resolve within 3 weeks. Your veterinarian can examine your dog to determine if the pregnancy is false.

How Is Pregnancy Diagnosed?

While blood tests are available to check for pregnancy, the results may not be accurate during the first few weeks of pregnancy. Veterinarians often prefer to palpate the abdomen (apply light pressure with the hands) to feel the developing puppies as early as 3 to 4 weeks after mating. Ultrasound may be used at the same time to detect developing embryos. The best way to detect pregnancy may be with an abdominal radiograph (x-ray). A fetus’s developing bones are visible at about day 45, enabling the veterinarian to count the number of puppies and assess fetal positioning before birth.

Nutrition and Exercise
It may be tempting to feed your dog more in the early weeks of pregnancy, but significant fetal growth doesn’t take place until the last 3 weeks before birth. That’s why the mother should be fed normal amounts of a good commercial maintenance food until about the sixth week of pregnancy. At that time, the amount of food should be increased by 20% to 25%; at the eighth week of pregnancy, the regular amount of food should be increased by 50%.

In the last few weeks of pregnancy, your veterinarian may recommend gradually switching your dog to a diet with higher levels of energy, protein, and minerals. As the uterus expands, it may compress the stomach, so your dog may not be able to eat a full meal in one sitting. If this occurs, feed your dog smaller, more frequent meals. In general, supplements should be avoided, especially those with added vitamin D or calcium. Consult your veterinarian before giving any supplements.

A moderate amount of exercise during the first 4 to 6 weeks of pregnancy can help the mother maintain muscle tone, which is important for the birthing process. However, care should be taken not to overexert the dog during the final weeks, when her abdomen and mammary glands are enlarged.

**Prenatal Exams**

If you suspect that your dog is pregnant, consult your veterinarian. He or she will examine your dog and counsel you on proper nutrition, exercise, and veterinary and home care.

In general, the administration of any drugs during pregnancy should be avoided. Some drugs may cause adverse effects in the mother or harm the unborn puppies. If possible, vaccines should not be given during pregnancy. When in doubt, ask your veterinarian about any medications, including topical flea and tick treatments, before administering them to your pregnant dog.
Preventing Heartworms and Fleas

- Heartworms and fleas are parasites that can cause serious problems. Fortunately, these parasites can be prevented by using safe, effective, and easy-to-administer medications.
- Heartworm disease damages the heart, lungs, and related blood vessels and can be fatal. This disease is transmitted through the bite of an infected mosquito.
- Heartworm disease in dogs is treatable, but in some cases, treatment can be costly and complicated. There are no approved products for heartworm treatment in cats.
- Fleas are widespread, blood-drinking parasites that can transmit tapeworms and cause flea allergy dermatitis.
- Prevention of heartworms and fleas is the best option for your pet.

Why Worry About Heartworms?

Heartworm disease is serious and potentially fatal. It affects dogs, cats, and up to 30 other species of mammals. Heartworm disease has been reported in all 50 states. It is caused by parasitic worms (heartworms) living in the major vessels of the lungs and, occasionally, in the heart. Heartworms are transmitted (as microscopic larvae) through the bite of an infected mosquito. The scientific name for the heartworm parasite is *Dirofilaria immitis*.

Heartworms can cause a variety of medical problems affecting the lungs, heart, liver, and kidneys. Any of these problems, alone or in combination, can lead to death. While treatment is available for dogs, it can sometimes be costly and complicated. In cats, heartworms can cause a respiratory disorder that mimics feline asthma. However, there is no approved medical treatment for heartworm disease in cats.

Although heartworm disease is virtually 100% preventable, many pets are still diagnosed with it each year. The American Heartworm Society (AHS) estimates that 1 million dogs in the United States are infected with the disease and that its incidence may be rising. Cats are susceptible to heartworms, too, and even indoor cats are at risk. Studies have shown that more than 25% of heartworm-infected cats live indoors.

Why Worry About Fleas?

The flea that most commonly affects pets is called the *cat flea*. Its scientific name is *Ctenocephalides felis*. The dog flea (*Ctenocephalides canis*) is much less common but can infest pets as well. Fleas not only make pets and people miserable but can cause serious health problems. In mild cases, pets may only be troubled by persistent itching and scratching. In some unfortunate animals, however, fleas can also cause an extreme allergic reaction resulting in intense itching. This causes the pet to scratch excessively, leading to skin damage, hair loss, scabs, and skin infection. This condition, called *flea allergy dermatitis*, can become severe enough to require extensive treatment. The bite of just a single flea can cause this kind of reaction in some highly allergic pets.

Fleas can also transmit tapeworms to pets and people. In some cases, they can play a role in transmitting an unpleasant disease called *cat-scratch fever*, between cats and humans. And in
severe infestations, particularly in old, ill, or young animals (puppies or kittens), feeding fleas can remove so much blood from a pet that they can cause a debilitating and even life-threatening anemia.

Fleas can be found almost everywhere at any time of year. Depending on where you live, they may seem less prevalent during cooler months, but they can still survive through the winter on pets and in homes. They can be brought into your yard or even your home by wildlife, such as raccoons, opossums, and small rodents.

**Treating Heartworm Disease**

In dogs, if heartworm disease is detected early enough, it can be treated before permanent damage is done to the heart, lungs, and blood vessels. However, if the infection has been present for a long time or consists of a large number of worms, the risk of complications can increase. In these cases, treatment can be more expensive and complicated, and dogs may need many months to recover from the infection. Hospitalization may be required.

For cats, there is no approved medical treatment for heartworm disease. Your veterinarian can discuss with you how to monitor your cat and manage the signs of disease. Antibiotics, steroids, and other medications are sometimes recommended. For cats with severe breathing problems or other complications, hospitalization may be needed. In some cases, surgical removal of adult worms may be attempted. However, this surgery is costly and has some risks.

**Treating Fleas**

Once a flea infestation is established, it can be very difficult to eradicate due to the complex life cycle of these pests. Fleas have four life stages: eggs, larvae, pupae, and adults. Several of these stages can live in the environment (off of your pet). For every flea you see on your pet, there are probably hundreds more lurking in their egg, larval, or pupal forms in your pet’s living environment, just waiting for the right conditions to hatch or develop into blood-sucking adults. As a result, treatment for their removal is usually multi-pronged and may take several months of consistent effort.

First, you must treat every pet in your home, whether or not you see fleas on them. Some flea treatment products target adult fleas, whereas others may also kill the immature stages (eggs, larvae, or pupae). Ask your veterinarian which option is recommended for your pets.

Other management measures may include frequent vacuuming of carpets and laundering of pet bedding to remove fleas, eggs, larvae, or pupae that may be hiding in those places. In some cases, your veterinarian may also recommend treating the home with an area spray or fogger. If your pet is allowed outside, your veterinarian may want to discuss treating “flea-friendly” outdoor areas (such as crawl spaces, shrubs, and moist/shaded areas) with pesticides.

**Prevention**
Fleas and heartworms can be easily prevented by using safe, effective, and easy-to-administer monthly medications. Some of these products are given orally, whereas others are applied topically to the pet’s skin (these are called *spot-on* medications). There is also an injectable heartworm preventive for dogs that can be administered every 6 months by your veterinarian.

Some heartworm and flea preventive products have the added benefit of also controlling other internal parasites of concern, such as roundworms and hookworms (in dogs and cats) and whipworms (in dogs). Some products also target other external parasites, such as ticks and mites.

In some cases, the best protection for your pet may not be the use of a single product, but rather the simultaneous administration of more than one product to effectively control parasites. Your veterinary team can help you decide which strategy may be best for your pet.

Preventing heartworms and fleas before they can become a problem is the safest, smartest, and most effective way to combat these parasites and keep your beloved canine and feline friends healthy! Ask your veterinarian which product(s) he or she recommends for your pet’s situation.

**Caution:** Some parasite control products cannot be used on cats. Consult your veterinarian regarding which specific products can be used for cats to safely prevent fleas and heartworms.
Probiotics

- Probiotics are beneficial bacteria that compete with harmful bacteria to restore the proper bacterial balance in the intestines of dogs and cats.
- Probiotics are administered when an overgrowth of harmful bacteria result in diarrhea, vomiting, or gas.
- Different probiotic bacteria have different effects on the digestive tract.
- Because probiotic products on the market can vary in their integrity and efficacy, it’s best to consult your veterinarian about the proper probiotic for your pet.

During the birthing and nursing processes, puppies and kittens ingest bacteria that make themselves at home in the intestines. Some of these bacteria are beneficial to the pet, and some are potentially harmful. The beneficial bacteria help digest food, produce energy for the cells lining the digestive tract, and help with immune function. They also help keep the potentially harmful bacteria to a minimum.

It’s been estimated that there are up to 500 different kinds of bacteria in a dog or cat’s digestive tract. Under normal conditions, the beneficial and harmful bacteria strike a balance, so there are no detrimental effects to the pet. However, a number of factors can cause an overgrowth of harmful bacteria, such as disease, parasites, antibiotics, old age, stress, and food changes. The resulting imbalance can lead to diarrhea, vomiting, and gas.

What Are Probiotics?

By definition, probiotics are live microorganisms, such as bacteria or yeast, which provide a health benefit to the pet when given in adequate amounts. These probiotics are available as supplements or as part of some diets. When pets experience an overgrowth of potentially harmful bacteria, probiotics are administered to increase the numbers of beneficial bacteria and restore the balance in the digestive tract.

How Do Probiotics Work?

When beneficial bacteria are added to the digestive tract, they adhere to the walls of the intestines, so there is less room for the harmful bacteria to colonize there. They also compete for food, and alter the pH of the environment, making it less conducive to the survival of harmful bacteria. By restoring the balance of bacteria, probiotics help relieve the diarrhea, vomiting or gas the pet may be experiencing.

In humans, probiotics may also play a role in helping control allergic conditions, immune diseases, dental disease, as well as some nervous system problems. However, there has been no research to show that probiotics have the same effects in pets. Never give a human probiotic product to your pet unless instructed to do so by your veterinarian.

Why Would My Pet Need Probiotics?
Under normal conditions, a healthy pet shouldn’t need probiotics, because the intestinal tract can usually maintain the proper bacterial balance on its own. However, antibiotics, stress, and other factors can alter this balance. This can lead to an increase in harmful bacteria and resulting intestinal problems in some pets. Your veterinarian may recommend probiotics if your pet is showing signs of an overgrowth of harmful bacteria.

**How Do I Choose A Probiotic?**

Different types of bacteria exert different effects in the digestive tract. That’s why probiotics used in humans may not have the same beneficial effects in pets.

Also, remember that probiotics are living organisms. They must survive not only the manufacturing process, but also storage under certain conditions. A recent study showed that many of the probiotic products on the market did not have live organisms in the quantity specified on the label. These bacteria must also survive the acid environment of the stomach, so that they can have their effect in the intestinal tract.

That is why it’s best to ask your veterinarian for advice about probiotics. He or she can recommend a product that is appropriate for pets, and is produced by a reputable manufacturer.
ProHeart' 6 Injection for Dogs

- Heartworm disease is a serious and potentially fatal condition that attacks the heart, lungs, and related blood vessels.
- ProHeart 6 is an injectable heartworm preventive medication that can be used in healthy dogs 6 months of age or older. ProHeart 6 is not for use in cats.
- ProHeart 6 injections are given once every 6 months by your veterinarian.
- Your veterinarian may recommend a complete physical examination and obtain a thorough health history before administering the injection.
- Side effects, although rare, have been reported, so owners should familiarize themselves with the signs and know when to contact their veterinarian.
- Your veterinarian will ask you to sign a consent form before administering ProHeart 6 to your dog.

Why Prevent Heartworm Disease?

Heartworm disease is a serious and potentially fatal condition that affects dogs, cats, and up to 30 other species of mammals. It is caused by parasitic worms (heartworms) living in the major vessels of the lungs and, occasionally, in the heart. The scientific name for the heartworm parasite is *Dirofilaria immitis*.

Although heartworm disease is virtually 100% preventable, many dogs are diagnosed with it each year. Heartworm disease has been diagnosed in all 50 states. The American Heartworm Society (AHS) estimates that 1 million dogs in the United States are infected with the disease today, and this number may be rising.

What Is ProHeart 6?

ProHeart 6 is an injectable medication that is used in dogs 6 months of age or older to prevent heartworm disease. Your veterinarian will administer ProHeart 6 as a single injection under your dog’s skin. Once the drug is given, it continuously prevents heartworm disease for 6 months. Using ProHeart 6 means that you don’t need to remember to administer a monthly oral or topical heartworm preventive medication to your dog.

Heartworm disease is transmitted by mosquitoes. To properly protect your dog, ProHeart 6 should be administered within 1 month before mosquitoes appear where you live. If you are switching from another heartworm preventive medication, ProHeart 6 should be administered within 1 month after the last dose of the other product. This will help ensure that your dog is continuously protected.

In addition to preventing heartworm disease, ProHeart 6 treats hookworm infections. Hookworms are parasites that can live in the intestines of dogs. These parasites attach to the inner lining of the intestines and drink blood. Hookworm infections can cause severe diarrhea, blood loss, and weight loss. In young puppies, severe hookworm infections can even be fatal. Hookworms can also infect humans, so treating infected dogs also helps to protect other family members.
Important Safety Information

Before initiating heartworm prevention with ProHeart 6, your veterinarian may recommend a full physical examination for your dog. Some diagnostic testing may also be recommended, including a heartworm test. Any dog that tests positive for heartworm disease should be treated before receiving ProHeart 6.

Your veterinarian will likely review your dog’s medical history before administering ProHeart 6. Be sure to discuss any of your dog’s previous illnesses or medical problems with your veterinarian. ProHeart 6 should not be used in sick, debilitated, or underweight dogs or in dogs with a history of weight loss. It should be used with caution in dogs with a history of allergies, such as food allergy, flea allergy dermatitis, or allergic reactions to vaccines. Talk to your veterinarian about administering ProHeart 6 along with vaccines.

Allergic reactions to ProHeart 6, have been reported. For this reason, owners should closely monitor their dog for 24 hours after injection and should report any of the following side effects immediately: facial swelling, itching, difficulty breathing, and collapse. Other possible side effects may include lethargy (tiredness), reduced appetite, vomiting, diarrhea, seizures, weight loss, and pale gums. Contact your veterinarian as soon as possible if you notice any of these side effects or if you have any other concerns about your dog. The majority of patients with drug-related side effects have recovered when the signs are recognized, and veterinary care, if appropriate, is initiated.

Consent Form

Before ProHeart 6 can be administered to your dog, your veterinarian will ask you to sign a consent form stating that you are aware of the drug’s possible side effects and have been educated regarding what signs to look for. By signing the form, owners agree to seek appropriate medical treatment if they notice any side effects in their pet.

ProHeart 6 is only available to eligible veterinarians through a restricted distribution program. The program requires veterinarians to undergo specialized training before being able to administer the heartworm preventive. In addition, the program requires that owners be advised of the potential risks of administration and sign the consent form.
**Pulmonary Edema**

- Pulmonary edema is an accumulation of fluid in the lungs.
- Many veterinarians use results of chest radiographs (x-rays) to confirm a diagnosis of pulmonary edema.
- In most cases, medication can resolve pulmonary edema, but the long-term outcome depends heavily on the underlying cause.

**What Is Pulmonary Edema?**

Most lung tissue is made up of tiny clusters of air “balloons,” called alveoli. Each air balloon is lined by a thin layer of cells in contact with very small blood vessels. When you breathe, air fills the alveoli, and the cells lining the alveoli and the small vessels next to them take in oxygen from inhaled air and release carbon dioxide into the exhaled air.

When alveoli become filled with fluid, space that is normally available for oxygen uptake and carbon dioxide elimination becomes limited. Edema is a very general term that refers to fluid accumulation in the body, so the term pulmonary edema refers specifically to fluid that accumulates within the lungs.

Generally, the fluid that accumulates in the alveoli comes from surrounding blood vessels and tissues that have changed so that they “leak” into the lungs. Pulmonary edema can have many causes. Some types of trauma (such as strangulation, electrocution, or severe head injury) can result in pulmonary edema. The condition can also be associated with medical conditions like heart failure and cancer.

**What Are the Clinical Signs of Pulmonary Edema?**

Depending on how much fluid has accumulated in the lungs, the clinical signs of pulmonary edema can be very mild or severe. Clinical signs may include the following:

- Coughing
- Difficulty breathing, or rapid breathing
- Weakness and collapse
- Blue lips and tongue (a condition known as cyanosis that occurs when the body lacks oxygen)

Because many medical conditions can cause pulmonary edema, some clinical signs may be associated with the underlying cause of the edema. For example, other injuries may be associated with a traumatic event that caused pulmonary edema.

**How Is Pulmonary Edema Diagnosed?**

Obtaining a medical history and performing a physical examination are the first steps in diagnosing pulmonary edema. When your veterinarian examines your pet, he or she will listen to your pet’s chest with a stethoscope to determine whether the “air sounds” in the lungs and
airways sound normal. Your veterinarian will also use the stethoscope to check your pet’s heart for heart murmurs (abnormal noises in between heartbeats) or changes in rhythm and heart rate.

Many veterinarians use results of chest radiographs (x-rays) to confirm a diagnosis of pulmonary edema. Once pulmonary edema is diagnosed, your veterinarian may recommend additional testing to determine the nature of the fluid and look into possible underlying causes for the edema.

What Are the Treatment and Outcome for Pulmonary Edema?

Treatment for pulmonary edema can involve several goals:

- **Stabilize the patient:** If the patient is having significant trouble breathing or is otherwise unstable, oxygen therapy and other treatments may be necessary to stabilize the pet. Because pulmonary edema can set the stage for the development of pneumonia, antibiotics are sometimes given along with other treatments.
- **Treat the edema:** In most cases, medications can be administered to resolve the edema. If the fluid accumulation is severe, hospitalization may be recommended so that the patient can be supported and monitored as treatment is progressing. Your veterinarian may recommend repeating chest x-rays periodically to monitor how well the edema is resolving.
- **Address underlying illnesses:** The underlying cause for the pulmonary edema (for example, heart failure) may need to be managed with additional medications, monitoring, and follow-up diagnostic testing.

The outcome for a pet with pulmonary edema can depend heavily on the cause of the edema. For example, if a pet has heart failure, the edema may return unless the heart failure is treated effectively. In this case, heart failure is a chronic illness, so there is always the chance that the pulmonary edema can return. In contrast, if pulmonary edema results from a traumatic event (such as a head injury or strangulation), it can be treated and not return as long as the patient recovers from the initial trauma.
Puppy or Adult Dog: Which Is Right for You?

- If you are looking for a dog, ask your veterinarian about reputable breeders in your area, but don’t forget that shelters, rescue societies, and adoption organizations are also great options.
- Consider how much time and patience you can devote to a new pet. Puppies are adorable and entertaining, but they tend to require more time and attention than an adult dog.
- Any new puppy or dog being introduced into the home should be examined by a veterinarian as soon as possible and temporarily separated from all other household pets.

What Are Some Things to Consider When Choosing a Dog?

Whether you are deciding to adopt a puppy or an adult dog, here are some things you should consider:

- **Breed**: Despite what the books may say, don’t expect your new dog to conform to all the details you’ve read and heard about the breed—they rarely do. Instead, try to select a dog that you think will fit well with your lifestyle. In some cases, a mixed-breed dog may be your best option. Also, don’t forget to ask your veterinarian about any medical problems that are particular to certain breeds.
- **Personality**: Don’t be tempted to choose a dog just based on looks. Personality and temperament are more important, especially when you consider that you may be spending many years with a pet.
- **Care and grooming required**: If you don’t have time to brush your dog every day, then you should consider choosing a dog that has a thinner, shorter coat as opposed to a dog with thick, long hair. Some breeds require regular grooming visits and professional haircuts, so look into these requirements before choosing a dog.
- **Allergies**: Find out ahead of time if anyone in the house is allergic to dogs. You can do this by spending time at the home of a friend or relative who has dogs.
- **Exercise requirements**: Some dogs are high-energy pets that require a lot of activity, space, attention, and exercise. Before choosing a dog, decide how much time you can devote to walking and other activities.
- **Your new pet’s history**: If you are adopting a puppy, try to find out about the health of his or her littermates and parents. If the breed is predisposed to certain medical conditions (for example, hip dysplasia), ask if the puppy’s parents were certified as being free of these conditions before they were bred. If you are adopting an adult dog, find out as much as you can about his or her medical and behavioral history.

Your veterinarian can probably recommend reputable breeders in your area, but don’t forget that shelters and adoption organizations are great options, too. Even if you are only interested in a particular breed, there are breed-specific rescue organizations that can help you find the dog of your dreams!

What Are the Pros and Cons of Raising a Puppy?
Let’s face it, puppies are just plain adorable. However, there are advantages and disadvantages to adopting a puppy. Consider these when deciding if a puppy is right for you:

- **Energy level and entertainment**: Compared with adult dogs, puppies tend to have a lot more energy. Playing with a puppy can provide hours of entertainment and enjoyment as they discover new things and learn new tricks.
- **Training**: If you don’t have time (or patience) for housebreaking and other basic training, a new puppy may not be an ideal option for you.
- **Time commitment**: New puppies need veterinary visits every few weeks for the first several months of their lives. This involves a time commitment and a financial one, too. Puppies (depending on their age at adoption) may not be spayed or neutered yet, so be sure to discuss these arrangements with your veterinarian.
- **Health issues**: Compared with adult dogs, puppies are more susceptible to certain diseases and they can go downhill very quickly when they get sick. Even skipping a meal or two can cause blood sugar levels to drop dangerously low in some puppies. Puppy owners need to be extremely observant for any signs of illness and report any problems to their veterinarian right away.

**What Are the Pros and Cons of Adopting an Adult Dog?**

Although puppies are wonderful in many ways, adult dogs can be a better choice for many pet owners. Consider these points when deciding whether to adopt an adult dog:

- **Training**: An adult dog is more likely to already be housebroken and to have some basic training. With patience, you can always “teach an old dog new tricks,” and with an adult dog, you may not have to start from scratch. Remember that an adult dog may also have learned some bad habits that can be addressed through patience and positive-reinforcement training.
- **Wellness care**: Depending on where the dog is from and what care it has received, adult dogs are more likely to already be spayed or neutered and to have received some basic vaccines and wellness care. That said, things like dental disease are more likely to need attention in an adult dog than in a puppy.
- **Adult personality**: Compared with a puppy, an adult dog is more likely to have an established personality that you can get to know from the beginning. If you are looking for a quiet companion (and not a high-energy source of entertainment), an adult dog may be a better choice than a puppy. This may be particularly true for older pet owners, who may have trouble keeping up with a high-energy puppy.
- **Fewer “unknowns”**: In most cases, adult dogs have achieved their adult size (and sometimes weight), so you have minimal guesswork about how big they will get and what kind of pet they will be in the future.
- **Preexisting issues**: Depending on the dog’s age, an adult dog may have some preexisting medical or behavioral problems that need to be addressed. Consider having some basic wellness blood work done when you adopt the dog, and ask your veterinarian if any additional screening tests are recommended. Some dogs may have been abused or have other behavioral problems. It may take a little time and effort for you to earn the dog’s trust and help him or her learn more acceptable behavior patterns.
What Should I Know about Medical Care?

Whether you adopt a puppy or an adult dog, and regardless of where you get the dog from, schedule a veterinary examination as soon as possible. Bring a stool sample and any paperwork (especially vaccine records, fecal testing and deworming history, and spay/neuter information) to your first visit.

Any new puppy or dog being introduced into the home should be examined by a veterinarian as soon as possible and separated from all other household pets for a quarantine period of at least a few weeks.

Despite the best efforts of breeders, shelters, and rescue societies, newly adopted dogs can carry parasites and infectious diseases, so it is important to protect your current pets from any medical problems that can come with a new addition. New pets should be observed closely for any signs of illness. Any problems should be reported to your veterinarian before introducing the new dog or puppy to your other pets.
Puppy Socialization

- Socialization is the learning process through which puppies become accustomed to being near various people, animals, and environments.
- Proper socialization can help eliminate behavior problems in the future and create a better bond between the pet and the family.
- When introducing puppies to new people, pets, or environments, provide praise or treats so the puppy associates a positive experience with each new stimulus.
- Do not introduce your puppy to other dogs until he or she has been properly vaccinated; consult your veterinarian to determine when your puppy is ready to be around other dogs.

What Is Puppy Socialization?

Socialization is the learning process through which a puppy becomes accustomed to being near various people, animals, and environments. By exposing puppies to different stimuli in a positive or neutral way, before they can develop a fear of these things, owners can reduce the likelihood of behavior problems in the future and help build a stronger bond between pets and the rest of the family. The critical time to socialize a puppy is during the first 3 to 4 months of its life.

Why Is Puppy Socialization Important?

Unfortunately, behavior problems remain the top reason that pets are relinquished to animal shelters. Proper socialization will help make puppies more tolerant of changes in their environment and help prevent common behavior problems in the future.

Why Should I Consider Puppy Kindergarten?

Attending a puppy training class led by a training specialist gives your puppy an opportunity for socialization with other puppies and with children and adults. Puppy kindergarten classes are offered by some veterinary clinics, dog training facilities, and pet supply stores.

Reputable training facilities will require that your puppy is vaccinated and dewormed before attending the course to ensure that puppies aren’t exposed to diseases or parasites when their immune system is still developing. Vaccinations should be given at least 10 to 14 days before the class. Check with the training facility about its specific requirements. Also, consult your veterinarian to determine when your puppy is ready for class.

How Else Can I Socialize My Puppy?

The goal of socialization is to expose your puppy to different people, animals, environments, and stimuli in a safe manner, without overwhelming your pet.

Start by familiarizing your puppy with your touch. Whenever possible, you should handle your puppy’s paws, ears, mouth, and body. Once your puppy is comfortable with being handled, it will be easier for you to trim nails, brush teeth, clean ears, and give medications.
Next, introduce your puppy to people of different ages, sexes, heights, and races. If your puppy tolerates it, allow other people to touch his or her paws, ears, mouth, and body. This will help your puppy be more comfortable with being handled by others at the veterinary clinic or grooming facility.

It’s also important for your puppy to learn to be comfortable around other animals. Puppy kindergarten is a safe place to expose your pet to other puppies because vaccination is usually required for all participants. In general, you should avoid taking your puppy to a dog park or other public area until he or she has been properly vaccinated. Exposing your puppy to an infectious disease, such as parvovirus, when his or her immune system is still developing can have devastating results.

Puppyhood is also a great time to familiarize your puppy with all the sights and sounds of his or her world, from riding in a car to being around a vacuum cleaner. Once your puppy has been properly vaccinated, you can take your puppy to places such as the park and the grooming or boarding facility to expose him or her to different sights, sounds, and smells. Each time you introduce your pet to a new stimulus, make sure to provide positive reinforcement in the form of praise, petting, or treats, so that your pet associates a positive experience with new people, pets, or environments.
Puppy training is an important step toward a lifetime of good behavior. Puppies respond better to positive reinforcement than punishment. Puppies should always be supervised or should be kenneled when you are away. Training should be consistent and involve everyone in the family. It’s important for puppies to be socialized around other people and other pets, but consult your veterinarian before exposing your puppy to other dogs. Puppy kindergarten is a good way to socialize your puppy while having access to a training expert for guidance.

Why Is Puppy Training Important?

Like children, puppies need to learn the appropriate behavior for living in a household and interacting with others. Puppies also seek positive reinforcement and are willing and able to learn. Unfortunately, many puppies grow into dogs that are eventually surrendered to shelters because of behavior problems. In most cases, it’s not the dog’s fault. It’s simply because he or she did not receive proper training.

Proper puppy training early on will help you avoid bumps in the road and lead to a better relationship with your dog in the years ahead.

What Should I Know About Puppy Training?

There are several basic rules of puppy training that will lead to a more rewarding experience for everyone involved:

- **Avoid punishment.** You should never spank or yell at a puppy, yank at a puppy’s collar, or rub a puppy’s nose in urine or feces. Punishment may not only weaken a puppy’s trust in people, but also lead to aggression, fear biting, and submissive urination. If the puppy has an accident, simply say, “no” in a firm voice, and take him or her outside. Consult your veterinarian if you are having problems housebreaking your puppy.

- **Reward good behavior.** Puppies respond best to positive reinforcement. Reward good behavior with a piece of kibble, a pat on the head, or praise.

- **Be consistent.** When you are training the puppy, make sure a consistent command or hand signal is used by everyone in the family. If, for example, one family member says “here” and another says “come,” the inconsistency will confuse the puppy. Consistency will make it easier for the puppy to understand what you are asking for.

- **Puppies should always be supervised.** Until your puppy is trained, he or she should be supervised at all times or placed in a kennel or crate when you are away. This will reduce accidents in the house and keep your puppy from chewing on or swallowing items that could be dangerous.
• **Nothing is free.** Make your puppy work for what he or she wants. Before feeding, or giving a toy, ask your puppy to respond to a command, such as “sit.” Once you receive an appropriate response, praise the puppy and give him or her the food or toy.

• **Keep training sessions short.** Like children, puppies have short attention spans. Training sessions at home should only last for about 10 or 15 minutes. A short daily training session is more effective than a long weekly one.

• **Make sure your puppy is comfortable being handled.** Whenever possible, you should handle your puppy’s paws, ears, mouth, and body. When your puppy is tolerant of being handled, it will be easier for you to trim nails, brush teeth, clean ears, and give medications. It will also make for less stressful trips to the groomer and veterinary clinic.

• **Expose your puppy to other people and pets.** The earlier your puppy is introduced to other people, the more comfortable he or she will feel around them, and the less likely he or she will be to exhibit shy behavior. Exposure to other pets is important, too, but be careful not to take your puppy to a dog park or to visit neighborhood dogs until he or she has been vaccinated. Consult your veterinarian to find out when your puppy is ready to be around other dogs.

• **Provide your puppy with appropriate chew toys.** When your puppy starts teething, he or she may want to chew on furniture, clothing, hands, and other inappropriate items. Simply say “no,” without yelling or shouting, and give the puppy something more appropriate to chew on. Avoid giving your puppy a sock or other article of clothing to chew. These items may be inadvertently swallowed, and may also give the puppy the message that it’s okay to chew on clothing. Consult your veterinarian about which chew toys are safest.

**Why Should I Consider Attending Puppy Kindergarten?**

Attending a puppy training class led by a training specialist has a number of advantages. First, you will have an expert to provide guidance and answer questions or concerns that you may have. Second, it will give your puppy an opportunity for socialization, both with other puppies and with other children and adults.

Puppy kindergarten classes are offered by many veterinary clinics, dog training facilities, and pet supply stores. It’s important to find a course that emphasizes positive reinforcement rather than punishment. Ask your veterinarian for recommendations on the best training courses in your area. Among other things, these classes should cover:

• Basic commands such as sit, down, stay, and come
• Crate training and housebreaking tips
• Leash walking

Reputable training facilities will require your puppy to be vaccinated before attending the course to ensure that puppies aren’t exposed to diseases while their immune systems are still developing. Some vaccinations need to be given at least 10 to 14 days before the class begins in order to protect your puppy. Consult your veterinarian about when your puppy will be ready to attend class.
Pyoderma

- Pyoderma is a bacterial infection of the skin.
- It varies in severity from a superficial rash to deep, pus-filled ulcerations.
- Problems that can lead to pyoderma include parasites, allergies, and hormonal imbalances.
- Treatment of pyoderma is aimed at clearing the infection and treating the primary cause.

What Is Pyoderma?

Pyoderma is a bacterial infection of the skin. It can occur when the skin’s natural defenses break down, allowing common skin bacteria to multiply out of control (called overgrowth). Bacteria from another source may also take hold when given the opportunity. Other organisms, such as yeast and fungal organisms, can take advantage of the skin changes that occur with pyoderma and establish their own infections. Dogs and cats of any age can be affected by pyoderma.

What Are the Signs of Pyoderma?

The clinical signs of pyoderma may include:

- Rash
- Itching
- Crusts, scales
- Pus-filled blisters (called pustules)
- Hair loss
- Oozing sores

What Are the Causes of Pyoderma?

Any disruption in the immune system’s ability to keep bacteria from overgrowing on the skin can lead to pyoderma, including the following:

- Physical damage to the skin (bite wounds, bug bites, scratching, ringworm, mange, burns, chemical contact irritation, tumors)
- Allergies to fleas, foods, pollens, or other allergens
- Immunosuppression caused by certain medications, viral disease, cancer, liver disease, thyroid disease, or other illness

How Is Pyoderma Diagnosed?

If your veterinarian looks at your pet’s skin and suspects pyoderma, he or she may perform diagnostic tests to confirm a bacterial infection and determine the primary cause. The following tests may be among your veterinarian’s recommendations:

- Skin testing, which may include the following: 
- **Adhesive tape prep:** Placing a small strip of adhesive tape against the pet’s skin or hair for a few seconds permits skin cells and other debris to stick to the tape. When your veterinarian examines the tape under a microscope, bacteria, yeast, inflammatory cells, cancer cells, skin parasites, and other abnormalities can often be seen.

- **Skin scrape:** Gently scraping the surface of the skin with a dull scalpel blade or similar instrument can remove cells just below the skin’s surface. These cells are then examined under a microscope. Mites that cause mange can be identified using this technique.

- **Bacterial culture:** A swab of the skin (or of a pustule) can be sent to the lab to determine what bacteria are present and which antibiotics should be used to treat the infection.

- **Fungal culture:** Hairs from infected skin can be sent to the lab to be tested for ringworm or other fungal infections.

- **Biopsy:** After a local anesthetic or sedation is administered to the patient, a small piece of skin can be removed and sent to the lab for evaluation.

  - **Blood testing** looks for internal disorders that may have affected the skin’s barriers to infection. More extensive testing may be pursued to look for thyroid disease or other specific disorders.

  - **Allergy testing** determines if an allergy exists and whether specific treatment for the allergy is possible.

**How Is Pyoderma Treated?**

It is very important to find the underlying cause of pyoderma to effectively treat the infection and help prevent it from happening again (recurring). The infection itself can usually be taken care of with a course of oral or topical antibiotics prescribed by your veterinarian. However, the underlying cause, whether it is parasites, hormonal imbalances, or allergies, must be specifically addressed to prevent the problem and keep it from recurring. When a pet’s primary disease is under control, chances are good that the animal will recover from pyoderma and not have episodes of recurrence.
Pyometra

- Pyometra is a severe bacterial infection of the uterus that can be life threatening.
- It can occur in any unspayed female cat or dog.
- Older, unspayed female dogs that have not had a litter are most commonly affected.
- Hormones can cause the uterine lining to thicken and form cysts, creating an ideal breeding ground for bacteria that ascend from the vagina, resulting in infection.
- Diagnosis is made with blood work, abdominal radiographs (x-rays), abdominal ultrasound, and/or examination of any vaginal discharge.
- Surgical removal of the uterus and ovaries is the best treatment.
- Antibiotics may also be needed.
- Spaying female pets early can prevent pyometra and reduce the risk of developing breast tumors.

What Is Pyometra?

Pyometra is a severe bacterial infection of the uterus that can be potentially life threatening. The condition is most common in older, unspayed female dogs that have never had a litter, but it can occur in any female dog or cat that has not been spayed. In dogs, pyometra is most likely to happen in the first few weeks to months after a heat cycle.

Pyometra is described as being “open” or “closed.” With “open” pyometra, the cervix (the portion of the uterus that connects with the vagina) is open. Fluid that forms in the uterus as a result of the infection can drain through the vagina out of the body.

When the cervix is closed, as in “closed” pyometra, the fluid in the uterus cannot drain through the vagina, so it builds up, stretching the uterine walls and potentially rupturing the uterus. If this occurs, the infection spreads to the abdomen and possibly into the bloodstream, leading to shock and, often, death.

What Causes Pyometra?

When a pet is in heat, the dominant hormone affecting the uterus is estrogen. At the end of the heat cycle, estrogen levels drop and progesterone (another hormone) levels rise. Over the course of several heat cycles, progesterone can cause changes in the uterine lining, such as thickened tissue and cysts. This creates the ideal environment for bacteria to flourish.

Pyometra occurs when bacteria ascend from the vagina into the uterus and multiply. The body attempts to fight off the infection by sending white blood cells to the uterus, which creates the fluid buildup.

Treatment with estrogen for other conditions (such as ending an unwanted pregnancy) can also predispose the pet to pyometra. Because of this potential side effect, this practice has fallen out of favor in the past few years.

What Are the Signs of Pyometra?
Pets that have open pyometra may have a foul-smelling white, yellow, or blood-tinged discharge from the vagina. Otherwise, the signs can be somewhat vague, such as:

- Lethargy (tiredness)
- Loss of appetite
- Vomiting
- Increased drinking and urinating
- Abdominal distention (swelling)

**How Is Pyometra Diagnosed?**

Your veterinarian will most likely recommend blood work and abdominal radiographs (x-rays) to visualize the uterus. Occasionally, an abdominal ultrasound may be needed to get a better view of the uterus. If your pet has a vaginal discharge, your veterinarian may examine the discharge under a microscope for signs of infection.

**How Is Pyometra Treated?**

Surgical removal of the uterus and ovaries is the best treatment for pyometra. In most cases, this is an emergency surgery that must be performed before the uterus ruptures or the infection spreads to other parts of the body. Because it is a more complicated surgery than a typical spay in a healthy animal, it will most likely be more expensive. The pet may also need intravenous fluids and antibiotics.

If the pet is a valuable breeding animal, and she has open pyometra, it may be possible to administer special hormones to shrink the uterus back to size and avoid surgery. However, these medications can have serious side effects, and the risk of pyometra recurring is high.

**How Can Pyometra Be Avoided?**

Early spaying of female pets prevents pyometra. Spaying before the first heat cycle will also reduce the chance of your pet developing breast tumors later in life.
Rabies

- Rabies is a deadly disease that is generally fatal in all species.
- It is transmitted through contact with saliva of an infected animal.
- There is no effective treatment in animals. It is virtually preventable through vaccination.

What Is It?

Rabies is a deadly disease caused by a virus that attacks the central nervous system. All warm-blooded animals, including wild animals, dogs, cats, and humans, are susceptible to it. Once clinical signs appear, rabies is generally fatal. However, the disease is also generally preventable through vaccination.

While the disease is not common, it remains prevalent in wildlife populations—primarily raccoons, bats, foxes, and skunks—that may have contact with domestic animals. Pets are at risk of contracting the disease from wild animals and potentially transmitting it to humans.

The virus can have an incubation period lasting from days to months. Rabies is usually transmitted through contact with the saliva of an infected animal. An animal’s saliva becomes infective once the virus has traveled through the animal’s nervous system from the initial bite site to the brain and, ultimately, the salivary glands. Pets and people usually become infected through a bite wound. Once the virus enters the salivary glands, the animal can pass the infection to other animals or humans through saliva. Animals with rabies are referred to as rabid.

Signs of Rabies

Clinical signs can be vague and difficult to identify. Signs can progress through several stages, and not all infected animals show evidence of all stages:

- **Early signs**: Fever, acting nervous or agitated, hiding
- **Later signs**: Aggression, increased agitation, erratic behavior
- **End stage**: Muscle weakness and paralysis, coma, death

Rabid animals can show unusual agitation or aggression or appear “drunk” or unable to walk. Seizures and drooling may also occur. Drooling results from paralysis of the throat muscles, preventing swallowing. Once signs appear, death usually occurs within 10 days.

Diagnosis and Treatment

Rabies is diagnosed in animals based on clinical signs and postmortem (after death) laboratory testing of brain tissue. There is no effective treatment in animals.

Prevention

Because of the potentially serious human health implications, rabies vaccination of dogs is required by law in virtually all states, and many states also require cats to be vaccinated.
Vaccination is the most effective way to prevent the disease in animals and, in doing so, to safeguard human health. In addition, it is recommended that you minimize your pets’ exposure to animals that may transmit the infection.

Your veterinarian can advise you of the rabies vaccination schedule required for your state. Some states require an initial vaccination at 12 to 16 weeks of age, a second vaccine at 1 year of age, and subsequent vaccinations every 3 years. Other states require annual revaccination.

Other preventive measures include:

- Keeping your pet away from wildlife
- Ensuring that all other dogs or cats that your pet has contact with are vaccinated
- Minimizing contact with stray animals; do not feed stray animals with an unknown vaccination status or allow them to remain near your home and pets

Vaccination helps protect your pet from unnecessary euthanasia or extended quarantine if your pet has contact with a rabid animal. Any pet that bites a human and has an unknown or out-of-date vaccination status may be subject to quarantine or euthanasia, depending on state laws.
Radiography

- Radiography is painless, very safe, and noninvasive, and it can sometimes be performed during an outpatient visit while you wait.
- Radiography is useful for evaluating the bones and the size, shape, and position of internal organs.
- Sedation is sometimes recommended for patients undergoing radiography.
- Radiography can help your veterinarian diagnose numerous medical conditions, including broken bones, intestinal blockages, bladder stones, and some types of cancer.

What Is a Radiograph?

A radiograph (sometimes called an x-ray) is a type of photograph that reveals the body’s bones and internal organs. The procedure for obtaining a radiograph is called radiography. Radiography is a very useful diagnostic tool for veterinarians because it can help obtain information about almost any organ in the body, including the heart, lungs, and abdominal organs, as well as the bones.

How Does Radiography Work?

Traditional radiography machines use very low doses of radiation delivered in a focused beam (an x-ray) that is aimed at a photographic plate containing specialized photographic film. The patient is positioned between the x-ray beam and the photographic plate. When the x-ray beam passes through the patient, an image is created on the specialized film. Structures that are very thick or dense, such as bone, do not allow much of the beam to penetrate and expose the film. These structures look very bright or white on a radiograph (see the x-ray image). In contrast, structures that are not dense (such as gas in the intestines or air in the lungs) allow the beam to penetrate more completely and expose the film. As a result, these structures appear relatively dark when the radiograph is viewed. Structures that are of medium density, such as fluid, appear in various shades of gray on the film.

Digital radiograph machines use a very similar principle, but the final image can be much sharper and can show greater detail than images obtained from traditional radiography machines.

How Is Radiography Performed?

Radiography is painless, safe, and completely noninvasive. Your pet will be positioned on the x-ray table, and the body part that will be radiographed is measured. This is necessary so that the intensity of the x-ray beam can be precisely adjusted to capture the most accurate information. Once the measurements are complete, the x-ray tube (which will generate a beam of low-level radiation) is aligned over the body part, and a button is pushed on the radiograph machine to take the “photograph.” This part of the procedure is very much like taking a photograph with a camera. In most cases, at least two “pictures” are taken from different angles to create a three-dimensional image of the body part being studied.
Your veterinarian may recommend that your pet receives sedation before undergoing radiography. Patients that are sedated are much easier to position because they are completely relaxed. Sedation may also be recommended if the patient has a broken bone or other painful condition.

**What Are Radiographs Used For?**

Radiographs are used to examine the bones and the size, shape, and position of many of the body’s organs. The size of organs is important because some medical conditions can cause enlargement of the heart, liver, or other organs. Some chronic conditions, such as chronic kidney disease or chronic liver disease, can cause these organs to appear smaller than normal on a radiograph. The shape of organs can be altered or distorted by certain medical conditions, including intestinal blockages or cancer. Tumors, depending on their size and location, can be detected using radiography. Radiography can also be used to diagnose many other conditions, such as bladder stones, broken bones, chronic arthritis, and certain spinal cord diseases.

**What Are the Benefits and Risks of Radiography?**

Radiography has many benefits and very minimal risks. It is very safe, completely painless, and noninvasive. It is available in most veterinary practices and can sometimes be performed during an outpatient visit while you wait. Depending on the type of radiographic study being performed, the procedure may take only a few minutes.

The risks of radiography are minimal. Because the level of radiation exposure needed to perform radiography is very low, even pregnant females and very young pets can undergo radiography. If a pet is very unstable, such as a pet with severe breathing difficulties, the stress of performing radiography may be a concern. In these cases, it may be necessary to stabilize the pet (with oxygen or other therapy) before attempting to perform radiography. In the vast majority of cases, the benefits of performing radiography far outweigh the possible risks. Radiography is a valuable tool for your veterinarian because it can provide critical information about many different illnesses and medical conditions.
Rattlesnake Vaccine

- The rattlesnake vaccine can help a dog’s immune system neutralize venom if the dog is bitten by a rattlesnake.
- The vaccine is designed specifically to counteract the venom of the western diamondback rattlesnake, but the vaccine may also be effective against similar venom of other rattlesnake species.
- In the first year of administering the vaccine, it should be given in two doses, approximately 1 month apart, followed by every spring, depending on the dog’s exposure to snakes.
- If your pet is bitten by any snake, take your pet to a veterinarian immediately.

Each year, about 150,000 dogs and cats are bit by venomous snakes in the United States. Most bites occur during warmer months (between April and October in the northern hemisphere). Snakebites are painful, and the injected venom can result in tissue swelling, impaired blood clotting, shock, and sometimes death. Treatment may include antivenin (a serum that neutralizes the venom), pain medications, IV fluids, and antibiotics to control secondary infections. Even if the pet recovers, there may be long-term complications.

What Is a Rattlesnake Vaccine?

The rattlesnake vaccine is specifically designed to produce antibodies against the venom of the western diamondback rattlesnake. The vaccine may also be effective against other snakes with similar venom, such as the sidewinder, timber rattlesnake, and copperhead. The vaccine does not protect against the venom of water moccasins or coral snakes.

The vaccine works by creating protective antibodies that help neutralize venom. Dogs that are bitten may also require less antivenin, which can be fairly costly and may produce side effects. Factors that can influence the effectiveness of the vaccine include the location of the bite, the type of snake, and the amount of venom injected.

After the first vaccination, the dog should receive a booster approximately 1 month later, followed by annual boosters in the spring before peak rattlesnake season.

Does My Dog Need This Vaccine?

If you live in or near a rattlesnake habitat or you plan on taking your dog hiking or camping in a rattlesnake habitat, it’s a good idea to consult your veterinarian about the rattlesnake vaccine. Because any vaccine can produce side effects, it’s important to discuss the risks and benefits of vaccination with your veterinarian.

What Should I Do if My Dog Is Bitten By a Snake?

Any snakebite is an emergency. Snakes that aren’t venomous can still inflict painful bites that result in infection. If a snakebite occurs—even if your dog has been vaccinated—he or she should be seen by a veterinarian immediately.
If the veterinarian suspects that a venomous snake is involved, a specific type of antivenin is needed for each type of snake. So it’s important for you to know the type of snake that bit your pet. Being familiar with the snakes that are commonly in your area can help you identify the snake so that your veterinarian can determine the best treatment.

**What Can I Do to Prevent Snakebites?**

When hiking with your dog, stay on open paths and keep your dog on a leash. Don’t allow your pet to dig under rocks or logs. If you live in a rattlesnake habitat, clear brush and firewood away from your house, and keep grass mowed.

**What Are the Benefits of the Vaccine?**

Rattlesnakes can inject potent venom that spreads throughout a dog’s body, causing serious, and sometimes fatal, damage. The rattlesnake vaccine is designed to stimulate a dog’s immune system to neutralize the venom immediately. This can result in milder signs and reduce or eliminate the need for antivenin, thereby lowering treatment costs.
Refilling Medications

- Remembering to refill prescriptions on time helps protect your pet’s safety and health.
- Some veterinarians require 24 hours’ notice for prescription refills, so be sure to allow enough time for your request to be processed.
- The best way to avoid running out of medication is to plan ahead and order refills on time.
- Despite our best efforts as pet owners, we sometimes forget to do things. However, whether you make a note on a calendar or arrange another reminder for yourself, it is important to make sure you remember to refill your pet’s medications on time. Your pet’s health and safety may depend on it!

Why Do Pets Need Long-Term Medications?

Many illnesses in pets can require long-term administration of medication, including some very common medical conditions:

- Seizure disorders (such as epilepsy)
- Heart disease
- Diabetes
- Thyroid disease
- Arthritis

In most cases, long-term medication does not cure the disease, but it controls the clinical signs or has other effects that make the disease more manageable. In some cases, medications can control the signs of chronic illnesses so completely that pet owners sometimes mistakenly believe their pet has been cured and discontinue the medication, only to have the clinical signs reappear. If your pet is having problems or side effects from a medication, notify your veterinarian right away. But in general, you should always give medications as directed by your veterinarian and should not discontinue a medication unless advised to do so.

Long-term medications are not always used to treat illnesses; sometimes, they are given to prevent problems. For example, many veterinarians recommend year-round administration of heartworm preventive medication and products that control fleas, ticks, and intestinal parasites.

What Should I Do If I Run Out of Medication?

If you run out of medication, call your veterinarian right away. In some cases, your pet may be okay if a few doses of the medication are missed; your veterinarian can advise you about what steps to take in the meantime. However, missing even a few doses of insulin, for example, can cause serious problems for your pet. Similarly, certain medications (such as steroids) cannot be discontinued abruptly without causing illness.

How Can I Avoid Running Out of Medication?

The best way to avoid running out of medication is to plan ahead and order refills on time!
Every person’s life is different, so what works as a reminder for one family may not work for another. Here are some tips:

- **Ask your veterinarian if their office can send you reminders.** Many veterinarians have computer systems that can let them (and, more importantly, you) know when your pet’s medications need to be refilled. Ask your veterinarian if their reminder system may work for you. In some cases, a phone call, e-mail, or postcard can serve as a reminder.

- **Find a creative way to remind yourself.** This may involve marking your calendar or sending yourself an e-mail reminder when it is time for a medication refill. Some pet owners link medication refills to another regular event; for example, if there is a household duty that you perform monthly, use that event to remind yourself to also check your pet’s medication or order a refill.

- **Plan ahead if you are going to be traveling.** Before you leave, check to be sure that you have enough of your pet’s medication to last for the duration of your trip. If you will run out, leave plenty of time to pick up a refill from your veterinarian before you leave—don’t just drop by on the way to the airport. If you are planning an extended trip with your pet, you may need to have his or her medical records forwarded to a veterinarian at your new location so that medications can be dispensed when needed.

- **Allow enough time for your veterinarian to refill your medication.** Some veterinarians require 24 hours’ notice to process prescription refills. Also, some medications must be specially formulated or ordered from an outside pharmacy. Make sure you know your practice’s refill policy, and allow enough time for prescription refills to be processed.
Rehabilitative Medicine for Dogs With Osteoarthritis

- A rehabilitative medicine program can dramatically increase strength and mobility, improving overall quality of life for dogs with osteoarthritis.
- Pain is often the main hindrance to initiating a rehabilitation program. If a dog responds to pain management quickly, rehab can begin as soon as possible and can continue based on the dog’s abilities.
- In many cases, improvement can be seen within days. Regular exercise should continue long term but must be carefully controlled to prevent injury.

What Is Rehabilitative Medicine?

Traditionally, treatment for arthritis in dogs (more commonly called osteoarthritis) has focused on using medications to relieve joint pain and inflammation. Many veterinarians also incorporate joint supplements, weight control, and other management tools to give arthritic dogs more help. However, medications can’t improve a dog’s strength or fitness level, which directly affects mobility. Rehabilitative medicine, also known by the term rehab, can help meet this therapeutic need. Properly undertaken, a rehabilitative medicine program can dramatically increase strength and mobility, improving overall quality of life for dogs with osteoarthritis.

Some consider rehabilitative medicine a tool that is reserved for dogs recovering from orthopedic surgery or injury. However, because the principles of rehabilitative medicine are fairly universal, this therapy can also be very useful for managing dogs with osteoarthritis.

The overall goals of rehab are to improve comfort, joint motion, and strength. During the early stages of osteoarthritis, pain relief is a primary goal, and rehabilitative practices can help accomplish that. As osteoarthritis progresses, the body undergoes other changes including reduced joint motion, loss of muscle mass, and decreased muscle strength. A well-structured rehab program can combat these complications as well.

What Are the Techniques and Equipment Used in Rehabilitative Medicine?

Pain is often the main hindrance to initiating a rehabilitation program. If a dog is in pain, even passive stretching and massage are uncomfortable. In contrast, if a dog responds to pain management quickly, rehab can begin as soon as possible and can continue based on the dog’s abilities. Pain medications, joint supplements, and other products can continue as needed to keep the dog comfortable, control inflammation, and promote a continued willingness to exercise.

The techniques and equipment needed for rehabilitative therapy vary depending on the needs of the patient but can include the following:

**Stretching**—Stretching exercises are an important part of any rehab program. Your veterinarian can show you how to do this properly. Moist heat can be used first to warm the muscles. Once the target muscles are warm, manual stretching can begin. In some cases, a hinged brace can be used to control range of motion for weak joints as they are flexed and extended to improve mobility.
**Controlled exercise**—Depending on a patient’s abilities, ramps, controlled leash walking, and agility courses can all be used as part of a rehab program. The key is to control the exercise and range of joint motion to decrease the likelihood of injury. If building ramps and purchasing agility course equipment is not convenient, pet owners can often achieve favorable results using controlled leash walks. The goal is to provide the dog with low-impact exercise (no leaping or jumping) to build muscle strength and tone without injuring the joints.

**Underwater treadmill and swimming**—Although generally only available in a clinic setting, an underwater treadmill is a very useful piece of equipment for patients undergoing rehab therapy. An underwater treadmill consists of a tank filled to a certain level with water (usually just below the dog’s hip area), with a treadmill at the bottom. Compared with walking on land, the underwater treadmill is easier on the joints and decreases the risk of injury. Compared with swimming, another popular method of rehabilitation, the motion of walking is advantageous because the action of walking is more predictable, and the patient’s speed can be easily controlled. In contrast, it is difficult to control speed for a dog that is swimming. Swimmers are also likely to flex their backs while swimming, making range of joint motion more difficult to control. Also, dogs walk with all four legs but tend to swim primarily with the front legs, so walking is a better exercise for dogs with rear limb problems. Swimming does have benefits for dogs with osteoarthritis—it strengthens the forelimbs and develops core strength (chest and abdomen); this can be helpful for a dog that has lost overall strength because of chronic joint disease. However, the underwater treadmill is likely a better option for its ability to protect the joints, control range of joint motion, control level of exertion, and provide an overall conditioning and strengthening activity.

**What Are the Therapeutic Outcomes With Rehabilitative Medicine?**

Your veterinarian may recommend and structure a rehab program for your pet or may refer you to a rehab specialist to get you started. Once a dog begins a rehabilitative medicine program, results are generally observed quickly. Pain relief can be the most rapid result. If a dog is having an arthritis flare-up, ice can be used with pain medication to provide quick relief. Improved limb use can be observed within days to weeks of initiating a program. However, progress depends on the degree of disuse that was present initially. A more chronically affected dog can be expected to take a longer time to respond. Improvements in overall strength can also be observed during the first few weeks of therapy.

Once initial improvements are made, the goal is to continue the program, modifying and increasing as necessary, to maintain the patient at a level where strength and mobility remain favorable. Ideally, regular exercise should continue long term but must be carefully controlled to prevent injury.
Ringworm

- Ringworm is a fungal infection of the skin, hair, and/or nails in dogs and cats.
- It is a zoonotic disease, meaning that it can be transmitted from animals to humans.
- The infection is also contagious among animals.
- Ringworm is transmitted by direct contact with an infected animal or by touching objects that have been exposed to the animal.
- The condition is usually diagnosed with a fungal culture.
- Some infections may resolve on their own without treatment, but topical and/or oral treatment can lead to faster resolution of the infection and limit the spread of infection to other animals and people in the household.
- Environmental treatment is important to eliminate the source of infection.

What Is Ringworm?

Despite the name, ringworm is not caused by worms, but by a fungus. Most infections in pets are caused by one of three types of fungi, the most common being *Microsporum canis*. The fungi invade the superficial layers of the skin, hair, and/or nails. Because fungi thrive in moist environments, these organisms are especially persistent in humid climates and damp surroundings.

Is Ringworm Contagious?

Ringworm is not only contagious to other animals, it is considered a zoonotic disease, meaning that it can be transmitted from animals to humans. Children and those with compromised immune systems are most at risk. In people, ringworm infection may appear as red, raised and itchy lesions on the skin.

What Are the Signs of Ringworm?

In pets, the fungal infection causes the hair to become brittle and break off, resulting in hairless patches of skin, most commonly on the face, ears, and legs. Within these hairless patches, the skin may be crusty or mild inflamed. Nails that are infected may become deformed.

Typically, the infection is not itchy, although secondary (associated) bacterial infections may cause pets to scratch at the lesions. Some animals may have no signs but may be sources of infection, shedding spores into the environment.

How Is Ringworm Transmitted?

Ringworm is typically spread by contact with an infected animal. Because animals can shed fungal spores and infected hairs into the environment, touching objects the infected animal has been in contact with, including bedding and brushes, can also lead to infection. Organisms that are shed into the environment can remain infectious for months.

How Is Ringworm Diagnosed?
The best way to diagnose ringworm infection in an animal is by fungal culture. The veterinarian will pluck a few hairs from several lesions and place them on a culture medium, where the organism can grow. Because it takes time for fungal growth, results may not be available for 2 weeks or more.

Veterinarians may also examine skin lesions under a Wood’s lamp. In some cases—but not all—the organism may fluoresce (glow) a yellow-green color. Because this test is not always accurate, a fungal culture is still the preferred method of diagnosis.

In cases in which people are diagnosed with ringworm, all animals in the household should be tested because some animals may be infected but show no signs. The same goes for multi-pet households in which one pet has been diagnosed with ringworm. Other pets should be tested and treated if positive in order to eliminate sources of ongoing infection.

**How Is Ringworm Treated?**

In healthy animals, the infection may be self-limiting, meaning that it will eventually resolve without treatment. However, treatment can hasten resolution of the problem and limit the spread of infection to other animals and people in the household.

Pets may be treated with topical shampoos or dips, oral medications, or both. Before applying a topical treatment, your veterinarian may recommend shaving or clipping the infected area. Topical treatments include lime sulfur dip or anti-fungal shampoos.

There are a number of oral medications for ringworm, such as griseofulvin and itraconazole. Griseofulvin should never be given to pregnant animals because it may cause birth defects in developing puppies or kittens. It may also cause bone marrow suppression in cats, especially those with feline immunodeficiency virus (FIV) or feline leukemia virus (FeLV). Administration of griseofulvin may require periodic blood monitoring tests. Itraconazole is becoming the preferred treatment for cats because it has fewer side effects.

Thorough cleaning and treatment of the home environment is important to prevent recurrence and spread of the infection to pets and people. To eliminate fungal organisms in the environment:

- Clip affected areas on the pet and dispose of all hairs
- Confine infected pets to one area of the house
- Thoroughly vacuum any areas that were highly trafficked by the pet, and dispose of the vacuum bag outside
- Wash all bedding and toys in hot water
- Dispose of any carpets or rugs, if possible
- Clean exposed areas and kennels with chlorine bleach that has been diluted 1:10 or with an anti-fungal spray recommended by your veterinarian
- Repeat vacuuming and surface treatment at least monthly until infection is resolved

Treatment may be required for 6 weeks or longer. Once skin lesions have resolved, fungal cultures should be performed again. Treatment should not be stopped until fungal cultures are
negative. Discontinuing treatment based only on resolution of lesions may result in recurrence of the infection.
Rodenticide Poisoning

- Many mouse and rat poisons contain ingredients that can be toxic and even fatal to your pet.
- These toxins may cause blood clotting problems, nervous system problems, or kidney failure.
- Signs of poisoning include pale gums, bruising, bleeding from the mouth or nose, seizures, and increased drinking and urination.
- If your pet has ingested a rodent poison, contact your veterinarian immediately.
- The product packaging will help identify the type of poison and the proper treatment.
- Diagnosis may require blood tests, blood clotting tests, and radiographs (x-rays).
- Treatment may involve hospitalization, medications to counteract the effect of the toxin, blood transfusions, intravenous fluids, and antiseizure medications.

What Is Rodenticide Poisoning?

Rodenticide poisoning occurs when dogs and cats accidentally eat mouse or rat poison. These products contain a wide range of ingredients that differ in potency and effect. In general, most rodent poisons cause one of three effects in animals:

- Blood clotting problems, resulting in internal hemorrhage (bleeding)
- Nervous system problems, including seizures and paralysis
- Kidney failure

Any poison that is intended to kill a mouse or rat can be fatal to dogs and cats as well.

If you think that your pet has eaten rodent poison, contact your veterinarian immediately. If your veterinarian is not available, call the ASPCA Animal Poison Control Center at 1-888-426-4435. (You may be charged for the call.) It is helpful if you have the product packaging. Knowing the exact ingredients in the poison can help determine the best treatment for your pet.

Ingredients in rodent poisons that are potentially toxic to pets include brodifacoum, bromadiolone, bromethalin, chlorophacinone, cholecalciferol, coumarin, diphacinone, diphenthialone, pindone, strychnine, warfarin, and zinc phosphate.

What Are the Signs of Rodenticide Poisoning?

The signs of rodenticide poisoning vary depending on the type and amount of poison consumed and the length of time since the pet consumed the poison. In some cases, signs may not appear until a few days after the pet has eaten the poison.

With products that cause clotting problems, signs of internal hemorrhage may not be obvious. Signs you might see include:

- Lethargy (tiredness), depression
- Pale gums
• Trouble breathing
• Bruising
• Bloody vomit, urine, or feces
• Bloody nose
• Bleeding from the gums

Pets that have eaten poisons that cause nervous system problems may show the following signs:

• Lethargy, depression
• Loss of appetite
• Stumbling, difficulty walking
• Seizures
• Paralysis

And products that lead to kidney failure may cause:

• Vomiting
• Increased drinking
• Increased urination

**How Is this Condition Diagnosed?**

Again, if you have the packaging from the rodent poison, bring it to the veterinary clinic with your pet. It will help your veterinarian determine the right diagnosis and treatment.

Depending on the suspected ingredient in the poison, your veterinarian may recommend blood tests, tests to assess the clotting ability of the blood, and radiographs (x-rays) to check for signs of internal bleeding.

**How Is Rodenticide Poisoning Treated?**

If your pet ate the poison within the past hour, your veterinarian may induce vomiting or anesthetize your pet to flush the poison from the stomach. He or she may also give your pet a liquid solution of activated charcoal to help minimize further gastrointestinal absorption of the poison.

If your pet has eaten a rodent poison that affects blood clotting, your veterinarian will likely begin administering medication to improve blood clotting. In some cases, this medication must be continued for several weeks. Depending on the pet’s condition, hospitalization and blood transfusions may also be necessary.

There are no antidotes for the poisons that affect the nervous system or the kidneys. Your veterinarian may need to give the pet antiseizure medications or intravenous fluids to help ease the symptoms until the poison is out of the pet’s system.

**How Can I Protect My Pet From Rodenticide Poisoning?**
If you have to use rodent poison, keep it out of the reach of curious pets. That said, if rodents in your house eat poison, there’s always a chance that your pet could eat a poisoned rodent. While the likelihood of this harming your pet is low, it may be a problem if the rodent has eaten large quantities of one of the newer kinds of rodenticides. When in doubt, contact your veterinarian.
Roundworms

- Roundworms are parasites that live in the intestines of dogs and cats.
- Roundworm infections can be transmitted from animals to humans.
- Depending on the type of roundworm, pets can be infected by their mother during pregnancy or nursing, by eating roundworm eggs in the environment, or by eating infected rodents or birds.
- Signs in pets include a pot-bellied look, failure to gain weight, dull coat, vomiting, and/or diarrhea.
- Roundworm infections are diagnosed by finding microscopic eggs during a veterinary fecal exam or by finding worms in vomit or feces.
- Several antiparasite medications can treat roundworm infections.
- Regular fecal exams and monthly preventive medications are recommended to keep pets free of roundworms and other internal parasites.

What Are Roundworms?

Roundworms are extremely common parasites that spend their adult lives in the intestines of puppies, kittens, dogs, and cats. There are several species of roundworms. Some can grow to about seven inches in length and cause severe illness, especially in younger pets.

How Do Pets Become Infected With Roundworms?

Mother dogs can pass roundworms on to developing puppies in the uterus or through milk when the puppies are nursing. Kittens do not become infected while in the uterus, but they can become infected when nursing.

Adult roundworms live in the intestines, where they reproduce by laying eggs. An infected dog or cat sheds roundworm eggs into the environment when it passes feces. Once the eggs are in soil, the worms develop to the infective stage within the egg. Other pets can become infected by eating the eggs from contaminated soil, which often happens when pets groom themselves, sniff or lick the ground, or eat grass and other things outside. Pets can also be infected when they eat infected prey, such as birds and rodents.

Once roundworm eggs are eaten, they hatch in the digestive tract. In most cases, the worms then migrate through the liver and lungs. Once in the lungs, the young worms are coughed up and swallowed, eventually making their way to the small intestine, where they mature into adults and reproduce.

What Are the Signs of a Roundworm Infection?

Puppies and kittens are usually the most severely affected and often look pot-bellied. Other signs include:

- Coughing
- Dull, thin coat
• Vomiting
• Diarrhea
• Failure to gain weight

Can People Get Roundworms From Their Pets?

Yes. Roundworms are considered zoonotic parasites, meaning that they can be transmitted from animals to humans. Children are most at risk for infection. They usually become infected from eating contaminated soil, which is often found at playgrounds frequented by pets.

In humans, roundworms are a significant cause of several types of larva migrans, an illness caused by migration of young worms through body organs such as the liver, lungs, and nervous system. Young worms may also travel to the eye, where they can cause blindness.

If there are children in your household, make sure your pets are tested and treated for any roundworm infection. Keep your pets on a monthly preventive that also controls roundworms. Make sure children wash their hands after handling pets or frequenting playgrounds. Keep sandboxes covered when not in use to discourage neighborhood cats from using them as litterboxes.

How Are Roundworm Infections Diagnosed?

Your veterinarian can diagnose a roundworm infection by finding microscopic roundworm eggs on a fecal exam. Unfortunately, some owners discover that their pet is infected when live roundworms are expelled in vomit or feces.

How Is an Infection Treated?

Veterinarians routinely treat young pets with an antiparasite medication several times, until they can be placed on a monthly heartworm preventive that also controls roundworms and other internal parasites. Roundworm infections are very common in puppies and kittens, but eggs aren’t always apparent in fecal material from infected pets. Your veterinarian may therefore recommend deworming your puppy or kitten even if a fecal test does not confirm a roundworm infection.

Many antiparasite medications only kill the adult worms in the intestines, not the migrating younger worms or eggs. Therefore, if your pet is infected with roundworms, your veterinarian may recommend two to three rounds of treatment to clear the infection. Generally, fecal samples are rechecked after treatment to make sure the infection has been resolved.

How Can I Protect My Pet From Roundworm Infections?

Because roundworm eggs can remain infective in the environment for months to years, pet feces should be removed and disposed of immediately.
When walking your dog, keep him or her on a leash to help reduce exposure to areas that may have been contaminated by other dogs. This will also minimize the chance of your dog eating infected rodents and birds. If possible, cats should be kept indoors to prevent them from hunting infected prey. However, even indoor animals can catch infected mice. Sharing litterboxes and outdoor bathroom areas can spread roundworms among pets, so any new pets should be tested for roundworms and other internal parasites before being introduced to your other pets.

Always consult your veterinarian about the best ways to protect your pet—and your family—against internal parasites. A monthly preventive that includes medication for roundworms is a good start for year-round protection from parasites. Since it’s easy to forget a monthly treatment, periodic fecal exams are still recommended to ensure your pet is parasite-free.
Sarcoptic Mange

- Sarcoptic mange (scabies) is an intensely itchy skin condition in dogs.
- It is caused by *Sarcoptes scabiei*, microscopic mites that penetrate the skin surface.
- The condition is highly contagious among dogs and is spread by direct contact.
- The mite may be transferred to people and cats, but these species are not natural hosts for the mite, and infestations usually resolve on their own.
- Signs include red, crusty, itchy lesions on the face, edges of the ear flaps, elbows, chest, and abdomen.
- Diagnosis is made by finding the mite in debris obtained from a skin scraping, or by response to treatment.
- There are many oral, injectable, and topical treatments for sarcoptic mange.
- Treatment may also include antibiotics and soothing shampoos.
- It might take 4 to 8 weeks for signs to resolve.
- Environmental decontamination is generally not needed, although bedding, collars, and harnesses should be washed to avoid reinfestation.

What Is Sarcoptic Mange?

Sarcoptic mange (scabies) is an intensely itchy skin condition of dogs that is caused by microscopic mites called *Sarcoptes scabiei*.

Is Sarcoptic Mange Contagious?

This condition is highly contagious among dogs. Most dogs with scabies show signs, but some dogs may be carriers and appear to be relatively unaffected.

Occasionally, the mites can also be transferred to humans or other pets in the household. Pet owners with scabies may experience an itchy rash on the arms, abdomen, or chest. However, humans are not natural hosts for this mite, and infestations generally resolve on their own. Pet owners are advised to consult their doctor for evaluation and treatment.

While these mites may be transferred to cats in the household, they generally prefer dogs. Infestations in cats usually resolve without treatment. Cats with intense itching of the face and neck area are often infested with a different type of mite.

What Causes This Condition?

Dogs become infested when they come into direct contact with other dogs that have these mites. Female mites penetrate the skin and lay eggs, causing intense itchiness. Once the eggs hatch, larvae tunnel under the skin, increasing the dog’s discomfort.

What Are the Signs of Sarcoptic Mange?

Dogs with scabies typically have red, crusty, skin lesions on the elbows, edges of the ear flaps, face, chest, and abdomen, although the lesions may spread to all regions of the body. The
itchiness may become so intense that dogs will essentially mutilate themselves, scratching until the skin is raw and hairless. Once this occurs, secondary skin infections are common.

**How Is the Condition Diagnosed?**

Your veterinarian will need to perform a deep skin scraping to reach the mites beneath the skin surface. This involves gently scraping several areas of affected skin with a scalpel blade until the area bleeds slightly. Several skin scrapings are usually done at different affected locations, and the resulting samples of skin cells and debris are mounted on a slide and examined under a microscope. A diagnosis is made when these tiny mites are identified on microscopic view.

Even with a skin scraping, mites are often difficult to find. In fact, it’s estimated that mites are only found in 30% to 50% of skin scrapings performed on infested dogs. That’s why your veterinarian may still recommend treatment if your dog’s signs are consistent with scabies, even though mites may not have been found after performing a skin scraping.

**How Is Sarcoptic Mange Treated?**

It is important to treat all dogs that come into regular contact with your dog, even if they don’t show signs of infestation. Some dogs may be carriers of the mite, and your dog will continue to be reinfested if he or she is in direct contact with these dogs.

Several oral, injectable, and topical treatments are available. If topical dips are used, the entire dog must be treated, including the face and ears. It may take 4 to 8 weeks for signs to resolve.

In addition to parasite treatments, your veterinarian may recommend antibiotics for secondary skin infections and soothing shampoos to help eliminate crusts and reduce itching.

Unlike other parasites, such as fleas, which can persist in the environment for many months, these mites cannot survive off the animal for more than a few weeks. While environmental decontamination is not necessary in these cases, it’s still a good idea to wash all bedding as well as collars and harnesses to avoid reinfestation.
Schirmer Tear Test

- A Schirmer tear test is a procedure that allows your veterinarian to determine if your pet is producing enough tears to keep the eyes healthy.
- Schirmer tear testing is used to diagnose a condition called *keratoconjunctivitis sicca*, more commonly known as *dry eye*.

What Is a Schirmer Tear Test?

Tears are produced by the eyes to reduce irritation, supply oxygen, and help keep the surface of the eyes moist. When tear production is inadequate, the eyes become painful, red, and irritated. This condition is commonly called *dry eye*, but the medical term is *keratoconjunctivitis sicca* (KCS).

A Schirmer tear test (STT) is used to determine if the eyes are producing adequate amounts of tears; therefore, it is the preferred test for diagnosing KCS.

How Is a Schirmer Tear Test Performed?

Performing an STT involves placing the tip of a small, thin strip of special filter paper inside the lower eyelid. The filter paper is specially formulated to absorb tears. The veterinarian places the tip of the filter paper inside the eyelid, closes the eye, and holds the paper there for exactly 60 seconds. The test strip has a printed ruler on one side, with a scale divided into millimeters. By comparing the amount of tears absorbed to a standard value, the veterinarian can tell if tear production is adequate.

Benefits of Schirmer Tear Testing

Chronically low tear production can cause persistent eye irritation, inflammation, and pain. Damage to the cornea (the thin, transparent covering of cells on the front of the eye) puts the patient at risk for further complications, including bacterial infections, corneal ulceration, and even loss of vision. Early diagnosis and prompt treatment of KCS is important for preventing eye irritation and further damage.

KCS can affect one or both eyes. If the condition is diagnosed before permanent damage is done, many animals respond well to medical treatment.
Seborrhea

- *Seborrhea* is a general term used to describe skin and hair that has excessive flaking or grease.
- While primary seborrhea is a rare inherited disease, most cases of seborrhea are secondary to other disease processes such as allergies, external parasites, infections, and glandular or immune system diseases.
- Treatment for the underlying disease may help resolve cases of secondary seborrhea, but primary seborrhea usually requires lifelong treatment.

What Is Seborrhea?

*Seborrhea* is a general term used to describe skin and hair that has excessive amounts of flakes (like dandruff) and/or grease. In most cases, the term describes the clinical signs, and not a disease itself.

The one exception is primary seborrhea, which is a relatively rare inherited disease in breeds such as cocker spaniels and Persian and Himalayan cats. Pets with primary seborrhea do not produce and shed/replace skin cells normally, or they may have a defect in the function of the glands in their skin. Seborrhea may be limited to one area of the body or may be more generalized.

In most pets, seborrhea describes the clinical signs that are secondary to an underlying disease process. The term *seborrhea sicca* is used to describe dry, flaky skin conditions, and *seborrhea oleosa* is used for greasy, oily (and often smelly), flaky skin.

What Causes Seborrhea?

Primary seborrhea is also known as *idiopathic seborrhea*, meaning the exact cause is not known. Because it occurs commonly in certain breeds, genetics is thought to play a role.

Secondary seborrhea is usually caused by an underlying disease process, such as allergies, bacterial or yeast infections, external parasites, hypothyroidism (low amounts of thyroid hormone), Cushing’s disease (too much adrenal hormone), or immune system diseases.

How Is Seborrhea Diagnosed?

Your veterinarian will begin by taking a complete medical history of your pet. He or she will also perform a thorough physical examination.

Most diagnostic tests are designed to help determine the underlying disease condition that results in the signs of seborrhea. Your veterinarian may perform a skin scraping to search for parasites, bacteria, and fungi under the microscope. This involves gently scraping areas of affected skin with a scalpel blade until they bleed slightly. Several skin scrapings are usually done at different affected locations, and the resulting samples of skin cells and debris are mounted on a slide and examined under a microscope.
Your veterinarian may also recommend specific blood tests to check for underlying diseases, such as hypothyroidism and Cushing’s disease. In addition, skin cultures or skin biopsies (tissue samples) may be required to pin down a definite diagnosis.

**How Is Seborrhea Treated?**

Unfortunately, primary seborrhea usually can’t be cured, but it can be managed. Treatment may involve a combination of a hypoallergenic diet, vitamin or fatty acid supplements, and antibiotic or antifungal medications to manage secondary skin infections. Medicated shampoos and moisturizers may also be recommended. Pets with primary seborrhea should not be bred, to prevent passing on the disease.

Treatment of secondary seborrhea varies depending on the underlying condition. Once the underlying condition (such as allergies or hypothyroidism) is controlled, the seborrhea may resolve. Medicated shampoos can also be helpful in some cases.
Seizures and Epilepsy

- A seizure (convulsion) is the sudden transmission of nerve impulses from the brain that causes involuntary muscle activity.
- Epilepsy is a condition in which seizures occur periodically over the course of weeks or months.
- Treating any underlying conditions may eliminate seizure activity; pets with epilepsy may require antiseizure medications for the remainder of their lives.

What Are Seizures and Epilepsy?

A seizure (convulsion) is the sudden transmission of nerve impulses from the brain that causes involuntary muscle activity. The seizure may affect just one part of the body, such as the face, or the entire body. When the whole body is affected, it is called a grand mal seizure. A seizure may be a one-time event, but if seizures occur repeatedly over the course of weeks or months, they are categorized as epilepsy. Epilepsy is common in dogs but relatively rare in cats.

What Are the Clinical Signs of Seizures and Epilepsy?

Before the onset of a seizure, many pets exhibit unusual behaviors, such as hiding, seeking out the owner, or acting nervous.

During a seizure, pets may experience a loss or alteration of consciousness, and anything from mild tremors and limb paddling to jaw chomping, salivation, vocalization, dilated (enlarged) pupils, urination, and defecation. The seizure itself usually only lasts for a few minutes.

Following a seizure, pets may appear to be disoriented, restless, or lethargic (tired).

What Causes Seizures and Epilepsy?

Disorders affecting the brain, such as trauma, congenital conditions (defects that pets are born with), tumors, and infections can cause seizures.

Other conditions outside of the brain can affect the nervous system as well. Seizures may be caused by accidental consumption of toxins, such as those found in pesticides, antifreeze, and some flea and tick products. Conditions such as hypoglycemia (low blood sugar), liver disease, and hypocalcemia (low blood calcium) can also result in seizures. Finally, seizures may be caused by viral, bacterial, fungal, or parasite infections, such as canine distemper virus infection, ehrlichiosis, cryptococcosis, and toxoplasmosis.

In many cases, the precise cause of the seizures may never be determined. Pets that have periodic seizures for which no cause can be found are said to have idiopathic epilepsy. Idiopathic epilepsy is the most common cause of seizures in dogs. Breeds commonly affected include Labrador retrievers, golden retrievers, Bernese mountain dogs, and poodles. Seizures usually begin before 5 years of age.
How Are Seizures and Epilepsy Diagnosed?

Your veterinarian will start by taking a medical history of your pet, including possible exposure to toxins, ticks, and infectious diseases. If your pet has had more than one seizure, it is important for your veterinarian to know the pet’s age when the seizures first started, and the length, intensity, and frequency of the seizures. Your veterinarian will also perform a thorough physical examination on your pet.

Laboratory tests to help diagnose seizure disorders include blood work, such as a chemistry profile and a CBC (complete blood count), as well as a urinalysis. Additional tests may be required, depending on the suspected cause. These tests may include more specific blood tests, radiographs (x-rays), and ultrasound examinations. If your veterinarian suspects that there is a problem inside the brain, he or she may recommend testing the spinal fluid, an EEG (electroencephalography) test, CT (computed tomography) scan, or MRI (magnetic resonance imaging) study.

How Are Seizures and Epilepsy Treated?

Treatment varies depending on the cause of the seizures. If underlying conditions, such as toxicosis, infections, or hypoglycemia, can be treated, the seizure activity may resolve and never recur.

In cases of epilepsy, the pet may need to be on antiseizure medications for the remainder of his or her life. Your veterinarian will discuss potential side effects of these medications and the need for periodic blood testing to ensure that the medications remain at safe, therapeutic levels in the blood.

Even a pet that is successfully treated for seizures may still have occasional episodes from time to time. The goal of therapy is to reduce the frequency, duration, and intensity of the episodes.

Pets with prolonged seizure activity may need to be hospitalized. Treatment may include intravenous fluids, antiseizure medications, oxygen therapy, and other treatments. Treatment may not be necessary if a pet has had only one seizure, or if seizures happen very infrequently or are very mild. However, pet owners are encouraged to keep a diary of the seizure activity so that the frequency, duration, and intensity of the episodes can be monitored. Increases in any of these three things may mean that medication should be considered.

What Should I Do if My Pet Has a Seizure?

Most seizures only last for a few minutes. Although it can be disheartening to see your pet have a seizure, try to stay calm and comfort your pet. Clear the area around your pet so that he or she doesn’t get his or her limbs or head caught in furniture. Keep your hands away from your pet’s mouth, to prevent being inadvertently bitten.
If possible, time the length of the seizure. Prolonged seizures (lasting longer than 5 to 10 minutes) can lead to *status epilepticus*, a state of continuous seizures. This can be a life-threatening condition, and pets in this state should be seen by a veterinarian immediately.
Selecting a Groomer

- Groomers are not regulated or licensed by a government agency.
- When looking for a groomer, seek recommendations from friends, veterinarians, trainers, and boarding facilities.
- When looking for a groomer, visit the grooming facility during regular business hours to check the cleanliness and observe how pets are handled.
- When visiting a grooming facility, ask about its health policies, including proof of vaccination.
- Some services, such as dental cleanings, should only be provided by a veterinarian.
- Brushing your pet and handling its paws at home can help make your pet more comfortable when it’s time for professional grooming.

How Do I Find a Groomer?

Choosing a grooming facility based on an ad in the Yellow Pages or on the Internet is not the best way to select a groomer. Because groomers are not regulated or licensed by any government agency, the skills and experience of groomers can vary greatly.

A good way to start looking for a groomer is by asking for recommendations from friends, veterinary hospitals, boarding facilities, and animal trainers. You can also visit Web sites, such as those of the National Dog Groomers Association of America (nationaldoggroomers.com) and the Professional Cat Groomers Association of America (professionalcatgroomers.com). These organizations provide groomers with education and certification and may be able to recommend a groomer in your area. You may also want to consult the Better Business Bureau (bbb.org) to ensure that no complaints have been lodged against a grooming facility that you are considering.

What Kind of Grooming Facility Is Best?

First, decide whether you would prefer to take your pet to a grooming facility or to have a mobile groomer come to your home. In general, mobile groomers charge a little more for convenience.

Before taking your pet for grooming, stop by the facility during regular business hours to see the facility and watch the groomer(s) in action. Ensure that the facility is clean and well-ventilated and that the cages look comfortable. If possible, watch the groomer(s) as he or she grooms pets, noting whether the pets are handled gently and appear stressed. If the facility uses heat-producing dryers, ask how the staff ensures that pets are not burned or overheated.

Ask about the facility’s health policy. If it doesn’t require proof of vaccination, it is in your pet’s best interest to go elsewhere. Ask about the policy on accepting sick pets. For example, coughing dogs may carry a contagious disease that can spread to your dog. For references, you may ask the facility for contact information of current clients.

What Services Should Be Included in Grooming?
It’s important to discuss what is included with the grooming fee. Most facilities offer bathing, drying, brushing, clipping, ear cleaning, and nail trimming. In most cases, there is an additional fee for animals that are severely matted or need additional shaving. If your pet has skin allergies, consider taking your own hypoallergenic shampoo to the groomer to avoid skin flare-ups.

Some services should only be performed by a veterinarian. Proper dental cleanings should be done while a pet is under general anesthesia to allow a veterinary professional to remove plaque and tartar from beneath the gum line with minimal stress to the patient. In addition, only a veterinarian should empty anal glands. If your pet has frequent ear infections, ask your veterinarian whether a groomer should pluck ear hair. Pets requiring any kind of tranquilizer or sedative, such as cats that are severely matted, should be groomed at a veterinary facility where they can be closely monitored.

**How Can I Make Grooming a Positive Experience for My Pet?**

If your pet will require a lot of grooming throughout his or her life, start familiarizing your pet with the grooming facility when he or she is young. At home, try to brush your pet and handle his or her paws on a daily basis. The more comfortable your pet is with being handled, the more tolerant and stress-free he or she will be at the groomer.
Selecting a New Puppy

• Before choosing a puppy, it’s important to research dog breeds to find one that fits into your lifestyle.
• A healthy puppy should be bright and alert, without signs of coughing, sneezing, or lethargy.
• A puppy should have good social skills with its littermates and with people of all ages.
• Puppies that are loners or show signs of dominance or aggression may be challenging to train.

What Should I Consider Before Getting a Puppy?

While a puppy can tug at anyone’s heartstrings, choosing a puppy should be more than an emotional decision. All too often, the cute and cuddly puppy that is purchased on impulse is relinquished to a shelter because it grew up to be a large, rambunctious dog. That’s why it pays to do your homework before you even look at a puppy.

Start by researching the kind of adult dog that will be most compatible with your lifestyle. A book on dog breeds is a good starting place, but also ask veterinarians for their suggestions. They are very familiar with the different dog breeds and suitability for each home. You can also visit dog shows to see many different breeds at once and talk with dog breeders and trainers.

Consider the size of the adult dog and how it would fit into your household. Would you prefer a lap dog or do you have room for a large dog? Research the exercise and grooming requirements of different breeds. Some breeds, such as herding dogs, require more exercise and may be best suited for someone who is looking for a jogging partner. Other breeds need regular grooming, so you will need to plan for those expenses.

Some breeds may be predisposed to certain health conditions. In some cases, you may ask the breeder to test for the condition, if possible, or provide a written guarantee should the condition occur. Mixed-breed dogs may be less likely to have certain health conditions than purebred dogs.

Where Should I Look for a Puppy?

If you prefer a purebred dog, ask veterinarians and breed clubs for advice on how to locate a reputable breeder. You’ll want to interview several breeders and ask to see the puppy’s parents and the breeding facility, if possible. It is important to visit the facility to ensure that a limited number of puppies are raised in a sanitary, well-socialized environment. When buying a purebred dog, it’s worth the effort to find a reputable breeder.

Unfortunately, there are many puppy mills that sell poorly socialized puppies that may develop health and behavior problems over time. These puppies are often sold at pet stores and become ill, requiring costly treatment. Buying a puppy from a pet store also limits your knowledge of the puppy’s initial living conditions, and you cannot see the puppy’s parents to ensure they are in good health and well socialized.
Shelters and rescue organizations offer both purebred and mixed-breed puppies. You may not have the benefit of knowing the puppy’s background, so there are no guarantees about potential health or behavior problems. But if you choose your puppy carefully and are willing to work on training, you may find a suitable companion and get the satisfaction of giving a puppy a second chance at a great life.

**How Do I Check a Puppy’s Physical Health?**

Most breeders and some shelters will provide you with paperwork that the puppy has been examined by a veterinarian, has been checked/treated for parasites, and has received at least the first round of vaccines. Many breeders may also provide you with a health guarantee.

A healthy puppy should:

- Appear alert and energetic, not lethargic (tired)
- Be well fed, with a little fat covering the ribcage
- Have a good coat, without dry, flaky skin or bald patches
- Walk and run normally, without limping
- Have no discharge from the eyes, nose, or ears
- Follow a tossed toy with its eyes
- Not cough, sneeze, or appear to have difficulty breathing
- Turn to look at you when you clap or make a noise behind it

**How Do I Determine a Puppy’s Personality?**

Start by observing how the puppy interacts with its littermates. As long as a puppy shows an interest in playing and eases off when other puppies yelp to indicate it is being too aggressive, it will most likely grow up to get along with other dogs. Puppies that are loners and prefer to keep to themselves may have problems interacting with other dogs later in life.

Next, see how the puppy engages with people. Ideally, observe the puppy with people of both sexes, as well as people of different ages. You will want a puppy that is curious and interested in people. Puppies that cower or urinate in fear or that run away from people may be poorly socialized and difficult to train.

When you roll the puppy over on its back and hold it there for a minute, you are testing the puppy’s willingness to be submissive. Puppies that struggle excessively or become aggressive may have dominance issues. A well-socialized puppy may wiggle a bit but will eventually relax and let you hold it in this position.

Puppies should be comfortable when handled. Try holding the puppy and touching the ears, mouth, and paws. If the puppy becomes aggressive or struggles to get away, it might not be the kind of dog who will snuggle with you on the couch or allow you to trim its nails. Choosing a healthy puppy with a good disposition will increase your chances of raising a dog that will be a great fit for your household and your best friend for years to come!
Separation Anxiety

- Separation anxiety is a behavior problem in which a dog panics after (and sometimes before) being left alone.
- The signs of separation anxiety can be associated with other behavioral and medical problems, so your veterinarian will need to examine your dog to make a diagnosis.
- There are many effective treatments for separation anxiety.

The Basics

Separation anxiety is a behavior problem in which a dog panics after (and sometimes before) being left alone. Dogs with this problem may vocalize, pace, urinate, defecate, and/or engage in destructive behavior before and/or after their owner leaves. Escape attempts by affected dogs can result in self-injury and household destruction, especially around windows and doors.

It isn’t exactly clear why dogs develop separation anxiety. However, many more dogs that have been adopted from shelters are affected compared with dogs that have the same owner since puppyhood. Therefore, it is thought that loss of an important person(s) in a dog’s life can cause separation anxiety. The development of separation anxiety has also been associated with changes in the owner’s schedule or residence.

Signs and Diagnosis

The following signs of separation anxiety are usually most severe within the first 15 to 20 minutes after a dog is left alone, but they can also occur before the owner leaves.

- Indoor destructiveness (e.g., digging, chewing)
- Barking, whining, and/or howling
- Urinating and/or defecating
- Pacing
- Escaping
- Constantly following the owner around the house
- Drooling or panting
- Chewing or licking the paws or tail
- Refusing to eat
- Sadness

These signs can also be associated with other behavioral and medical problems, so your veterinarian will need to examine your dog to make a diagnosis. Dogs that have separation anxiety may also have noise and thunderstorm phobias, so your dog may also be evaluated for these conditions.

Treatment

If you suspect that your dog has separation anxiety, contact your veterinarian right away. The goal of treating separation anxiety is to teach your dog to enjoy, or at least tolerate, being left
alone. To help ease your dog’s anxiety, your veterinarian may make several recommendations, such as the following. Before you begin any treatment plan, please thoroughly discuss it with your veterinarian.

Don’t punish your dog. These anxious behaviors aren’t due to disobedience or spite. They are distress responses. If you punish your dog, he or she may become even more upset, which could worsen the problem.

Counterconditioning is a treatment that associates the sight or presence of a feared or disliked person, animal, place, object, or situation with something your dog enjoys. For dogs with mild separation anxiety, counterconditioning focuses on developing an association between being alone and getting a reward, such as delicious food. To develop this association, an affected dog may be given a reward (e.g., a puzzle toy filled with a treat) every time his or her owner leaves the house.

Moderate or severe cases of separation anxiety may require a more complex program involving desensitization and counterconditioning. This program requires guidance from a trained veterinary professional, and anxiety must be avoided for it to work. This treatment might start by having you desensitize your dog to the normal cues that you are leaving. This can be accomplished by regularly acting like you’re about to leave without actually doing so. The next phase of treatment may involve leaving your dog briefly (1 or 2 minutes) without causing anxiety. The time you’re gone is gradually increased over a period of weeks. Once your dog can tolerate your absence for an hour or two, he or she should be ready to handle longer periods of time. During this process, all good-byes and greetings with your dog should be conducted calmly.

Physical and mental activity can help reduce your dog’s stress level. Keep him or her busy with regular exercise, obedience or agility training, or food puzzle toys.

Confine your dog to a portion of the house when you leave. This makes some dogs feel more secure and can reduce damage to your house. Don’t crate your dog if he or she is not used to being crated. To determine whether you should try using a crate, place your dog in a crate while you’re home and monitor his or her behavior. Signs of distress (e.g., heavy panting, excessive salivation, escape attempts, persistent howling or barking) may indicate that crate confinement is not an immediate option; however, it may still be a good option in the future. If you confine your dog to a room or crate, be sure to provide fresh water and a comfortable place to sleep. Please discuss proper crate training methods with your veterinarian.

Use background noise to help your dog feel safe. Play a recording of your voice, or leave a television or radio on while you’re gone.

If your dog doesn’t respond to the suggestions above, your veterinarian may recommend antianxiety medications. When used with behavioral training, these medications have helped many dogs overcome separation anxiety. Always consult your veterinarian before giving your dog any type of medication for a behavior problem.
Prevention

To help prevent separation anxiety, accustom your new puppy to being alone for brief periods and then gradually longer ones. In addition, reward only the behavior that you want to reinforce in your dog.
Serum Biochemistry Profile

- A serum biochemistry profile is a blood test that provides an overview of many of the body’s functions.
- Performing a serum biochemistry profile poses minimal risk for your pet, and in many cases, the information your veterinarian gains from this testing is very valuable.
- Your veterinarian may recommend that your pet not receive any food for 8 to 12 hours before blood is drawn for a serum biochemistry profile. Also, tell your veterinarian about any medications or nutritional supplements your pet may be receiving, as some products can alter the results of this test.

What Is a Serum Biochemistry Profile?

Blood testing is commonly used to help diagnose illness in animals. It can also help determine the state of your pet’s health during regular wellness visits, and it is commonly performed before sedation or anesthesia to help determine if a pet is healthy enough to undergo the procedure.

Your veterinarian may recommend a variety of blood tests to help assess your pet’s health. A serum biochemistry profile is a blood test that provides a good overview of many of the body’s functions. As with any other diagnostic test, results of a biochemistry profile do not tell the whole story of your pet's health. These results are interpreted in combination with physical exam findings, medical history, and other information to assess your pet’s health status and determine if additional testing should be recommended.

Depending on which diagnostic laboratory is used, a serum biochemistry profile can be called different things, including “Superchem” and “Vetscreen,” and the profile may differ in the tests it includes.

How Is a Serum Biochemistry Profile Performed?

To perform a serum biochemistry profile, your veterinary team must obtain a small blood sample from your pet. This procedure is usually very quick; it may take only a few seconds if the patient is well behaved. For patients that are very frightened or not well behaved, your veterinary team may want to use a muzzle, towel, or other method of gentle restraint. In some cases, such as in patients with very thick fur, it may be necessary to shave the hair from the area where blood will be drawn. The hair will grow back, and this is often a good way to find the vein quickly.

Some veterinary offices have in-house blood analysis equipment, so they can perform a serum biochemistry profile in the office and have results the same day. Other offices send blood samples to an outside laboratory for the test to be performed. If an outside laboratory is used, results are generally available within 1 to 2 days.

Because a recent meal changes the blood and may affect the results of a serum biochemistry profile, your veterinarian may recommend that your pet not receive any food for 8 to 12 hours before blood is drawn for this test. In most cases, water can still be offered. Please let your veterinarian know if this temporary fast will be a problem for you or your pet.
Also, be sure to tell your veterinarian about any medications or nutritional supplements your pet may be receiving, as some products can alter the results of a serum biochemistry profile.

What Does a Serum Biochemistry Profile Tell Your Veterinarian?

The serum biochemistry profile measures a variety of chemicals and enzymes (proteins that are involved in the body’s chemical reactions) in the blood to provide very general information about the status of organ (especially the liver, kidneys, and pancreas) health and function. The biochemistry profile also shows the patient’s blood sugar level and the quantities of important electrolytes (molecules like sodium, calcium, and potassium) in the blood. Any of the following values may be included in a serum biochemistry profile:

- Serum biochemistry values that help provide information about the liver include the ALKP (alkaline phosphatase), ALT (alanine aminotransferase), AST (aspartate aminotransferase), and TBIL (total bilirubin).
- Serum biochemistry values that help evaluate the kidneys include the BUN (blood urea nitrogen) and CREAT (creatinine).
- AMYL (amylase) and LIP (lipase) are enzymes produced by the pancreas.
- Electrolytes are checked for quantity and for proportion to other electrolytes. They include Ca (calcium), Cl (chloride), K (potassium), Na (sodium), and PHOS (phosphorus). Electrolyte abnormalities can be associated with many types of health issues.

What Is a Serum Biochemistry Profile Used For?

A serum biochemistry profile is an important component of wellness blood work. Your veterinarian may recommend wellness blood work during your pet’s regular exams. Even if your pet is young and healthy, performing this testing periodically can help establish “normal” values for your pet. The next time blood work is performed, your veterinarian can compare the new results with previous results to see if anything has changed. Depending on your pet’s age and health history, additional tests (such as thyroid testing or urinalysis) may also be recommended as part of wellness testing. For seniors or chronically ill pets, your veterinarian may recommend blood work more frequently.

A serum biochemistry profile can help screen for many medical conditions, including diabetes and kidney disease. In many cases, early diagnosis and management can improve quality of life and long-term outcomes for pets with chronic illnesses.

When a pet presents with clinical signs indicating an illness, a serum biochemistry profile may be performed very early during the diagnostic process. Even if results of this initial testing are all “normal,” this information can rule out a variety of medical conditions. If your pet has abnormal or inconclusive biochemistry profile results, your veterinarian will combine that information with other vital information about your pet to decide if further diagnostic testing is recommended. Additional tests may include a urinalysis, radiographs (x-rays), or additional blood testing. Depending on your pet’s overall condition, your veterinarian may recommend medications or other management.
A serum biochemistry profile can also be part of routine blood work that is performed before a pet undergoes sedation or general anesthesia for a surgical procedure. If test results are abnormal, your veterinarian may recommend additional precautions to help ensure your pet’s safety during the procedure. Your veterinarian may also recommend postponing the procedure or choosing an alternative treatment option.

Are There Risks Associated with Performing a Serum Biochemistry Profile?

Very few risks are associated with performing a serum biochemistry profile. Drawing blood takes only a few seconds, and your veterinary team will take precautions to ensure that your pet is not injured during this procedure. Once blood is obtained, all further processing is performed at the veterinarian’s office or at a diagnostic laboratory, so there is no risk of harm to your pet.

Performing a serum biochemistry profile poses minimal risk for your pet, and in many cases the information your veterinarian gains from this testing is very valuable.
Skin Problems and Your Pet

- A variety of skin problems can affect dogs and cats, including allergies, bacterial and fungal infections, and parasite infestations.
- The signs of skin problems in pets can be very similar, so it is important to have your veterinarian examine your pet to determine the cause of the problem.
- Most skin problems in pets are curable or manageable. If your pet seems itchy or has skin that doesn’t look healthy, contact your veterinarian.

A wide variety of skin and coat conditions can cause your pet to itch and scratch, but pinpointing the problem can sometimes be difficult because many skin disorders have similar outward signs. Below are four major categories of skin conditions seen in cats and dogs.

Allergic Skin Diseases

Allergic skin disease develops when your pet’s immune system overreacts to certain substances (allergens), causing clinical signs that affect the skin. Your pet may come into contact with these allergens in several ways:

- **Breathing.** When allergens are inhaled, the associated skin disease is called *atopy* or *atopic skin disease*. Inhaled allergens can be molds, dust, plant pollens, or a variety of other agents.
- **Touch.** Sometimes, your pet can be allergic to things that make contact with the skin, such as grass or natural or artificial fibers. Pets that are allergic to components of flea saliva can develop *flea allergic dermatitis* if they are bitten by fleas.
- **Eating.** Some cases of allergic skin disease in pets are triggered by an allergy to something in the pet’s food.

Allergic skin disease causes itching, and pets that scratch excessively can damage their skin. Sometimes, frequent chewing, scratching, and biting can cause secondary skin infections, wounds, scabs, hair loss, and other problems.

Diagnosing allergic skin disease can be challenging because different types of allergies can have the same clinical signs, and allergic skin disease can look like many other types of skin problems. Your veterinarian will try to rule out other types of skin irritation before making a diagnosis of allergic skin disease.

Ideally, treatment of allergic skin disease involves reducing or eliminating your pet’s exposure to the allergens that are causing the problem. For example, if a pet has a food allergy, a special diet may be prescribed. If your pet is allergic to fleas, safe and effective flea control is essential to controlling the problem. For pets that are allergic to inhaled allergens, limiting their exposure (to grass or house dust, for example) is helpful, but medications are often necessary. In some cases, allergy testing may be recommended. If the exact allergens can be identified, a serum can be developed that, when administered to the pet in injections, reduces the pet’s sensitivity to the allergens over time.
Sometimes, the cause of an allergic skin problem can’t be determined right away. Fortunately, your veterinarian can frequently use medication to treat the itching without finding out exactly what the pet is allergic to. Although this is not a “cure,” the pet can be made more comfortable until a more permanent solution is possible. In general, the best remedy is to avoid whatever it is that sparks the allergic reaction.

**Bacterial Skin Infections**

All people (and pets) have bacteria on their skin. In most cases, these bacteria don’t cause a problem. However, when the skin is damaged (such as through scratching due to a skin allergy), a secondary bacterial infection can develop.

Bacterial skin infections, called *pyoderma*, are not contagious to people or other pets. However, the skin problems they cause, including pustules, open wounds, and infections that damage the hair follicles (leading to hair loss), can become a serious medical issue for affected pets.

Bacterial skin infections are usually diagnosed based on the patient’s medical history and the location and appearance of the affected area. Your veterinarian may also perform blood tests, skin tests, or bacterial culture testing to determine the exact origin of the problem. Many bacterial skin infections have an underlying cause, such as a parasite infestation, hormonal or immune system disorder, or allergy. If the underlying cause is not treated appropriately, the skin infection will likely return. In addition to treatment for the underlying cause, your veterinarian may recommend antibiotics, which can be administered in many forms, including pills, injections, shampoos, gels, ointments, and sprays.

**Fungal Skin Infections**

Malassezia. The most common fungal organism that causes skin problems in pets is a yeast called *Malassezia*. This infection generally occurs secondary to another skin problem, such as allergic skin disease or a bacterial skin infection. Fortunately, *Malassezia* is treatable through a variety of methods (including shampoos, gels/ointments, and pills). The key to resolving the problem for good is to successfully manage the underlying condition.

Ringworm. When most people hear *ringworm*, they may think of a parasite, but ringworm is actually a relatively common fungal skin infection. Ringworm causes crusty skin lesions and hair loss. It can occur anywhere on the body but commonly affects the head and legs. Sometimes the area of hair loss is circular, but not always. Diagnosis is best made via a fungal culture. For this test, your veterinarian will pluck a few hairs from an affected area and place the sample in a special solution to see if the ringworm organism will grow. Ringworm is treatable, usually through medicated baths, ointments/gels, or pills. Complete eradication of the infection can take a month or longer.

Ringworm can be quite contagious to people and other pets. Therefore, children and other household pets should be kept away from an infected pet during the treatment period. People who come into contact with the affected pet should wash their hands regularly.
Parasitic Skin Diseases

A number of parasites can infest dogs and cats. They can cause itching, which may lead to self-mutilation from excessive scratching and biting and other trauma to the skin. Fleas are one of the biggest culprits. Pet that are allergic to fleas may scratch excessively, causing redness, wounds, pustules, scabs, and hair loss in the affected areas. Even pets that aren’t allergic to fleas still experience itching and general misery from these parasites. Other small parasites, such as ticks, chiggers, lice, and biting flies, can also bother pets. For most of these parasites, your veterinarian can recommend a product to control them and protect your pet from their effects.

Mites that can affect dogs and cats include ear mites (which are contagious among pets and cause severe itching and ear infections); sarcoptic mites, which burrow under the skin, causing intense itching and skin lesions (known as scabies or red mange), and are contagious to people in the household; and Demodex mites, which are more common in dogs than in cats and are associated with itching, hair loss, and skin problems.

Most parasitic skin diseases can be diagnosed through direct visualization of the parasite (such as fleas), or by examining small samples of skin or debris under a microscope to diagnose the problem (such as ear or Demodex mites). All of these parasitic conditions are treatable, so if your pet is itching, or you notice any bald areas or skin wounds, contact your veterinarian.

Help Is Available

The skin problems listed here are the most common ones that affect dogs and cats, but there are many others, including immune-mediated skin disease, cancer involving the skin, and endocrine (hormonal) problems that affect the skin.

Most skin conditions can be cured or at least (as with some allergies) managed. No matter the cause of your pet’s skin problem, it is possible to ease his or her suffering. When you do, it will be a relief for both of you.
Spay Surgery

- A spay is a surgical procedure in which the ovaries and uterus are surgically removed.
- Spaying prevents unwanted pregnancy and discontinues heat cycles.
- Spaying may also be performed to treat certain medical conditions, such as a uterine infection.
- When performed early in life, spaying can decrease the chance of your pet getting breast cancer.

What Is a Spay?

A spay, also known as an ovariohysterectomy (ovario – hyster – ectomy) is one of the most common surgical procedures performed on female dogs and cats. This surgery removes the entire uterus and both ovaries. The primary reason for performing a spay is to prevent unwanted pregnancy. However, the procedure has other uses, including treatment for uterine cancer and uterine infection.

How Is a Spay Performed?

The Presurgical Evaluation: Your veterinarian may recommend a presurgical evaluation before performing a spay on your pet. The presurgical evaluation may include a physical examination to ensure that your pet is healthy enough for surgery. Preanesthetic blood work may also be recommended. This testing is designed to help identify any problems that may increase the risks associated with surgery or anesthesia. Your veterinarian may want to use pre-anesthetic blood work to check for several medical conditions, including infection, anemia (a low number of red blood cells), low blood sugar, inadequate blood-clotting ability, liver disease, and kidney disease.

If your pet has any preexisting medical issues, such as a heart problem, your veterinarian may recommend additional testing to determine if any precautions are recommended or if surgery should be postponed or cancelled due to health reasons.

Sometimes, the presurgical evaluation can be performed on the day of surgery. However, some veterinarians perform this testing a few days or weeks before the procedure is scheduled.

Surgery Day: To reduce the risk of vomiting during the procedure, it is generally recommended that pets have an empty stomach before undergoing anesthesia. Your veterinarian will likely ask you to remove your pet’s food and water bowls the night before surgery and to withhold food and water on the day of surgery. If your pet eats or drinks before undergoing anesthesia, tell your veterinarian, as postponing surgery may be recommended. If your pet receives insulin or any other medications, ask your veterinarian what you should do on the day of surgery. You may be advised to adjust the medication dosage or to withhold medication for that day.

Before the surgery begins, your pet will be given anesthesia. This keeps your pet still, asleep, and completely pain free during the operation. There are many types of anesthesia; your veterinarian will choose the one that is best for your pet. Some types are given as an injection, while other anesthetics are gasses that are inhaled. During anesthesia, a small plastic tube is inserted into the
patient’s airway to support breathing. The tube is connected to the anesthetic gas machine to give the patient a constant flow of anesthetic gas and oxygen. During this time, your veterinary team may also connect monitoring equipment to constantly measure heart rate, breathing, and oxygen use during anesthesia.

Once asleep, the patient’s abdomen is shaved and scrubbed using a germicidal solution. The area is then draped with sterile cloths that help keep the surgical area sterile. The veterinarian and veterinary assistants then prepare for surgery through repeated handwashing with germicidal soaps and then put on sterile gowns, caps, masks, and gloves. Keeping everything sterile helps prevent infections.

The traditional spay procedure is performed through a small incision near the belly button. Some veterinarians have access to laparoscopic surgical equipment and use it to perform spay surgery. A laparoscope is a surgical device attached to a long tube (called an endoscope) that has a tiny camera at the tip. This sterile device is inserted into the patient’s abdomen through a very small incision, and the entire spay procedure can be performed using this technology.

During the procedure, both ovaries and the uterus are located and removed. Any affected blood vessels are closed off to prevent bleeding. Whatever procedure your veterinarian decides to choose, every effort will be made to keep your pet as safe as possible during and after the procedure.

Once the ovaries and uterus have been removed, your veterinarian will double-check for any bleeding and then close the incision. Once the incision is closed, the surgical area is cleaned again, and the patient is permitted to awaken from anesthesia. Afterward, the patient is monitored in a recovery area until she is awake and stable enough to go home. Additional pain medication is generally given at this time. Some hospitals keep surgical patients overnight so they can be closely observed and monitored by hospital staff; however, other hospitals allow pets to recover at home.

**At-Home Care After a Spay**

Even the best and most successful surgery can result in complications if postoperative care is inadequate. Your veterinary team will review your home-care instructions before you take your pet home. Be sure to follow all instructions carefully and contact your veterinarian if you have questions or concerns after you get home. Here are just a few tips:

**Food and water:** You may be tempted to give your pet a large meal after she returns home from being spayed. Don’t! Smaller meals are generally recommended for the first day or so. Ask your veterinarian when normal meals can be resumed.

**Stitches:** Your pet may have stitches on the outside of the skin after surgery, but some veterinarians choose to bury the stitches underneath the skin or to use surgical adhesive to close the incision. Some suture material is dissolvable and does not need to be removed, whereas other stitches need to be removed after surgery (usually in 7 to 14 days). Your veterinarian will review these details and other at-home care details before you take your pet home from surgery. Even if
stitches are not present, check the incision regularly for swelling, bleeding, bruising, or discharge and report any problems to your veterinarian.

**Protecting the incision:** Your pet should not be permitted to lick or bite the incision. This can open the incision or cause a serious infection. Your veterinarian may recommend that your pet wear an Elizabethan collar to prevent tampering with the incision and stitches. This collar is a plastic cone that fits over your pet’s head (like an upside-down lamp shade) to prevent licking or biting of the surgical area.

**Medication:** Be sure to give all medications as directed. If your pet vomits after receiving medication or has other complications, call your veterinarian.

**Activity restriction:** Running, jumping, or using stairs should be avoided (if possible) for approximately 7 to 10 days after undergoing spay surgery. Excessive activity can cause pain, bleeding, swelling of the incision, and other complications. Even if your pet seems perfectly fine and wants to be active, continue activity restriction as recommended by your veterinarian.

**What Are the Benefits of Spaying?**

There are many benefits to spaying your pet. The Humane Society of the United States estimates that between three and four million unwanted pets are euthanized at shelters annually. Spaying is a reliable way to prevent unwanted pregnancy and help address this problem. Some dogs have health issues (such as false pregnancy) associated with heat cycles. Because spaying stops heat cycles, these problems are eliminated. Spaying can help improve certain behavioral problems, including certain forms of aggression. Spaying eliminates the risk of ovarian or uterine cancer, and if performed early in life, it significantly reduces the risk of breast cancer.

For most pets, the benefits of spaying far outweigh the potential risks. The decision to spay or not is an important one, so be sure to discuss this health issue with your veterinarian.
Spaying or Neutering Your Pet

- Spaying and neutering are surgical procedures to remove reproductive organs.
- These procedures are typically recommended for puppies and kittens before they reach sexual maturity (at about 5 months old).
- Spaying or neutering your pet prevents him or her from having unwanted offspring. It also has very important health and behavior benefits for your pet.
- General anesthesia is required.
- Spaying is a more involved procedure than neutering.

What Is It?

Spaying and neutering are surgical procedures used to remove the reproductive organs of dogs and cats. Spaying is the removal of the uterus and ovaries of a female dog or cat. Neutering is the removal of a male dog’s or cat’s testicles. These procedures are also sometimes referred to as “sterilizing” or “fixing” pets.

How It Works

Both of these procedures are performed by a veterinarian while the pet is under anesthesia. Spaying is generally a more involved procedure than neutering because the reproductive organs being removed are internal.

Although all surgical procedures carry some risks, spaying and neutering are the most common surgeries performed in dogs and cats, and most pets handle the surgery very well. Be sure to follow instructions regarding withholding food and water before surgery. Your pet will need to stay at the hospital anywhere from a few hours to a few days, depending on his or her age, size, sex, and condition. Also be careful to follow all recommendations for home care or aftercare, such as pain medications and appointments for suture removal.

Pets can be spayed or neutered when they are as young as 8 weeks of age, and many animal shelters follow this policy before releasing pets for adoption. Otherwise, the procedure is typically recommended for dogs and cats before they reach sexual maturity (at about 5 months old).

Benefits of Spaying and Neutering

One of the best reasons to spay or neuter your pet is to avoid adding to the problem of pet overpopulation. Every day in the United States, thousands more puppies and kittens are born than are human babies. The result is that there are not enough homes for all of these pets. The Humane Society of the United States (HSUS) estimates that between 6 and 8 million pets enter animal shelters each year. Of these pets, the HSUS believes that at least half—3 to 4 million—are euthanized, or “put to sleep.” Many of these animals are young and healthy.

Spaying and neutering also have immediate benefits for you and your pet:
• Your pet will be much less likely to get a number of serious health problems that can be life-threatening and expensive to treat, such as uterine, mammary (breast), or testicular cancer.
• Spayed and neutered pets are less likely to try to escape and roam. Roaming pets are far more likely to get into fights with other animals or to experience traumatic injuries, such as being hit by a car.
• Neutering male cats makes them less likely to mark their territory (your home) by spraying urine.
• Spaying female pets prevents them from coming into heat—that is, actively seeking a mate. Pets in heat may vocalize more and may leave bloodstains on carpets or furniture. A female dog or cat in heat may also attract unwanted male canine or feline visitors to your property.
• Spayed or neutered pets are generally more even tempered and less likely to show aggression with other animals or people.

**Common Concerns About Spaying and Neutering**

**Will my pet gain weight?**

You can help keep your pet from gaining unnecessary weight by not overfeeding or overindulging him or her with treats and by making sure he or she gets plenty of exercise. Regular walks (for dogs) or playtimes (for cats) can help keep your friend fit.

**Isn’t it expensive?**

Spaying or neutering is a one-time investment in the health of your pet. This procedure is relatively inexpensive in light of the veterinary training and medications required for it. Compare the expense of this procedure to the expense of caring for a pregnant and nursing mother, raising a litter of puppies or kittens (including the necessary vaccinations and deworming medications), and feeding puppies or kittens until they are old enough to be placed in homes. Also consider that spayed and neutered pets are less likely to roam, suffer accidents, or develop certain serious diseases.

**Shouldn’t my female pet have at least one litter?**

Spaying female dogs and cats before they go into heat even once further reduces the chance of certain medical conditions that affect the reproductive organs. Preventing pregnancy also eliminates the possibility of your pet having complications from pregnancy and delivery. It is also very time-consuming and expensive to raise healthy offspring, and it can be very difficult to find homes for the new arrivals. Your female dog or cat will not “miss” being a mother, and if you have children, you can help teach them the “miracle of life” through other methods, such as books and videos. If fewer puppies and kittens are born, more will find homes and avoid euthanasia.
Submissive Urination in Dogs

- Submissive urination occurs when dogs perceive some kind of threat.
- Submissive urination is most common in puppies but can happen at any age.
- Dogs may interpret a harsh tone of voice or some human body language (such as direct eye contact, standing over the dog, petting the dog on the head) as dominant and threatening.
- Events that trigger the submissive behavior must be identified and changed.
- To resolve this problem, positive reinforcement can be used to build your dog’s confidence, and punishment should be avoided.

What Is Submissive Urination?

Dogs may urinate inappropriately in response to a perceived threat, which may be intentional (for example, when an owner scolds the dog) or unintentional (for example, when an owner displays a dominant behavior, such as looking directly into the dog’s eyes). Submissive urination is the dog’s way of communicating that he or she is not a threat and is submitting to the person’s dominance.

While submissive urination occurs most commonly in puppies, it can happen with any dog at any age. A dog that displays this behavior will typically show other submissive signs, such as tucking the tail, looking away, licking the lips, and rolling over on the back.

Excitement urination is somewhat different, occurring when a dog is overly excited, usually when the owner or visitors greet the dog. Affected dogs wag their tails and do not display submissive postures.

Why Is My Dog Exhibiting This Behavior?

Dogs communicate with each other through body language and vocalization, so it’s natural for them to react to human facial expressions, gestures, and tones of voice in the same way. Human behaviors that may be threatening to dogs include:

- Scolding or physical punishment
- Direct eye contact
- Standing over them
- Loud, harsh, or excited tones
- Patting them on the head
- Making loud noises

How Can I Stop the Behavior?

Dogs can outgrow submission urination with a little patience from their owners. The key is to build a dog’s confidence with positive reinforcement and avoid all punishment. Scolding or punishing a submissive dog only worsens the problem by eliciting more submissive behavior. Here are a few steps you can take to change the behavior:
- **Consult your veterinarian.** Your veterinarian will ensure that there’s not a medical reason for the behavior and suggest ways to address the problem.

- **Identify the triggers to this behavior.** Find the actions that elicit submissive urination in your dog, and alter the circumstances. If your dog urinates when you greet him or her at the end of a workday, ignore your dog for a few minutes as soon as you get home. This will help your dog stay calm when you arrive, and you can greet your dog calmly when he or she approaches you.

- **Avoid punishment.** When your dog urinates submissively, do not punish him or her or express frustration. Either ignore the behavior and walk away or calmly take your dog outside and reward him or her for urinating outdoors.

- **Avoid aggressive or dominant gestures.** Speak calmly to your dog, avoid direct eye contact, kneel at your dog’s level rather than leaning over from the waist, and pet your dog under the chin rather than on top of the head. It can also help to approach your dog from the side rather than head on.

- **Reward confident behavior.** Provide your dog with alternatives to submissive behavior, and reward his or her efforts. For example, if your dog normally cowers when you arrive, ask your dog to sit, and then reward him or her with a treat. Keep rewarding good behavior throughout the day to build your dog’s confidence.
Summer Hazards and Your Dog

- When temperatures outside reach dangerous levels, the temperature inside the house can, too. Keep fresh water available, and make sure your dog has a cool place to spend the day.
- Bring your dog indoors if a heat advisory is issued, or if severe weather (heavy rain, high winds, flooding) is expected.
- Never leave your dog in a car when the weather is warm, and try to avoid walking or other exercise during the heat of the day.
- Keep vaccines up-to-date, and continue parasite control throughout the summer.
- Regardless of whether your dog spends time outdoors, exposure to dangerously high temperatures, environmental hazards, and physical dangers is possible. Knowing what to look for is the first step toward protecting your dog from potential summer hazards.

What Should I Know About Warmer Temperatures and Heatstroke?

Dogs that spend most of their summer days inside are protected from many warm weather hazards, but only if the temperature inside the home remains within a healthy range. In an effort to reduce energy usage and costs, some pet owners shut off fans and air conditioning when they leave the house in the morning and turn them on when they return later in the day. However, when temperatures outside reach dangerous levels, temperatures inside the house can, too. Being shut inside a hot house can be deadly for your dog. Dogs can’t sweat; they rely heavily on panting to cool themselves off. When the temperature in the environment increases, panting becomes less effective. This means that your dog could be locked inside with minimal options for cooling down.

Instead of turning off the air conditioner, try leaving it on a conservative but comfortable setting (perhaps 76°F) while you are out. Make sure your dog has plenty of fresh water and consider closing curtains to reduce the heating effects of sunlight through the windows. If there are parts of the house that are likely to be cooler, make sure your dog has access to those areas.

Dogs that go outside need even more protection from hot weather. Access to clean drinking water is essential, as well as having cool, shaded areas available if your dog wants to get out of the sun. Remember, however, that fleas also tend to like cool, shaded, moist areas, so be sure to use a safe and effective flea control product on your dog. Dogs should not be left outside for long periods of time in the summer and should always have the option of coming inside. It’s important to be aware of the risk of heatstroke so you can keep your pet safe and healthy.

Sadly, heatstroke is a significant problem for dogs. Heatstroke occurs when the dog’s body temperature exceeds a healthy range, and it can be fatal. Heatstroke commonly occurs when dogs are locked inside a car. Just a few minutes in a car on a hot day (even with the windows cracked) can be deadly for a dog. Research has shown that on a partly cloudy 93°F day, a car can heat up to 120°F in just 15 minutes. Even cooler days can be deadly. A similar test conducted on a 71°F day determined that the temperature inside a car parked in the sun with the windows cracked open went up to 116°F in 1 hour. Never leave your dog in a car when the weather is warm.
Heatstroke can also occur when dogs exercise in hot weather. When possible, try to avoid walking your dog during the heat of the day, and consider making walks shorter. Strenuous exercise should be skipped, or at least postponed until the cooler part of the day. If you must exercise with your dog, carry cool water and take frequent breaks.

Even dogs that are used to being outside can suffer during hot weather. Remember that young, elderly, or sick dogs are more likely to become dehydrated or otherwise ill as a result of heat exposure. If a severe heat advisory is issued in your area and humans are advised to stay indoors, it is a good idea to bring your dog indoors, too. If your dog cannot be brought indoors, a ventilated or air-conditioned garage or mud room can provide enough shelter in some cases. Dogs should also be brought inside if severe weather is expected, as heavy rain, flooding, and high winds can be deadly for pets trapped outside.

What Should I Know About Exercising with My Dog?

Many people take advantage of warm summer weather to increase exercise with their dogs. In many cases, this is a great idea. However, unless your dog has exercised regularly during the rest of the year, his or her body needs time to adjust to a more active lifestyle. Before embarking on an exercise program with your dog, schedule an examination with your veterinarian. This can help identify any medical problems that may make it difficult or dangerous for your dog’s activity level to increase. Your veterinarian may also be able to recommend which exercises are best for your pet. For example, not every dog needs to run or swim in order to be healthy. (In fact, swimming does not come naturally for every dog; if you take your dog in a boat with you, make sure your pet has a life preserver.) Even if you are just planning leash walks, your veterinarian can advise you how to gradually increase the level of these workouts in a way that is safe and healthy for your dog.

What Should I Know About Seasonal Allergies?

Depending on where you live, warm weather can bring a variety of pollens and other allergens into your dog’s environment that are absent during the winter months. Dogs with seasonal allergies tend to become itchy (unlike humans, who develop runny eyes and sneezing). Itching can make your dog miserable. Sometimes the itching can become so severe that a dog can develop skin wounds, skin infections, and severe hair loss. If you think your dog may have a seasonal allergy, schedule a visit with your veterinarian. Medication can frequently help, and your veterinarian may recommend allergy testing to determine what your dog may be allergic to.

Why Are Strange Animals Hazardous?

Dogs that spend time outside are more likely to have encounters with stray cats and wild animals during the summer months. Such encounters increase the risk of bite wounds, scratches, and other injuries related to fighting. Infectious diseases such as rabies can also be transmitted through bite wounds.

If possible, leash walk your dog. If your dog must spend time outdoors unattended, make sure his or her vaccines are up-to-date.
What Toxic Chemicals Might My Pet Be Exposed To?

Lawn chemicals and fertilizers, insect repellants and sprays, weed control products, antifreeze, slug bait, ant bait, rat poison, and pool chemicals are just a few toxic chemicals your dog may encounter in your home or on your property. Learn more about dangerous chemicals at the ASPCA (American Society for the Prevention of Cruelty to Animals) Animal Poison Control Center: http://www.aspca.org/pet-care/poison-control/.

How Can I Prevent Bee Stings and Related Hazards?

Bee stings, spider bites, and other related injuries are common in dogs. Check around your home (inside and out) for beehives, wasp nests, and other hazards your family and pets may encounter. Don’t forget to also check garages and storage sheds.

How Can I Prevent Fleas, Ticks, and Other Parasites?

Fleas, ticks, and intestinal parasites (like roundworms and hookworms) are year-round hazards for your dog. However, increased exposure to the outdoors and certain parasite life stages during the warmer months makes these predators more of a concern during the summer. Be sure to keep your dog up-to-date on fecal parasite testing, and make sure you continue flea, tick, and parasite prevention during the summer months. If your dog receives heartworm preventive medication, continue this during the summer (heartworm disease is carried by mosquitoes, which are mostly active from the spring through the fall). Ask your veterinarian about the best ways to protect your dog from fleas, ticks, heartworms, and intestinal parasites.

What Should I Know About Toxic Plants?

Your dog may encounter toxic houseplants (such as elephant ear and dieffenbachia) at any time of the year, but plants that flower in warm weather, like daisies, dahlias, and chrysanthemums, are also toxic and create additional hazards for dogs that spend time outside. Information about poisonous houseplants and outdoor plants and flowers is available at the ASPCA Animal Poison Control Center: http://www.aspca.org/pet-care/poison-control/. 
Tail Docking

- Tail docking, also known by the term caudectomy, is the surgical removal of a portion of the tail.
- Surgical caudectomy can be performed for medical reasons, such as to ensure complete tumor removal or to alleviate excessive skin folds around the base of the tail.
- In most cases, tail docking is a cosmetic procedure without apparent medical benefit; it therefore remains controversial.

What Is Tail Docking?

Tail docking, also known by the term caudectomy, is the surgical removal of a portion of the tail.

Why Is Tail Docking Performed?

When caudectomy is performed for medical reasons, it is not referred to by the term tail docking. If a dog (or cat) breaks his or her tail in such a way that adequate healing is unlikely, it may be medically advantageous for the pet if part of the tail is removed. Similarly, if a pet sustains a serious wound or infection on the tail, caudectomy can have medical benefits for the pet. Caudectomy is also sometimes performed to ensure adequate removal of tumors on the tail, or to help alleviate skin infection under the tail caused by excessive skin folds.

When caudectomy is not performed for medical reasons, it is referred to as tail docking. According to the American Veterinary Medical Association (AVMA), tail docking is a cosmetic procedure. It is performed to alter a dog’s physical appearance in compliance with certain breed standards, but has no proven medical benefit for the pet. Tail docking, therefore, remains a controversial procedure.

Traditionally, owners of certain working and hunting dogs (such as German short-haired pointers) had their dogs’ tails docked because it was thought to reduce the chances of trauma or injury to the tail while the dog performed his or her duties. It was also thought that tail docking would help prevent a long tail from becoming soiled while the dog was working. However, limited scientific evidence exists to support these assertions.

How Is Tail Docking Performed?

The amount of tail removed during a tail docking depends on the standard for the particular dog breed. In general, the remaining tail segment is between ¼ inch long (for a Norwich terrier, for example) and 1 ¼ inches long (for a giant schnauzer). Surgical separation of the bones in the tail can be performed using a scalpel. The small incision can then be stitched closed using suture material. Laser surgery or electrosurgery are also options. However, in some cases a constricting band is used.

In most cases, tail docking is performed when puppies are between 3 and 5 days old. Local anesthesia (with or without sedation) can be used to numb the area before surgery, but the procedure is sometimes performed without it. If the surgery is not performed before the dog is 5
days old, it should be postponed until the dog is 8 to 12 weeks of age. General anesthesia is recommended if surgery is performed at that time.

If medical caudectomy is performed in an adult dog, general anesthesia is used. The amount of tail that is removed depends on the medical issue that is being treated.

**What At-Home Care Is Needed Following Tail Docking?**

Because tail docking is usually performed when puppies are only a few days old, before they are sold or adopted, pet owners rarely have to provide any care.

If tail docking is performed when a puppy is older (between 8 and 12 weeks old), there may still be a suture present at the time of purchase or adoption. If so, the puppy should be prevented from licking the area until it has healed completely. Similarly, littermates or the dam may try to lick the area, which should be prevented. If any swelling, discharge, or discoloration of the area is observed, notify your veterinarian immediately.

For older pets that have undergone caudectomy for a medical reason, there will likely be sutures present, or the area may be bandaged to keep it clean. If sutures are present, they should be checked regularly for bleeding, swelling, or discharge. If a bandage is present, it should be checked frequently for moisture, slippage, or soiling. If the pet tries to lick the area, an Elizabethan collar may be necessary. This is a cone-shaped collar that fits over the pet’s head and limits access to the rear of the body. Your veterinarian can fit your pet with the proper-sized collar if necessary.
Tapeworms

• Tapeworms are long, flat, parasitic worms that live in the intestines of dogs and cats.
• Pets generally become infected by ingesting fleas that contain tapeworm larvae during grooming.
• Pets may also become infected by eating prey that is infected with tapeworm larvae.
• Most tapeworm infections do not cause illness in pets.
• People can get tapeworm infections by accidentally ingesting an infected flea or, in rare cases, by consuming tapeworm eggs.
• The infection is generally diagnosed by finding tapeworm segments around the pet’s anus, in the pet’s bedding, or in the pet’s feces.
• There are several medications that are effective at eliminating tapeworm infections.
• Flea control is important to help prevent the pet from becoming reinfected.

What Are Tapeworms?

Tapeworms are long, flat, parasitic worms that live in the intestines of dogs and cats. Several species of tapeworms can infect pets. Most have a head that attaches to the intestinal wall and a series of segments, called proglottids, that make up the worm’s body. An adult tapeworm can reach 6 inches or more in length and has the appearance of a white piece of tape or ribbon.

How Do Pets Become Infected With Tapeworms?

Tapeworm segments detach from the end of the adult tapeworm and are shed in the pet’s feces. Each segment contains numerous tapeworm eggs. Once in the environment, the segments break open, releasing the eggs, which eventually develop into tapeworm larvae.

The most common tapeworm found in dogs and cats is associated with fleas. Developing flea larvae in the environment eat the tapeworm larvae, and pets become infected when they ingest an infected flea during grooming.

Pets can become infected with another type of tapeworm when they hunt and eat prey, such as a bird, rodent, or reptile, that has eaten the tapeworm larvae.

What Are the Signs of a Tapeworm Infection?

Dogs and cats generally don’t become sick from a tapeworm infection. But rarely, a large infestation may cause weight loss or an intestinal blockage.

 Owners may become aware that their pet has tapeworms by finding tapeworm segments stuck to the fur around the pet’s anus, in the pet’s bedding, or in the pet’s feces. When fresh, these segments are white or cream-colored, can move, and have the appearance of grains of rice. As they dry, they look more like sesame seeds. Occasionally, pets may experience irritation or itchiness around the anus from passing the tapeworm segments.

Can People Get Tapeworms From Their Pets?
Human infections are rare and usually occur when people inadvertently consume an infected flea. Most cases involve children, and tapeworm segments may be found around the anus or in bowel movements. The tapeworm infection can be eliminated with an effective antiparasite medication.

In isolated cases, people may become infected by accidentally eating some types of tapeworm eggs. The ingested tapeworm larvae form cysts, which may require drainage, surgical removal, or medication.

**How Are Tapeworm Infections Diagnosed?**

Tapeworm eggs may be difficult to detect on a routine veterinary fecal exam. In most cases, the eggs are contained within the tapeworm segments, and unless the segments have broken open, they may not appear on a fecal exam.

Infections are usually diagnosed by finding tapeworm segments around the pet’s anus or in the pet’s feces.

**How Is an Infection Treated?**

Several medications are effective at eliminating tapeworm infections. At the same time, it is important to treat and control any flea infestation on the pet or in the environment. As long as the pet is exposed to fleas, he or she is likely to become reinfected with tapeworms.

**How Can I Protect my Pet From Tapeworm Infections?**

Monthly flea prevention is an important way to help prevent your pet from becoming infected. You should also discourage pets from hunting and eating prey by keeping cats indoors and dogs on a leash when outside.
The Wellness Examination

- A wellness exam is an overall general health assessment that may include blood tests, urinalysis, and parasite screening.
- A wellness exam is recommended for most pets at least annually.
- Some veterinarians recommend wellness exams at least every 6 months for senior pets and pets with chronic health issues.
- A wellness exam can help ensure your pet's health and detect early stages of disease.

What Is a Wellness Examination?

A wellness examination is a complete physical examination along with diagnostic testing that may include bloodwork, urinalysis, and checking a stool sample for parasites. In many cases, a wellness examination can help detect the early stages of disease. Often, your veterinarian will schedule this exam when your pet is due for vaccinations.

What Does a Wellness Exam Include?

Wellness programs vary depending on the species, age, and health needs of the patient. Your veterinarian may ask you to fill out a preliminary checklist along with a complete medical history of your pet. The checklist will ask about any issues that your pet may have. For example, if you noticed that your pet is losing weight, your veterinarian may perform special tests to help rule out specific diseases that can cause weight loss. Make sure to fill out the forms thoroughly and bring a list of questions that you may have about your pet’s health. This is the perfect time to ask these questions.

Most wellness exams include a complete physical examination, which is a nose-to-tail inspection for any abnormalities. Your veterinarian will use special equipment, including a stethoscope to listen to the heart and lungs, an otoscope to view the inside of the ears, and an ophthalmoscope to examine the eyes. Your veterinarian will also feel all over your pet’s body for lumps and bumps. In addition, your veterinarian will check your pet’s vital signs (temperature, pulse, and respiration) and record your pet’s current weight.

Many veterinarians perform testing on samples of blood, urine, and stool during a wellness exam. The blood test may include a complete blood cell count (CBC) and a chemistry panel. These tests can help determine if your pet has problems such as anemia, infection, or organ disease. Other tests, such as a thyroid evaluation, may be helpful, depending on the physical examination results and patient history.

Parasite tests are usually performed during wellness examinations. Your veterinarian may request that you bring in a sample of your pet’s stool for analysis. A fresh stool sample can be tested using special procedures to identify parasites. However, not all parasites are detected through stool samples. Your veterinarian may recommend testing your pet for heartworm disease. This type of parasite test involves taking a blood sample. Some veterinarians perform heartworm testing and fecal testing on site, but others send these tests to an outside laboratory for analysis.
Your veterinarian may also recommend checking your pet's urine by performing a urinalysis. This helps determine whether your pet's kidneys are working correctly and may also help diagnose certain conditions, such as diabetes and urinary tract infection. A urinalysis also involves testing the urine for the presence of bacteria, blood, and sediment as well as evidence of infection, any of which may mean that there is a problem.

Depending on your pet’s age, current medical condition, and medical history, your veterinarian may recommend additional tests as part of your pet’s wellness examination.

**What Is a Wellness Exam Used For?**

A wellness examination is an important part of preventive health care for pets in all stages of life, from puppies and kittens to senior pets. If your pet seems to be young and healthy, a wellness examination is a good way to detect changes such as weight gain or loss, dental disease, or other subtle changes that may not be evident at home.

For any pet, especially senior pets, a wellness examination is a good way to detect early onset of disease. Early diagnosis and treatment of diseases, such as diabetes and heart disease, can greatly improve the overall health and well-being of your pet.
Thrombocytopenia (decreased platelet count)

- Thrombocytopenia is a life-threatening condition leading to uncontrollable bleeding and severe anemia.
- It is a decrease in the number of platelets, which are necessary to form clots.
- Various diseases may lead to thrombocytopenia.
- Immediate medical attention is necessary for survival.
- The success of treatment depends on the primary disease and response to treatment.

What Is Thrombocytopenia?

*Thrombocytopenia* is the term used when a patient does not have enough platelets in the blood. Platelets (also called thrombocytes) are cell fragments that are necessary for forming blood clots and that help in repairing damaged blood vessels. Platelets are formed in the bone marrow. Their numbers can be low if not enough are being made or if too many are being used or destroyed by the body. Causes of thrombocytopenia include blood loss, immune system disorders, clotting disorders, cancer, and infectious diseases such as Rocky Mountain spotted fever and feline leukemia virus.

Adequate numbers of platelets are essential to survival. Platelets are needed to repair obvious injuries, such as open wounds, as well as microscopic injuries that occur in day-to-day life. If platelet numbers are too low, uncontrolled bleeding can occur, and if treatment is unsuccessful, the patient will die from overwhelming blood loss.

Signs of Thrombocytopenia

- Small bloody spots seen on the skin or gums
- Bleeding from the nose
- Blood in vomit, stool, or urine
- Excessive bleeding from a wound
- Pale gums
- Lethargy, weakness

Diagnosis

Thrombocytopenia is diagnosed based on history, clinical signs, physical examination findings, and laboratory tests. A platelet count is included in a complete blood count (CBC), which will allow your veterinarian to determine the severity of the thrombocytopenia. Other tests may be performed to determine what is causing the low platelet numbers. These may include a blood chemistry panel, urinalysis, radiography (x-rays), ultrasound, tests for immune diseases, tests for infectious disease, and taking a bone marrow sample.

Treatment

Thrombocytopenia needs to be treated as soon as it is recognized. Many of the illnesses that cause thrombocytopenia are not obvious right away. Your veterinarian may choose to start
treatment for the most common causes before knowing the exact one. Initial treatments may include blood or plasma transfusions, steroids, and antibiotics. As the diagnosis becomes clear, your veterinarian may customize treatment. Some patients may need to be medicated for months to years until their platelet numbers stabilize. Follow-up care for these patients consists of frequent physical examinations and platelet counts. Medications may be slowly discontinued after platelet numbers have been in the normal range for some time; however, relapses occur in about 50% of cases. Some pets don’t respond to treatment.

**Prevention**

There is no known way to prevent thrombocytopenia. However, the use of the feline leukemia vaccine and a solid tick prevention strategy may help in the prevention of infectious diseases that cause thrombocytopenia. It may be possible to minimize relapses by avoiding the original cause.
Thyroid Level Test/Thyroid Profile Tests/Canine Hypothyroidism

- A thyroid level test is a blood test that allows the veterinarian to evaluate the function of the thyroid gland.
- Blood is drawn from the pet and sent to a laboratory for the measurement of thyroid hormone levels.
- In dogs, thyroid testing is most commonly used to diagnose and monitor the treatment of hypothyroidism.
- Diagnosis of hypothyroidism can help your veterinarian alleviate signs of disease such as weight gain, sluggishness, and skin changes.

What Is Thyroid Testing?

A thyroid level test is a blood test that allows the veterinarian to evaluate the function of the thyroid gland. Thyroid tests measure the amount of thyroid hormones in the blood. Thyroid hormones are responsible for the regulation of cell metabolism in the body. The body’s metabolism slows down when thyroid hormone levels are low and speeds up when they are too high.

What Is Hypothyroidism?

One of the most common hormonal imbalances in dogs is hypothyroidism, or low thyroid hormone levels. When there is not enough thyroid hormone, several body systems may be affected. Signs of hypothyroidism may be subtle or obvious and can include:

- Weight gain
- Dry skin/excessive shedding
- Hair loss
- Lethargy (sluggishness)/sleeping more often
- Skin darkening/thickening
- Low heart rate
- Heat-seeking behavior due to feeling cold

How Is Thyroid Testing Done?

Thyroid testing is performed during routine blood tests, when your veterinarian suspects a hormone imbalance, or when monitoring of treatment is needed. A visit to your veterinarian that includes blood work does not have to be stressful for you or your pet. Every effort will be made to keep your pet calm and safe. Blood is drawn by the veterinary team either in the examination room or in a treatment area within the hospital. Your pet will be gently but firmly held still in order for a trained technician or your veterinarian to insert a sterile needle into a vein in one of the legs or the neck. The amount of blood drawn depends on the test or tests being ordered. In most cases, the amount of blood needed is very small (1 to 3 teaspoons). The blood is drawn into a syringe, then placed in sterile tubes. In many cases, veterinarians can run common tests in-house and results are known immediately. For more complex tests, the blood is packaged and
shipped to a diagnostic laboratory, where the requested tests are performed. In these cases, your veterinarian will call you as soon the results are available.

**Types of Tests**

The **total T4 (TT4) test** is frequently used as a screening test. This test measures the amount of thyroid hormone that the thyroid gland is producing. When the TT4 is low, many veterinarians recommend either a **free T4 test** or a **full thyroid profile** to confirm hypothyroidism and help determine the cause. These tests are also used when the TT4 level is normal but your veterinarian still suspects hypothyroidism. Your veterinarian may also test for levels of other hormones (e.g., T3, thyroid stimulating hormone). The TT4 test is usually sent to a diagnostic laboratory.

Once hypothyroidism is confirmed and treatment is started, the TT4 test will be used regularly to determine if the prescribed dose of medication provides enough hormone for your dog’s cells to function normally or needs to be adjusted.

**Benefits of Testing**

Thyroid tests help veterinarians diagnose and treat what can be a debilitating disease. Hypothyroidism shares clinical signs with many other ailments, and thyroid testing can help pinpoint the cause of what are often very subtle symptoms. Proper diagnosis and treatment can restore your pet to his or her best possible health.
Ticks and Your Dog

- Ticks can transmit dangerous diseases, like Lyme disease, when they attach to a host and feed.
- Your veterinarian can recommend safe and effective products to help protect your dog from ticks.
- You should never remove a tick with your fingers. Tweezers or tick removal tools work well. When in doubt, ask your veterinary care team for assistance removing a tick.

What Are Ticks?

Ticks are small, eight-legged parasites that must drink blood in order to survive and reproduce. Ticks don’t fly, and they can’t jump (unlike fleas). In fact, ticks are more closely related to spiders and mites than to “insects” like fleas. Of the hundreds of tick species, approximately 80 are found in the United States. Ticks can feed on a variety of hosts including birds, dogs, cats, and people.

Why Are Ticks a Problem?

If a dog is heavily infested with ticks, the parasites can drink enough blood to cause anemia (severe blood loss). However, ticks are mostly a concern because of the diseases they can transmit to their hosts. Lyme disease and Rocky Mountain spotted fever are among the dangerous diseases that ticks can transmit to your dog. Although people can’t catch these diseases from dogs directly, infected ticks can bite people and transmit them. If your dog is exposed to these dangers, chances are that you and your family may also be at risk for exposure.

How Do Dogs Get Ticks?

Despite a very popular myth, ticks don’t fall or jump out of trees onto a host. However, ticks can climb, and they tend to attach themselves to shrubs and blades of tall grass. They can also live in dens of rodents and other small mammals. One species of tick can even live indoors.

When a host walks by and brushes against the grass or shrub where the tick is waiting, the tick climbs onto the host. Once on a new host, the tick eventually finds a location to attach and feed.

For some diseases, like Lyme disease, a tick must be attached for several hours in order to transmit the infection to a host. This means that if you check your dog (and yourself) daily, you have a chance of finding and removing any ticks before they can transmit Lyme disease.

How Can I Protect My Dog From Ticks?

Keeping your dog out of wooded areas, tall grass, and other tick habitats is a good way to reduce the risk of exposure. However, this can be difficult for many pet owners, especially if they share an active outdoor lifestyle with their dog.
Effective tick control products can be used on dogs to help protect them from ticks. There are many options, including spot-on liquid products and collars. Your veterinarian can recommend a safe and effective product for your dog.

Remember that ticks are successful parasites that can be difficult to kill. Even if you are using an effective tick control product, you should still check your dog daily for ticks and remove any as soon as you find them. You should never remove a tick with your fingers. Tweezers work well, but be sure to grasp the tick close to the head and pull gently to avoid leaving the mouthparts imbedded in the skin. There are also tick removal tools that are very easy to use. Avoid using lighter fluid, matches, or other products that may irritate the skin or cause other injuries to your dog. When in doubt, ask your veterinary care team for assistance removing the tick.
Tracheal Collapse

- Tracheal collapse occurs in dogs when the cartilage of the trachea loses some of its stiffness, causing the wall of the trachea to collapse inward as the dog breathes.
- Clinical signs may not occur unless a secondary condition is also present; these include being obese and inhaling irritants such as cigarette smoke. Clinical signs tend to be worse during hot, humid weather or when the dog exerts himself or herself.
- In many cases, the condition can be controlled with medication and eliminating contributing factors (such as obesity). There are also surgical procedures that may help treat the disease.

What Is Tracheal Collapse?

The trachea is the main airway that starts at the back of the throat and continues down into the lungs. Under normal circumstances, the trachea (made mostly of cartilage) is fairly stiff and shaped like a tube. However, in some dogs, the cartilage of the trachea loses some of its stiffness over time. As a result, the wall of the trachea begins to collapse inward as the dog breathes. Instead of the inside of the trachea being shaped like a circle (tube), it can take on a half-moon shape or collapse even more severely into a more flattened shape. This is what occurs with tracheal collapse.

Tracheal collapse is more common in small, toy breed dogs than in other dogs. Pomeranians, Yorkshire terriers, and toy poodles are commonly affected. Dogs of any age can be affected, but most dogs are middle-aged when their owners begin to notice a problem. Cats tend not to develop this condition.

What Are the Clinical Signs of Tracheal Collapse?

The most common clinical sign associated with tracheal collapse is a dry, nonproductive cough—meaning mucus or other material is usually not expelled. Some owners also describe a “goose honking” cough. In severe cases, the dog may collapse as it struggles to breathe.

Over the long term, as the coughing persists, the trachea becomes irritated and inflamed, which leads to even more coughing.

Research has shown that even if a dog develops tracheal collapse, clinical signs may not occur unless a secondary condition is also present that contributes to the development of clinical signs. Secondary contributing factors include being obese and inhaling irritants such as cigarette smoke. Clinical signs also tend to be worse during hot, humid weather or when the dog exerts himself or herself, such as during exercise or excitement.

How Is Tracheal Collapse Diagnosed?

The first steps in diagnosing tracheal collapse involve obtaining a medical history and performing a physical examination. When your veterinarian listens to your dog’s lungs with a
stethoscope, wheezing can sometimes be heard over the trachea. Sometimes, applying gentle
touching or pressure over the trachea can cause the dog to cough.

Your veterinarian may recommend tests to investigate other conditions that can cause coughing,
such a heart disease and heartworm disease.

Sometimes, tracheal collapse can be seen by taking radiographs (x-rays) of the dog’s lungs. However, the trachea may not collapse with each breath, so sometimes radiographs may look normal. More specific testing may include ultrasound examination of the chest and neck or sedating the patient so that the veterinarian can examine the throat using a fiberoptic endoscope.

**What Is the Treatment and Outcome for Tracheal Collapse?**

If a dog presents with severe breathing problems associated with tracheal collapse, emergency care and hospitalization may be recommended. Oxygen therapy to ease breathing; medications to reduce coughing, open up the airways, and decrease inflammation; and possibly a light sedative may be recommended initially.

For more chronic cases, treatment is aimed at reducing the cough and controlling inflammation. If the dog is overweight, this should be addressed as part of the treatment for collapsing trachea. If possible, other things that can incite coughing, such as breathing cigarette smoke, should be eliminated. Because the trachea is irritated, any pressure on the trachea can lead to coughing. For this reason, your veterinarian may recommend that you use a harness on your dog instead of a collar. There are surgical procedures that may help treat tracheal collapse. Your veterinarian will evaluate your dog and discuss medical (or possibly surgical) options with you.

Although some amount of coughing may persist for the rest of the dog’s life, outcome for dogs with tracheal collapse can be very good, especially if contributing problems such as obesity are controlled.
Training Your Dog

• Even if you’re just looking for a pet to be a companion, training is still important to the relationship you hope to share with your dog.
• You may choose only “basic” training, like learning sit, stay, and come, or you may want more advanced training options.
• Ask your veterinarian for recommendations, and check out the out credentials of any school or class you're considering before enrolling.

I Just Want a Companion. Why Is Training Important?

Obviously, if a dog will be working as a search and rescue dog or service assistance dog, proper training is extremely important. But what if you’re just looking for a dog to share your life and be a couch potato with you? In truth, even companion dogs, large and small breeds alike, need training to learn proper behavior among people and other dogs.

One philosophy says that dogs in the wild live in packs with a strong social structure and that domesticated dogs naturally seek to be a part of a similar family group. According to this philosophy, it's important for your dog to regard you as the leader, or "alpha," of his or her "pack." Dogs feel comfortable when they know their place in the pack, so if you have not established the leader position, some dogs may try to assume it for themselves, which can lead to obnoxious, destructive, or even aggressive or dangerous behavior.

However, that philosophy is not embraced by all dog trainers and behaviorists. Dogs have been domesticated for centuries, and, just like humans are somewhat different from wild primates, dogs have evolved to be different from their wild ancestors. Therefore, the “pack” mentality may not have as much bearing on their relationships with us as once thought.

Regardless, your dog needs to know what is expected of him or her, what the regular routine will be, and what he or she can get away with. Training is an important way to establish these boundaries. It also establishes a bond of trust and understanding between you and your dog—your dog will be happier when he or she understands your expectations. Training sessions also help prevent boredom and help challenge your dog’s mind, which is important for overall well-being.

What Types of Training Are Recommended?

All dogs can benefit from basic obedience training. This generally includes sitting, staying, and lying down on command; coming when called; and walking on a leash without pulling. Other useful lessons are learning to stay off chairs and sofas unless invited and to not jump up on people. These lessons are valuable even for small breeds, which can become unruly and aggressive despite their size.

Even if you want your dog to exercise his or her own intellect and be a free spirit, you will still need him or her to come to you or stop at the curb on command. Sometimes, such training can mean the difference between a nice afternoon in the park and a night at the emergency room.
What if I Need Professional Help?

If you have a puppy, many veterinarians and pet stores offer puppy kindergarten classes. These classes offer basic training for pet owners and can be a good start for a puppy. Because the classes are group sessions, they also offer an opportunity to socialize your new dog. However, be aware that many puppy training classes require certain vaccines (like kennel cough) to be up-to-date, and many veterinarians recommend limited exposure to other dogs and public places until puppy vaccines (including rabies, distemper, and parvovirus) have been completed.

If you’re interested in more of a one-on-one experience or more advanced training, ask your veterinarian about obedience schools and trainers in your area. Schools vary in the type and philosophy of instruction, as well as in their trainers' qualifications, so do some background checking before enrolling: interview other dog owners, and check out the credentials of the school or class you're considering. Whether you choose group or individual training, look for a program that emphasizes positive reinforcement techniques, rather than punishment, for training dogs.
Training Your Dog to Wear a Muzzle

The following training technique can be used to train your dog to wear a nylon or basket muzzle. Your dog should think that learning to wear a muzzle is a fun game. You will know whether you have trained your dog well if he or she looks forward to wearing a muzzle.

1. Muzzles are readily available and are used by many veterinary clinics and groomers. These muzzles are designed to fit snugly. Because they do not allow panting, they are not for long-term use and should be used only for quick procedures.

2. Use
null
(for example, peanut butter or cream cheese) to attach a treat to the bottom of a Styrofoam or paper cup and
null

This will teach your dog that sticking his or her nose in a small space can be rewarding. You can also feed your dog small meals from the cup. To help you and your dog proceed quickly and easily through the training session, you can prepare several cups with your dog’s meal divided among them. The cup should be short enough that your dog can reach the treats. If your dog has a short snout, you can cut the cup to make it shorter so that your dog’s tongue can reach the treats or food. Be sure to remove sharp edges from the cup and avoid contacting your dog’s eyes with the cup.

3. Once your dog is readily putting his or her nose in the cup, it is time to
by pushing it all the way into the cup and folding the extra material over the
4. Then
as your dog eats the treat(s). As long as your dog is distracted by the treat(s), you may continue. The goal is to remove the muzzle and cup before your dog finishes the treat(s). Repeat this process until you can
null

6. If at any time your dog struggles or backs away, stop and repeat the previous step.

6. After you attach the muzzle,
null while your dog is wearing the muzzle.

7.
null
to your dog. While your dog is distracted by eating the treat(s), remove the muzzle.
Traveling With Your Dog

- Bring enough of your dog’s regular food and medication for the duration of the trip.
- If you plan to travel with your pet, let your veterinarian know ahead of time; your dog may need a health certificate, or there may be other health issues to address.

How Can I Make the Travel Experience Better for My Dog?

Our pets share so much of our lives that many of us don’t want to consider traveling without them. Whether you are flying, driving a car, or RVing, sharing a trip with a pet can add richness to the experience. Proper planning can make the travel experience better and less stressful for you and for your pet.

What Food and Medications Should I Bring When Traveling With My Dog?

There are many factors you can’t control when you are on the road, but changing your dog’s food can cause vomiting, diarrhea, or other problems that can be difficult to deal with while traveling. Try to bring enough of your dog’s regular food for the duration of the trip, and try to maintain the feeding and toilet schedule your dog is used to at home. If your pet receives medication, bring enough for the trip and try to maintain your regular schedule.

If you are traveling by car or RV, bringing your dog’s favorite bed, blanket, or toys can also help make the trip more relaxing and pleasant for your best friend. If you are flying, you will need an airline-approved carrier for your dog; you should also request that your dog fly in a temperature-controlled cargo area.

Many people escape the snow by traveling with their pet to warmer climates. Although fleas and ticks may not be a problem during the winter where you live, your dog may be exposed to these parasites at your destination. Make sure you’re prepared by asking your veterinarian for appropriate flea and tick control products.

How Should I Plan for Travel With My Dog?

Spontaneity and family emergencies aside, most of us wouldn’t take a trip without planning some things ahead of time. The same thing applies when traveling with your dog:

Where to stay: Many hotels and rental properties allow pets. Locating proper accommodations ahead of time and being clear about fees (some places charge an extra fee for pets) can help minimize anxiety when you arrive.

Travel requirements: Most airlines require a health certificate for pets that will be flying. The health certificate generally states that the pet is in good health and free from any infectious or contagious diseases. Don’t assume this document can be obtained from your veterinarian on the way to the airport! Your dog may need a physical examination, fecal exam, or other procedures before your veterinarian can sign a health certificate. Also, the certificate must be obtained
within a certain window of time before you travel. Find out from your airline what their requirements are and plan to get the health certificate ahead of time.

Some destinations (particularly island locations like England and Hawaii) may have quarantine regulations or rabies certification procedures. Clarify any of these requirements well in advance of your trip.

**Medical care:** Do you have a plan in case your dog gets sick while you are traveling? If possible, find a veterinarian at your destination; your own veterinarian may be able to make some recommendations. This is particularly important if your dog has an existing medical problem or is on medication.

**Should I Sedate My Dog for Travel?**

Giving a tranquilizer to a dog before traveling has pros and cons. Some would argue that if your dog is tranquilized, then he or she is not sharing the travel experience with you—so what is the point of bringing your pet along? Sedation can also have side effects, including lowering body temperature (which could be an issue if your pet is flying in the cargo area of a plane), and causing hypotension (low blood pressure). Others may argue that a little light sedation can calm a dog that is overly stressed or excited while traveling and can therefore make the trip more pleasant for everyone involved. There is no one-size-fits-all answer to this question. Some dogs can be conditioned and trained to travel better if you have time to prepare them for a trip, so they don’t need sedation; but some dogs do very well with a light sedative. Remember that sedation does not address all travel issues; if your dog has severe motion sickness or gets extremely stressed while traveling, it may be better to arrange for a pet sitter or board him or her. Also, not every dog is a good candidate for a tranquilizer, so ask your veterinarian if sedation is a good idea for your dog.

If you have never given your dog a tranquilizer before, give a test dose ahead of your trip. Pick a day when you will be home with your pet for most of the day. That way, if the medication causes excessive sedation or other negative side effects, you will be there to intervene and call your veterinarian for help.

**What Else Should I Know About Travelling With My Dog?**

If you plan to travel with your pet, let your veterinarian know ahead of time. He or she may be able to advise you about parasite protection and other health considerations that may be different at your destination. If you decide to leave your dog at home, your veterinarian can likely recommend a good boarding facility or pet sitting service. Addressing any questions or concerns with your veterinarian ahead of time can save worry and stress while you are away.
Treating Heartworm Disease

- Heartworm disease is a serious and potentially fatal condition that damages the heart, lungs, and related blood vessels.
- Dogs and cats are at risk for becoming infected with heartworms.
- Heartworm disease in dogs is treatable, but in some cases, treatment can be costly and complicated. There are no approved products for heartworm treatment in cats.
- Heartworm disease is easily and effectively avoided through administration of preventive medications.

Why Treat Heartworm Disease?

Heartworm disease is a serious and potentially fatal condition that affects dogs, cats, and up to 30 other species of mammals. It is caused by parasitic worms living in the major vessels of the lungs and, occasionally, in the heart. The scientific name for the heartworm is *Dirofilaria immitis*.

Although heartworm disease is virtually 100% preventable, many dogs and cats are diagnosed with it each year. Heartworm disease has been diagnosed in all 50 states. Because heartworms are transmitted (as microscopic larvae) through the bite of an infected mosquito, heartworm disease can occur anywhere there are mosquitoes. Even indoor cats are not safe from heartworm infection, as studies have shown that more than 25% of heartworm-infected cats live indoors.

The American Heartworm Society (AHS) estimates that 1 million dogs in the United States are infected with the disease, and the incidence may be rising. Wherever dogs are infected, studies have shown that cats are likely to be infected, too.

Signs of Heartworm Disease

Initial signs of heartworm disease in dogs and cats can be subtle. When infected, both species may develop a chronic cough. In cats, the signs may mimic feline asthma. Some cats have also reportedly died suddenly without showing any prior clinical signs. Affected dogs may have lethargy (tiredness) and exercise intolerance (refusal to exercise or difficulty exercising). Many infected dogs and cats don’t show clinical signs, so testing may be the only way to identify pets with heartworm disease.

Treatment

**Dogs**

If infection is detected early enough, canine heartworm disease can be treated before permanent damage is done to the heart, lungs, and blood vessels. However, if the infection has been present for a long time or consists of a large number of heartworms, the risk of complications can increase. In these cases, treatment can be more expensive and complicated, and dogs may need many months to recover from the infection as juvenile and adult worms are cleared from their systems. Hospitalization may be required.
The goal of treating heartworm disease in dogs is to remove all stages of the parasite (including adults, larvae, and an immature stage known as *microfilariae*) and improve the pet's condition without causing treatment complications. First, your veterinarian will conduct a series of diagnostic tests to determine which stages of heartworms are present. During this time, your veterinarian will also perform tests to reveal how much damage (if any) has already been done to your dog’s heart, lungs, and blood vessels as a result of being infected. After administering treatment for heartworm disease, your veterinarian will likely recommend follow-up testing to ensure that the infection has resolved. Some dogs may need to be treated more than once to clear the infection.

If significant damage to a dog’s heart, lungs, and vessels has already occurred, permanent health issues may remain, even after the heartworm infection is successfully treated.

Dogs exhibiting severe clinical signs may first need to be stabilized with steroids and other medications before administration of medication to kill heartworms. Additional medications may also play a helpful role in supporting dogs whose heart and lungs have sustained permanent damage from heartworm disease.

During treatment, unnecessary stress on an infected dog’s cardiopulmonary system (heart and lungs) should be avoided as the adult worms die. Depending on your dog’s condition, your veterinarian may recommend hospitalization. When your dog comes home, exercise restriction will likely be recommended for a period of time to avoid overly stressing the cardiopulmonary system. Your veterinarian can discuss additional recommendations for monitoring and caring for your dog during and after treatment of heartworm disease.

**Cats**

In cats, there is no approved medical treatment for heartworm disease. Your veterinarian can discuss with you how best to monitor your cat and manage the signs of disease. Antibiotics, steroids, and other medications are sometimes recommended. For cats with severe breathing problems or other complications, hospitalization may be needed. In some cases, surgical removal of adult worms may be attempted. However, this surgery is costly and has some risks.

**Prevention**

The best “treatment” for dogs and particularly cats is prevention. Safe, easy-to-administer, effective medications are available to prevent heartworm disease in dogs and cats. Ask your veterinarian which medication is best for you and your pet. The American Heartworm Society ([www.heartwormsociety.org](http://www.heartwormsociety.org)) recommends year-round administration of heartworm preventive medications. Some heartworm preventive products have the added benefit of controlling other internal parasites of concern, such as roundworms and hookworms in dogs and cats as well as whipworms in dogs. Some products also target other external parasites, such as ticks and mites.
Trimming Your Dog's Nails

- Nail trimming should be a calm, stress-free experience for you and your dog.
- If your dog experiences pain from nail trimming, you will probably have trouble trimming his or her nails in the future, so make sure that you clip just the tip of each nail.
- Contact your veterinarian if you are unsure of how to cut your dog’s nails or if you experience difficulties.

Nail trimming is an important aspect of grooming your dog. Your dog’s nails should be trimmed when they grow long enough to touch the ground when the dog walks. Dogs that aren’t very active might require weekly nail trimming. Dogs that are regularly walked on sidewalks might never need their nails trimmed. Dewclaw nails need to be trimmed because they don’t wear down from walking. Ask your veterinarian or a veterinary technician to teach you the safest way to trim your dog’s nails.

Nail trimming should be a calm, stress-free experience for you and your dog. Teaching your dog to accept having his or her feet touched can help make nail trimming easier. Ideally, dogs should be introduced to nail trimming when they are puppies. You might have to regularly massage your dog’s paws for a few weeks before your dog will allow you to trim his or her nails. When introducing your dog to nail trimming, just clip one or two nails a day, followed by treats or a play session.

Tools

There are two types of canine nail clippers: a scissors type and a guillotine type. They work equally well, so use what you are most comfortable with. Make sure you purchase the correct size for your dog.

If your dog won’t tolerate either type of clippers, you can try using a nail grinder—an electric tool that sands down nails. Grinders offer control, but they take more time to use than clippers, and some people and dogs dislike the sounds and vibrations of grinders. An emery board or nail file can also be used. This method is quiet but takes longer than using clippers or an electric nail grinder.

Preparation

For nail trimming, choose a time when your dog is relaxed or even sleepy, such as after a meal or a period of activity. Collect your clippers or grinder, some dog treats, and something to control bleeding in case it occurs (see below for suggestions and more on bleeding). If necessary, find an assistant to help you hold your dog. Ensure that other pets aren’t around and that your dog won’t be distracted by activity outside nearby windows.

Technique

To trim your dog’s nails, hold your dog’s toe firmly but gently. While calmly praising your dog and/or offering a treat, hold your clippers so that they will cut the nail from top to bottom, not
side to side. Then insert a very small length (no more than 1/16 inch) of nail through the trimmer’s opening. Avoid cutting the quick, which is the pink area within each nail that contains nerves and blood vessels. Accidentally cutting the quick will cause pain and bleeding, probably causing your dog to yelp and struggle. This is a good time to stop trimming, but first apply styptic powder to the bleeding nail tip. Press the powder onto the nail tip to ensure that it sticks. If you don’t have styptic powder, dab the tip of the nail on a bar of soap or in a little flour or cornstarch. If bleeding continues for more than a few minutes, call your veterinarian.

If your dog experiences discomfort or pain during nail trimming, you will probably have trouble trimming his or her nails in the future, so make sure that you keep the experience as pleasant as possible and clip just the tip of each nail. If your dog struggles, talk to him or her calmly. If this doesn’t help, take a break and try trimming some nails later. Never punish your dog for not cooperating, and be sure to reward good behavior with praise or a treat.

**Fearful or Aggressive Behavior**

Some dogs become fearful or aggressive during nail trimming. Watch carefully for signs of distress, such as panting, drooling, trembling, whining, freezing, cowering, tail-tucking, growling, or snapping. If your dog will not accept nail trimming, do not force him or her to submit. You can ask your veterinarian or a professional groomer to trim your dog’s nails. You can also ask a certified applied animal behaviorist (CAAB), a veterinary behaviorist (DACVB), or a certified professional dog trainer (CPDT) for help with your dog’s underlying behavioral issues.
Ultrasonography

- Ultrasonography is a diagnostic technique that allows your veterinarian to look inside your pet’s body without surgery.
- Ultrasonography uses reflected sound waves to create images of organs or spaces inside your pet’s body.
- Ultrasonography is painless and noninvasive. In many situations, it can be conducted while the pet is awake.

What Is Ultrasonography?

Ultrasonography is a type of diagnostic technique known as an imaging study. This means that when a doctor performs ultrasonography (sometimes called an ultrasound study) he or she can see pictures, or “images,” of parts of the patient’s body. Other examples of imaging studies include x-rays (radiography) and MRI (magnetic resonance imaging).

Ultrasonography uses high-frequency sound waves—ultrasound—to create a picture of what is inside your pet’s body. It is a noninvasive, painless way to diagnose and evaluate many common diseases. Ultrasonography is a very good method for evaluating fluid-filled structures (like the bladder) as well as organs like the liver, spleen, kidneys, and heart.

How Does It Work?

Ultrasonography requires a special machine that can create ultrasound waves. This machine is connected to a small probe that your veterinarian can hold against your pet’s skin. The probe sends out painless ultrasound waves that bounce off of structures (e.g., organs) in your pet’s body and return to a sensor inside the ultrasound machine. The ultrasound equipment collects these reflected “echoes” and uses them to generate images that are viewable on a screen.

In ultrasound images, dense areas (e.g., bone) appear whiter or brighter because they reflect more sound waves back to the sensor; less dense areas, such as fluid, reflect fewer sound waves and appear darker. The term “echogenicity” refers to how reflective an object is—that is, how many echoes it sends back. The denser the object, the higher its echogenicity.

What Is It Used For?

Ultrasound waves can generate excellent images of abdominal organs, such as the following:

- Liver
- Spleen
- Gallbladder
- Adrenal glands
- Pancreas
- Kidneys and urinary tract
- Parts of the stomach and intestine
- Reproductive organs
Ultrasonography can also detect the presence of fluid, such as blood or urine. Ultrasound waves cannot penetrate bone, so ultrasonography cannot be used to see objects hidden behind bones, such as the brain.

Because ultrasonography creates images that the doctor sees right away, it can be used to evaluate the heart as it beats for the motion of heart valves and chambers, blood flow through the heart, and contractions of the heart muscle. It can also be used to assess the heart for defects.

Ultrasonography is useful for assessing fetal health and monitoring pregnancy in breeding animals.

Ultrasonography can also play a role in diagnosing and “staging” cancer. Tumors and masses can be located, counted, and measured using ultrasonography, which can be valuable when a veterinarian is looking for evidence of cancer spread. In the same way, ultrasonography can help in monitoring a patient’s response to cancer therapy.

**The Ultrasonography Examination**

In most cases, ultrasound examinations are conducted while the pet is awake. Tranquilizers and anesthesia are generally not required, and food and water restrictions are usually not necessary. The haircoat will be clipped over the area to be scanned. This allows the ultrasound probe to be placed directly against the skin without interference from body hair. A nonirritating gel will be placed on the pet’s skin before the examination. This gel provides lubrication, allowing the probe to slide over the skin. It also prevents any air from getting between the probe and the tissue being scanned; this improves the quality of the ultrasound image. The ultrasound examination is noninvasive and painless and typically takes less than 40 minutes to complete. Ultrasonography is a minimally invasive diagnostic option.
Understanding Pet Food Labels

- Understanding pet food labels is the first step in choosing the right food to help make an optimal nutritional plan for a pet.
- Animals require specific nutrients from the ingredients in their foods.
- The new regulation to include calorie information on pet food labels might help decrease the number of overweight pets.

Pet owners can be passionate about choosing the best food for their pets, but with thousands of pet food products on the market, how do pet owners make the best choice? Pet food labels are a good place to start. Understanding the label information can help pet owners make informed decisions about the food they feed their pets.

Which Part of the Label Helps Assess Quality?

The following key components of a pet food label help evaluate nutritional information:

- A nutritional adequacy statement from the Association of American Feed Control Officials (AAFCO; a nongovernment advisory organization with representative officials from every US state)
- A list of ingredients (in descending order by weight)
- A guaranteed analysis

The AAFCO nutritional adequacy statement declares whether the product or treat is complete and balanced and whether it should be fed under veterinary supervision. The following types of nutritional adequacy statements can appear on a pet food label:

- Animal feeding trials using AAFCO procedures substantiate that the product provides complete and balanced nutrition for all life stages or a particular stage.
- The product is formulated to meet the nutrient levels established by AAFCO for a particular life stage or for all life stages.
- The product is intended for intermittent or supplemental use only.

The presence of either of the first two statements indicates that a food can be used as the sole source of nutrition. “Complete and balanced” indicates that a food has all the recognized, required nutrients in the proper proportions, when fed appropriately.

In a feeding trial, a product is fed to a specific number of dogs or cats for a minimum of 6 months to determine whether it provides adequate nutrition. By conducting feeding trials, pet food companies ensure that animals in a particular life stage (i.e., gestation, lactation, growth, adult maintenance) will obtain proper nutrition from a food. Feeding trials also provide some assurance of palatability and the availability of nutrients.

When a food is formulated by calculation or chemical analysis, the nutrients may meet the maximum or minimum levels established by AAFCO, but because the finished product is not fed to animals, availability and palatability are not assessed.
The nutritional adequacy statement regarding intermittent or supplemental feeding applies to treats or to veterinary diets that require a veterinarian to monitor the pet.

What Should I Know About the Ingredients?

The following are important to know about pet food ingredients:

- Each ingredient, including additives, must be listed in the ingredients statement.
- Ingredients are listed in descending order by weight. However, this does not reveal the amounts of the ingredients. For example, wheat germ meal, wheat bran, and wheat flour are all components of wheat, but they may provide different nutrients. The ingredient list is valuable when a patient has a confirmed allergy and must avoid a certain allergen.
- AAFCO defines what ingredients can or cannot be called. For example, according to AAFCO, corn gluten is the part of the commercial, shelled corn after removal of the larger portion of the corn’s starch and germ.

What Do the Percentages on the Label Mean?

AAFCO regulations require pet food manufacturers in the United States to include a guaranteed analysis that lists percentages of certain nutrients on pet food labels. These percentages (i.e., minimum protein and fat; maximum fiber and water) are listed on an as-fed basis. “As fed” simply means the percentage of each nutrient, including water or moisture, contained in the final product the pet consumes. To compare products on a level “playing field,” pet owners should always use the dry matter (without moisture) equivalent listed on pet food labels. If a dry matter basis is not used, canned food appears to have a lower concentration of nutrients than dry food because the latter contains approximately 10% water and canned food contains approximately 75% water.

What Are the “Chemicals” in the Ingredients?

Pet owners may be concerned to see “phyllloquinone,” “α-tocopherol,” “cobalamin,” and “ascorbic acid” listed on their pets’ food until they learn that these are the technical names for vitamins K1, E, B12, and C, respectively. α-Tocopherol is also an antioxidant. Antioxidants are added to foods to balance the nutrient profile and preserve fats; therefore, preservatives are not universally bad for pets and prevent foods from becoming rancid.

What Are the By-products on the Label?

Many pet owner questions about pet food result from misunderstandings about particular ingredients. Pet owners may incorrectly think that by-products are only the undesirable parts of animals, such as hooves, feathers, and beaks. However, by definition in the pet food industry, meat by-products are clean parts other than meat, such as lungs, kidneys, and spleens. By-products are an excellent source of amino acids, protein, vitamins, and minerals. For example, poultry by-products contain 70% protein on an as-fed basis and are highly digestible.
Who Ensures the Quality of Pet Foods?

Several governing agencies have a role in regulating pet food. The Food and Drug Administration (FDA) has authority over pet foods. The FDA establishes certain labeling regulations for animal food and enforces regulations about contamination. Feed control officials from the US Department of Agriculture (USDA) work with the FDA to inspect facilities and enforce regulations within each US state. AAFCO defines ingredients and has an agreement to work with FDA scientists to ensure the safety of ingredients. Owners can voluntarily submit reports using the FDA Safety Reporting Portal: www.safetyreporting.hhs.gov.

Are Organic or Natural Ingredients Better?

As more pet foods are manufactured to meet the demand for “organic” and “natural” ingredients, pet owners need to understand these terms. AAFCO has defined “natural” as originating from animals or plants. AAFCO has no regulatory definition for “organic,” which refers to the procedure by which organic ingredients are grown, harvested, and processed. There is no evidence that organic food is more beneficial to animals than nonorganic food. Pet foods that meet the human standard for organic (at least 95% of the content by weight, excluding salt and water, must be organic) may display the USDA organic seal on their packaging. The FDA uses “natural” to describe food and “organic” to describe food and the way in which it was processed.

Are the Feeding Guidelines Right for My Pet?

Complete and balanced pet foods must include feeding directions on their labels. However, one set of feeding guidelines cannot account for the great variation in metabolic rates and nutritional needs among individuals. In addition, breed, temperament, environment, and many other factors can influence food intake. Feeding guidelines provide a good starting point for clients but may overestimate the needs of some pets, leading to weight gain. Therefore, pet owners (with guidance from a veterinary professional) may have to adjust the feeding guidelines on a case-by-case basis to achieve a healthy, lean body condition in pets.

Why is My Pet Gaining Weight on New Food?

The size of a “cup” is commonly misunderstood. The feeding guidelines on pet food labels refer to a standard 8-oz measuring cup, so if a pet owner is using a 12-ounce coffee mug or other larger “cup,” it is easy to accidentally overfeed a pet. Also, the amount of calories fed to a pet can vary greatly depending on the brand of food. When pet owners change their pet’s food, they are often unaware that there can be a large discrepancy in the amount of calories in different foods.

Why Aren’t Calories Listed on the Label?

Calorie content is not on most pet food labels, but that may be changing in the future. The format of pet food labels was derived from large animal feed packaging, which does not legally require the inclusion of calorie content. AAFCO recently voted to mandate the inclusion of calorie content on pet food labels.
Conclusion

If read correctly, pet food labels can provide important information for optimizing pet nutrition. Clients should educate themselves about the myths and misconceptions regarding pet foods and their labels. Clients with questions about a pet food or its label should contact their veterinary hospital or the pet food manufacturer.

For more information on pet food labels, visit the FDA’s Web site at: http://www.fda.gov/animalveterinary/resourcesforyou/ucm047113.htm.
Urinalysis and Early Kidney Disease Detection

- In kidney disease, the kidneys do not function properly.
- Acute (sudden) kidney disease may be reversible, but chronic (long-term) kidney disease is usually progressive, meaning that it worsens over time.
- Kidney disease can be detected early with the help of a urinalysis.
- A urinalysis is an examination of a dog’s or cat’s urine to assess the health of the urinary tract, including the kidneys, and organs such as the liver and the pancreas.
- Ideally, the urine sample should be obtained by a relatively painless procedure called a cystocentesis, in which a needle is placed directly into the urinary bladder.
- To evaluate kidney function, the urinalysis should be interpreted with the results of a blood test called a chemistry panel.
- Your veterinarian may recommend a urinalysis if your pet is showing signs such as increased drinking, increased urination, and urinary accidents.
- A urinalysis may also be part of a routine screening examination, especially in older pets.

What Is Kidney Disease?

*Kidney disease* is a broad term meaning that the kidneys are not functioning properly. Acute kidney disease occurs quickly, often over the course of a few days, and is caused by a lack of oxygen to the kidneys or exposure to toxins such as antifreeze, pesticides, and some medications. If treated promptly, acute kidney disease may be reversible. Chronic kidney disease occurs over the course of months to years and is usually progressive, meaning that it worsens over time. Early detection and treatment of chronic renal disease can slow the progression of the disease and help keep your pet more comfortable.

What Are the Signs of Kidney Disease?

Pets with kidney disease may display any or all of the following signs:

- Increased drinking
- Increased urination
- Anorexia and weight loss
- Vomiting
- Lethargy
- Constipation or diarrhea

How Can Kidney Disease Be Detected Early?

When the kidneys begin to fail, they lose their ability to concentrate urine. Urine that was once deep yellow in color becomes dilute (more clear in appearance). While the difference in concentration isn’t always obvious to the naked eye, it can be detected by a urinalysis. However, you may notice that your pet is drinking more water, urinating more frequently, and urinating in inappropriate places.

What Is a Urinalysis?
As the name implies, a urinalysis is the analysis of a pet’s urine. While a urinalysis is generally performed to evaluate the health of the urinary tract, including the kidneys, it can also provide information about the state of organs such as the liver and the pancreas.

**How Is a Urinalysis Performed?**

Ideally, a urine sample should be obtained by cystocentesis—a relatively painless procedure in which a needle is placed through the abdominal wall directly into the urinary bladder. A urine sample obtained in this manner is not contaminated by bacteria in the lower urinary tract.

Urine samples can also be retrieved by placing a catheter (rubber tube) up the urinary tract into the bladder, but this procedure often requires anesthesia and may be difficult to perform on female pets. Samples obtained by “free catch” into a cup while the pet urinates or taken off the floor or exam table are usually contaminated with bacteria but may be sufficient for evaluating kidney function.

During a urinalysis, the technician will first evaluate the urine color and clarity or cloudiness. The urine is then assessed for specific gravity, which measures the ability of the kidneys to concentrate urine. Insufficient ability to concentrate urine is noted by an abnormal specific gravity and is often one of the first signs of early kidney disease.

The urine is then applied to a treated dipstick that changes color to identify the pH (acidity or alkalinity) of the urine and the presence of several substances, such as protein, glucose, red blood cells, and white blood cells. For example, the presence of glucose in the urine often indicates diabetes. Protein in the urine may be a sign of kidney damage.

Finally, the urine is centrifuged to separate the solids from the liquid, and the sediment is examined under a microscope for crystals, red blood cells or white blood cells, bacteria, and other abnormal substances.

**What Other Tests May Be Done to Detect Kidney Disease?**

A urinalysis should be evaluated with the results of a chemistry panel blood test. In early kidney disease, a low specific gravity may be the only abnormality identified. When the kidneys lose the ability to concentrate urine, the pet begins to urinate larger amounts. To make up for this loss of fluid, the pet drinks more than usual.

As kidney disease progresses, the concentrations of blood urea nitrogen (BUN) and creatinine rise in the blood. These two waste products are normally removed from the blood by the kidneys. When the kidneys aren’t functioning efficiently, the waste products increase in the blood and can be identified by the chemistry panel. A diagnosis of kidney failure can be made by confirming a loss of urine-concentrating ability combined with increased BUN and creatinine blood levels.

Your veterinarian may recommend a radiograph (x-ray) to examine the size and shape of the kidneys. The kidneys may also be visualized by ultrasound.
What Are the Benefits of Kidney Function Testing?

Kidney function testing can identify acute kidney disease so that proper treatment may potentially reverse the condition. While early detection of chronic kidney failure can’t stop the progression of the disease, treatment can help slow the process and help make your pet more comfortable. For example, a low-protein diet has been shown to help slow kidney disease progression.
Urinary Tract Disease in Dogs

- *Urinary tract disease* is a very general term used to describe any one of several conditions that can affect any part of the urinary tract.
- Clinical signs associated with urinary tract disease vary depending on the exact condition.
- Some types of urinary tract disease can be reversed with treatment, while other conditions, such as chronic kidney failure, are irreversible. In the latter case, treatment may help slow the progression of the disease.

What Is Urinary Tract Disease?

The urinary tract consists of four parts:

1. Two kidneys, which produce urine
2. The ureters, tubes that transport urine from the kidneys to the bladder
3. The urinary bladder, where urine is stored
4. The urethra, which carries urine from the bladder to the outside

Any part of the urinary tract can be affected by disease. Here are just a few of the conditions that can affect the urinary tract in dogs:

**Kidney failure**: *Acute* kidney failure is the sudden loss of kidney function, which may be caused by a number of factors, including decreased blood pressure, toxins such as antifreeze, ureteral or urethral obstructions, and diseases, such as leptospirosis and Lyme disease. If diagnosed early and treated aggressively, acute renal failure may be reversible. *Chronic* kidney failure is long-term loss of kidney function that cannot be reversed, but treatment may help slow the progression of the disease.

**Kidney and bladder stones**: Dogs can form mineral crystals and stones in any part of the urinary tract. These crystals and stones can irritate the lining of the urinary tract or block the flow of urine, which is a medical emergency.

**Urinary tract infections**: Bacteria can ascend through the urethra or travel through the blood and infect the urinary bladder, the prostate (especially in male dogs that have not been neutered), and the kidneys.

**Urinary incontinence**: This condition occurs most commonly in spayed, female dogs. Pets with this condition often lose bladder control while they are sleeping. Dogs with spinal cord diseases or injuries can also develop urinary incontinence.

In addition, puppies may be born with congenital defects affecting the urinary tract, and older dogs may develop cancer in the urinary tract.

What Are the Clinical Signs of Urinary Tract Disease?

The signs vary depending on the specific type of disease, but may include:
• Increased drinking
• Passing more or less urine
• More frequent urination
• Straining to urinate
• Inability to urinate (this is a medical emergency!)
• Bloody or foul-smelling urine
• Painful back (where the kidneys are located)
• Urinary accidents in the house
• Vomiting (sometimes containing blood)
• Halitosis (bad breath)
• Lethargy (tiredness)
• Dehydration
• Anorexia (appetite loss)
• Weight loss

How Is Urinary Tract Disease Diagnosed?

Your veterinarian will begin by taking a medical history of your pet, including asking about possible exposure to toxins and ticks. He or she will also perform a thorough physical exam to look for clues to the potential urinary tract disorder.

Diagnostic tests usually include blood work, such as a chemistry panel and a complete blood count (CBC), as well as a urinalysis. Depending on the suspected disease, your veterinarian may also recommend more specific blood or urine tests, such as a bacterial culture and sensitivity test, which helps identify the specific bacteria that might be involved in a urinary tract infection and the most effective antibiotic to treat the infection. Other tests may include abdominal radiographs (x-rays), an abdominal ultrasound, or cystoscopy, which involves inserting a tiny tube with a camera up the urethra and into the urinary bladder to look for abnormalities in these areas.

How Is Urinary Tract Disease Treated?

Treatment of urinary tract disease depends on the underlying cause and the patient’s overall condition. For example, if a pet has bladder stones, a special diet or surgery may be recommended. Pets that are severely ill from kidney disease or kidney failure may need hospitalization and intensive care to recover. In other cases, antibiotics, fluids, and other medications given on an outpatient basis are effective. There are even special diets and dietary supplements that can help some pets with urinary tract disease.

Chronic kidney failure is a progressive, irreversible condition. Treatment generally focuses on slowing the progression of disease and improving quality of life for the patient. Pets can sometimes have a good quality of life for many years after being diagnosed with kidney failure. Your veterinarian will evaluate your pet and discuss the best methods of treatment with you.

Since many pets may not show outward signs of urinary tract disease, regular physical examinations and wellness screening tests can increase the chances of early diagnosis and more effective treatment.
Urine Culture Test

- A urine culture test is done to identify the specific bacteria that are causing a urinary tract infection.
- Ideally, a sample of urine is collected by cystocentesis in which a needle is inserted directly into the animal’s bladder.
- The urine sample is placed on a special medium and incubated to allow the bacteria to grow.
- After the bacteria are identified, another test (a sensitivity test) is performed to determine the most effective antibiotic to use against the bacteria involved.

Urinary tract infections are common in dogs and, to a lesser degree, in cats. Signs of a urinary tract infection include increased drinking, increased or more frequent urination, urinary accidents, bloody urine, or urinating small amounts at a time.

In most cases, a veterinary hospital may perform a urinalysis to help detect an infection. The test results may indicate the likelihood of an infection, but they do not identify the exact bacteria that may be causing the infection.

Pets may be treated empirically, meaning that the veterinarian chooses an antibiotic based on his or her experience regarding which bacteria are most likely to be involved. If the infection doesn’t resolve, a urine culture test is needed to identify the specific bacteria and determine the most appropriate antibiotic.

What Is a Urine Culture Test?

A urine culture test is a method of identifying the specific bacteria that may be causing a urinary tract infection. It involves placing a urine sample on a special medium, incubating the sample so the bacteria can grow, and then identifying the bacteria. A second test (a sensitivity test) is usually conducted to determine the most effective antibiotics to use against the bacteria involved.

How Is a Urine Culture Test Done?

Ideally, a urine sample should be collected by cystocentesis in which a needle is inserted directly into the animal’s bladder. This is a fairly fast procedure that can be done with very little pain to the pet, but a relatively full bladder is required.

The placement of a catheter (a narrow tube) into the bladder is another method that may be used to collect a urine sample. The drawbacks of this procedure are that it may introduce other bacteria into the bladder and may be uncomfortable for the pet.

Samples that are collected off the floor or in a cup are contaminated with bacteria from the environment or from the lower urinary tract and, therefore, are not the best samples for a culture test.
Once a sample is acquired, a small amount of urine is spread on a special medium, and the container is placed in an incubator. During the course of a few days, any bacteria that are present should grow and can be identified. A sensitivity test is then conducted to determine the most effective antibiotics for the organisms involved.

What Are the Benefits of a Urine Culture Test?

A urine culture test is the most accurate way to confirm a urinary tract infection; combining a urine culture test with a sensitivity test is the best method to select an antibiotic to help resolve the infection. After antibiotic therapy, urine culture tests are also recommended to ensure that the infection has been eliminated.

- Your veterinarian may recommend a urine culture test:
- When your pet initially shows signs of a urinary tract infection
- After treatment with antibiotics
- When empirical therapy does not eliminate clinical signs in your pet
- If your pet appears to have frequent recurrences of clinical signs

While empirical treatment may be successful, the presence of an unusual bacterium or multiple bacteria may result in failure to eliminate the infection, and your pet will continue to show signs of discomfort. A urine culture test is the best way to ensure that your pet will be back to normal as soon as possible.
Urine Specific Gravity Test

- The urine specific gravity (SG) test tells your veterinarian how concentrated your pet’s urine is (how much water it contains).
- Collecting a urine sample for SG measurement can be done at your veterinarian’s office or, sometimes, at home.
- If your pet’s urine SG is abnormal, additional tests may be recommended to determine the cause.

What Is a Urine Specific Gravity Test?

The kidneys have several important functions in the body, including eliminating waste products through the urine and regulating the body’s fluid balance. The urine specific gravity (SG) test tells your veterinarian how concentrated your pet’s urine is (how much water it contains). If the SG is too high, it can mean inadequate amounts of water are being eliminated through the urine. If the SG is too low, it can mean the body is losing too much water through the urine. There is a relatively wide range of normal readings for a urine SG test, but there are also several medical conditions that can affect the result.

Measuring the urine SG can help your veterinarian determine how well your pet’s kidneys are working. Urine that is too diluted may indicate that the kidneys can’t retain enough water to prevent dehydration. Often, urine SG is evaluated along with other urine and blood tests that screen for abnormalities involving the kidneys. Your veterinarian may recommend these tests if any type of kidney problem is suspected.

How Is the Urine Specific Gravity Measured?

To measure your pet’s urine SG, your veterinary team must obtain a small urine sample. For a dog, this may simply involve taking the dog for a short leash walk and collecting a sample as the pet urinates. You may even be able to do this at home. If so, be sure to collect the sample in a clean, dry container and bring it to your veterinarian as soon as possible. Ideally, urine should be tested right away (or at least the same day it is collected). If you can’t deliver the urine immediately, keep it refrigerated until you can take it to your veterinarian.

For cats, some veterinarians use a special type of plastic cat litter pellets and let the cat rest in a cage with some drinking water and a litterbox for a few hours. The plastic pellets are not absorbent, so once the cat urinates, the urine sample can be collected relatively easily. Some pet owners can also do this at home.

Most veterinarians perform the urine SG test in the office and have results the same day. To test the sample, one or two drops of urine are placed on the screen of a special hand-held instrument called a refractometer. This instrument allows your veterinarian to measure how concentrated your pet’s urine is.

What Does the Urine Specific Gravity Test Tell Your Veterinarian?
Several medical conditions can cause the urine SG to be abnormal:

- Dehydration
- Diabetes
- Adrenal gland disease
- Thyroid disease (in cats)
- Kidney disease

Although changes in the urine SG are commonly associated with illness, many other factors can affect the measurement. For example, if a healthy dog or cat drinks more water than usual (such as after exercise or on a hot day), the urine SG may be temporarily low (indicating diluted urine) because of increased water intake. Similarly, if a pet doesn’t drink water for several hours or has become dehydrated, the urine SG may be higher than normal, indicating urine that is too concentrated. In both examples, the pets are likely healthy, but their urine SG readings may not be within the normal range.

As with any other diagnostic test, the results of a urine SG test are combined with physical exam findings, medical history, and other information to assess your pet’s health status and determine if additional testing should be recommended. Additional tests may include a full urinalysis, radiographs (x-rays), an ultrasound examination, or blood testing.

**Are There Risks Associated With Measuring the Urine Specific Gravity?**

Very few risks are associated with measuring the urine SG. If your veterinarian simply collects a sample as your pet is urinating, there is no risk of harm to your pet. If another method of urine collection (such as using a urinary catheter or collecting the sample directly from the bladder using a syringe) is necessary, your veterinary staff will take precautions to ensure that your pet is not harmed.
Vaccine Titer Testing

- Vaccine titer tests measure the level of specific antibodies in a pet’s blood.
- Titer tests can help determine whether a puppy’s or kitten’s immune system has responded appropriately to an initial vaccine series.
- Some veterinarians use vaccine titer tests to help guide decisions regarding whether a pet should be revaccinated for certain diseases.

What Is Vaccine Titer Testing?

Vaccine titer testing is a way of measuring a pet’s immune system response when the pet is vaccinated against a specific disease. Titer tests detect antibodies, which are proteins produced by the body when the immune system detects a disease-causing organism (e.g., virus, bacteria) or another “foreign” substance, like a vaccine. Antibody-stimulating substances are called antigens. Titer test results tell your veterinarian not only whether your pet has antibodies to a specific antigen, but also the level of these specific antibodies.

Vaccine titer testing requires your veterinarian to take a small sample of your pet’s blood. The test is not painful, and the pet does not need to be anesthetized.

How Does It Work?

Titers are usually reported as a ratio—1:2, 1:500, 1:1000, etc. The ratio describes how many times the blood sample had to be diluted until antibodies could no longer be detected. A high vaccine titer (1:1000) is generally preferred to a low titer (1:2) and is generally considered more “protective.” However, the relationship between vaccine titer ratios and the level of vaccine protection has not yet been clearly established for many diseases.

What Is It Used For?

Vaccine titer tests may be administered to puppies and kittens after their initial vaccination series to see whether their immune system has responded properly to certain vaccines. At birth, animals have some antibodies from their mother to help protect them from disease. These antibodies (known as maternal antibodies) begin to “wear off” a few weeks after birth and are generally at very low levels a few months after birth. If a puppy or kitten is vaccinated while levels of maternal antibodies are still very high, the maternal antibodies can reduce the vaccine’s effectiveness against the disease. This is why puppies and kittens need a series of vaccines during their first few months of life: to deliver the appropriate disease immunity when the maternal antibodies have started to fade but before the pet is exposed to the disease.

A vaccine titer test can help detect the presence of specific antibodies. Low antibody levels may indicate that the vaccine has not been effective, that maternal antibodies are still interfering with the development of immunity, or that the puppy or kitten has a problem with its immune system. Depending on the situation, your veterinarian may want to revaccinate your pet.
Veterinarians may also use titer tests when making decisions about whether to revaccinate, or “booster,” an adult pet. According to the American Animal Hospital Association’s vaccine guidelines, vaccine titer tests have recently been established for some diseases, such as canine parvovirus and canine distemper. However, immunity is complex, and the absence of antibodies in an adult pet does not necessarily mean that the animal is no longer immune. It is important to follow your veterinarian’s recommendations regarding when and how often a pet should be vaccinated as well as whether a vaccine titer test should be performed.

Some foreign countries require that pets vaccinated for rabies undergo a titer test before they can be admitted to the country.
Valvular Heart Disease

- Heart valves help control movement of blood through the heart; valvular heart disease can develop when heart valves are not working properly.
- Your veterinarian may recommend a cardiac evaluation if valvular heart disease is suspected.
- Most cases of valvular heart disease are treated with medication, but severely affected pets may not survive, despite medical treatment.

What Is Valvular Heart Disease?

In dogs and cats, the heart contains four valves. Opening of a heart valve allows blood to flow freely from one heart chamber into the next chamber or vessel. Closing of the valve prevents blood from “backflowing” (flowing into the previous chamber).

With valvular heart disease, one or more heart valves become damaged and unable to adequately control movement of blood through the heart. Damaged valves may become thickened, tear away from their attachments, or lose the necessary flexibility to move freely. When the valves don’t function properly, blood flow through the heart can become turbulent or irregular. Backflow can also occur. These changes force the heart to work harder, which causes additional heart damage over time. This can lead to a condition called congestive heart failure, which is when the heart is unable to function appropriately. Valvular heart disease is one of the most common causes of heart failure in dogs; congestive heart failure can be fatal, especially if not treated.

What Are the Clinical Signs of Valvular Heart Disease?

With mild valvular heart disease, your pet may appear completely normal. However, clinical signs in more severe cases can include the following:

- Coughing
- Exercise intolerance (difficulty exercising)
- Lethargy (tiredness)
- Difficulty breathing
- Fainting or collapsing episodes

How Is Valvular Heart Disease Diagnosed?

Your veterinarian will likely diagnose valvular heart disease based on results of a cardiac examination. A cardiac exam helps to assess the overall health of the heart and circulatory system. Your veterinarian may perform some or all of these tests to diagnose your pet’s heart condition:

- **Auscultation:** Your veterinarian will listen to your pet's heart and lungs using a stethoscope, which magnifies the sounds of the heart and lungs. The scientific term for this process is *auscultation*. As your veterinarian listens, he or she may detect irregular heartbeats, an abnormal rhythm, or a heart murmur, all of which can be associated with
valvular heart disease. He or she may also hear abnormal lung sounds, such as sounds produced by fluid buildup, which can occur with congestive heart failure.

- **Blood tests:** Results of blood tests can provide your veterinarian with a large amount of information about your pet’s heart. Useful blood tests may include a heartworm test, chemistry profile, and complete blood count (CBC).

- **Electrocardiography:** Electrocardiography (also called an ECG or EKG) is used to check for abnormalities in the heart’s rhythm. An ECG detects electrical changes associated with the beating of the heart. The electrical changes are recorded by the ECG machine and then interpreted by a veterinarian. An ECG can determine whether the heart is beating too slow or too fast or whether there are irregular beats. It can also reflect changes associated with heart enlargement.

- **X-rays:** Chest x-rays can show the size, shape, and position of the heart. Because valvular heart disease causes the heart to work too hard, the heart muscle can become thickened, and the heart can become enlarged. X-rays also show your veterinarian your pet’s lungs. If congestive heart failure has caused fluid to accumulate in the lungs, your veterinarian will be able to evaluate this.

- **Blood pressure:** Your veterinarian may have equipment that can measure your pet’s blood pressure. Heart disease can cause changes in blood pressure that can contribute to additional illness. Blood pressure that is too low or too high may need to be treated with medication.

- **Cardiac ultrasound:** Your veterinarian may have equipment that can perform a cardiac ultrasound examination (or echocardiogram). The ultrasound machine is connected to a small handheld probe that is held against your pet’s chest. The probe sends out painless sound waves that bounce off of structures in your pet’s chest (such as the heart and blood vessels) and return to a sensor inside the ultrasound machine. This creates an image on a screen that can tell your veterinarian a great deal of information about your pet’s heart. Cardiac ultrasound permits your veterinarian to look at the motion of your pet’s heart valves as the heart is beating. This can provide valuable information about how well the valves are functioning.

**How Is Valvular Heart Disease Treated?**

Most cases of valvular disease are treated with medication. Medication can help the heart work more efficiently; it can also help remove excess fluid that may have built up in the lungs. Severely affected pets may not survive, despite medical treatment.

Sometimes, a special (low sodium) diet is recommended for pets with valvular heart disease. Your veterinarian can also advise you about whether it is safe for your pet to exercise, how much exercise is recommended, and what types of exercise are safe for your pet.

Patients with heart disease should return for scheduled recheck examinations. Your veterinarian may want to repeat some diagnostic tests to see if treatment is improving your pet’s medical problem. Your veterinarian may also want to perform blood work periodically to monitor for medication side effects, such as dehydration or kidney damage.

Surgical procedures are being developed to replace damaged heart valves in animals, but it may
be many years until these procedures are available for veterinary patients. At this time, studies are being conducted that may provide more insight into future treatment options.
Vestibular Disease

- Vestibular disease is a medical condition that affects the nervous system.
- Clinical signs of vestibular disease include incoordination (instability when trying to stand or walk), head tilt, and circling to one side.
- Sometimes the cause of vestibular disease remains undiagnosed, but underlying causes can include thyroid disease (in dogs) or a middle/inner ear infection.
- Spontaneous recovery from vestibular disease often occurs.

What Is Vestibular Disease?

Vestibular disease is an illness that affects a group of small organs called the vestibular apparatus. The vestibular apparatus is located in the brain and inner ear. These organs are responsible for an animal's ability to remain balanced, detect the degree of head rotation, and determine overall body position. Vestibular disease can result if the vestibular apparatus is damaged.

Vestibular disease can be caused by a middle or inner ear infection, tumors involving the middle or inner ear, brain tumors, or head trauma. Thyroid disease has been associated with vestibular disease in dogs, and certain medications can cause vestibular disease-like clinical signs. Sometimes the underlying cause remains undiagnosed; this is referred to as idiopathic vestibular disease.

Vestibular disease tends to affect older dogs, but cats can be affected earlier in life.

Clinical Signs of Vestibular Disease

When there is an issue with the vestibular apparatus, the pet loses the ability to maintain balance. Clinical signs can occur very suddenly and can be so severe that the pet is unable to walk, stand, or move.

The following are signs of vestibular disease:

- Incoordination (instability when trying to stand or walk)
- Rapid eye movement from side to side
- Circling
- Head tilt
- Rolling or falling to one side
- Vomiting

Diagnosis

The diagnosis of vestibular disease involves a physical examination and a neurologic examination (specific physical examination “tests” used to assess the patient’s nerve and brain function). Your veterinarian will likely examine the ear canal to see if there is evidence of an
infection or tumor. X-rays of the skull may also show tumors or evidence of fluid or inflammation in the middle or inner ear.

Some veterinarians have access to sophisticated equipment for computed tomography (CT) and magnetic resonance imaging (MRI), which can provide detailed images of the brain and inner ear. If this equipment is not available, diagnosis is based largely on clinical signs and physical examination findings.

**Treatment**

The goal of treatment is to address the underlying problem and keep the animal as comfortable as possible until recovery is adequate. If the patient is suffering from an ear infection, the infection should be treated. Sometimes, a course of antibiotics is given. Other treatments are aimed at controlling nausea/vomiting and providing comfort until the patient recovers. Severely affected pets may require hospitalization until they can eat and drink as well as stand without falling.

Many patients recover from vestibular disease within 14 days of the onset of clinical signs, with or without treatment. Occasionally, a slight head tilt may remain, but many patients recover completely. If the underlying cause of the episode was a tumor of the brain or inner/middle ear, the outcome depends largely on whether the tumor can be treated. Similarly, if the underlying cause was an ear infection or thyroid problem, recovery depends on effectively managing these problems.
Vomiting

- Vomiting is the forceful emptying of the stomach.
- If vomiting is prolonged, it can lead to dehydration.
- Vomiting can be associated with several medical conditions ranging from motion sickness to foreign body ingestion to cancer.
- Treatment is aimed at controlling the vomiting and resolving the primary cause.
- A safe environment, healthy diet, routine veterinary care, and wellness blood work will go a long way toward preventing vomiting.

What Is Vomiting?

Vomiting is defined as the forceful emptying of the stomach’s contents. It is caused by a signal from the brain to the stomach that originates in a part of the brain known as the vomiting center. Vomiting initially developed because it helps save animals from poisoning. Nerves in the abdomen or certain substances in the bloodstream indicate to the brain that the animal may have eaten something toxic, and vomiting can help to rid the body of the toxic substance. Although this does occur now, the actual ingestion of toxins has become less of a threat to our pets than to their wild ancestors; over time, many more triggers began to induce the brain to signal vomiting. Prolonged vomiting can be dangerous because it can lead to life-threatening dehydration.

What Are the Causes of Vomiting?

Primary stomach or intestinal diseases that can cause vomiting include:

- Parasites
- Toxins
- Foreign bodies
- Spoiled food
- Food allergies
- Stomach ulcers
- Inflammatory bowel disease
- Cancer

Secondary or nonstomach disorders that can cause vomiting include:

- Motion sickness
- Thyroid disease (in cats)
- Pancreatitis (inflammation of the pancreas)
- Pyometra (uterine infection)
- Kidney or liver disease
- Canine parvovirus or distemper
- Feline panleukopenia virus

How Is the Cause of Vomiting Diagnosed?
Before attempting to diagnose what may be causing a pet to vomit, it is very important to differentiate between vomiting and regurgitation. Vomiting requires abdominal effort (constriction of the abdominal muscles) and is the active expelling of stomach contents. In contrast, regurgitation is the passive elimination of contents in the esophagus that happens without nausea or retching. This distinction is important because the medical conditions that tend to cause regurgitation are different from those associated with vomiting.

Once your pet’s vomiting has been confirmed, your veterinarian will begin to approach your pet’s diagnosis and treatment. In order to narrow the list of possible causes, your veterinarian will take into account your pet’s age and species. For instance, a young energetic dog that is vomiting is more likely to have eaten something it shouldn’t have, while a senior cat with weight loss, increased drinking, and vomiting is more likely to have a medical problem such as kidney disease or thyroid disease. Your veterinarian will likely ask detailed questions regarding duration of sickness, weight loss, medications, changes in appetite, and timing of the vomiting with regard to meals. A thorough physical exam will be performed to determine if there is abdominal pain, dehydration, or other abnormalities suggesting the cause of the vomiting. You may want to bring some of the vomit to the hospital because the appearance of the vomit can help with the diagnosis. For example, vomit with black coffee ground-like material indicates that the stomach may be bleeding.

Your veterinarian may also recommend performing laboratory tests on blood, feces, and urine. It may also be necessary to evaluate x-rays and perform an abdominal ultrasound examination. If your veterinarian suspects that the problem may be limited to the stomach and the intestines close to the stomach, an endoscopic examination may be recommended. This procedure requires anesthesia and involves passing an endoscope (a long tube containing a tiny video camera) down your pet’s esophagus to look into the stomach and intestines.

**How Is Vomiting Treated?**

Dehydration from prolonged or severe vomiting is of immediate concern, and it may be necessary to admit your pet to the hospital for fluid replacement while a diagnosis is being pursued. Treatment is aimed at controlling the vomiting itself (to prevent further dehydration) and at gaining control of or eliminating the primary cause of the vomiting.

Some causes of vomiting are easily treated, such as when a pet with an allergy to a certain food stops vomiting when the diet is switched. On the other hand, a pet with stomach cancer may need surgery, chemotherapy, or more prolonged and aggressive treatment.

**How Can I Prevent Vomiting?**

Vomiting is a signal to the owner and the veterinary team that something is wrong. If your pet vomits once, remove food and water for a few hours. Continuing to eat and drink may cause the vomiting to continue instead of stopping after one episode. If your pet continues to vomit without having anything to eat or drink, call your veterinarian. Also, do not allow your pet to eat grass—this is an old wives’ tale and does not benefit the pet. In fact, eating grass can contribute to additional medical problems.
Sometimes it can be very difficult to determine the cause of vomiting. This is especially true if a pet is not well supervised or has access to a variety to things that can cause vomiting. Keeping a watchful eye on what your pet eats and preventing his or her access to harmful substances will help prevent many causes of vomiting. Having routine physical examinations, fecal testing, and wellness blood work performed regularly can permit the early discovery and treatment of medical conditions such as parasites, diabetes, kidney or liver disease, thyroid disease, and other conditions that can cause vomiting. A watchful eye, along with early diagnosis and treatment of primary disease, provide the opportunity to prevent vomiting in many cases.
**Von Willebrand's Disease**

- Von Willebrand's disease is an inherited bleeding disorder that occurs most commonly in dogs and rarely in cats.
- It is caused by a deficiency in the quantity or activity of von Willebrand factor, a protein in the blood that helps platelets stick to injured surfaces to form a clot.
- It is found most commonly in Doberman pinschers, German shepherds, golden retrievers, poodles, and Shetland sheepdogs.
- Signs include prolonged bleeding after surgery or trauma, or bleeding from the nose, gums, and vagina, as well as bloody urine or feces.
- The disease can be diagnosed with a special blood test or with a DNA test.
- Treatment usually requires transfusions with blood or plasma products and/or administration of a synthetic hormone.
- There is no cure for von Willebrand's disease, and dogs with this condition should not be bred.

**What Is Von Willebrand's Disease?**

Von Willebrand's disease is the most common inherited bleeding disorder in humans and dogs. The disease rarely occurs in cats.

Dogs with this disease cannot clot blood normally, which results in bleeding, especially after surgery or trauma. While this disease has occurred in more than 50 different dog breeds, the breeds most commonly affected include Doberman pinschers, German shepherds, golden retrievers, poodles, and Shetland sheepdogs.

**What Causes Von Willebrand's Disease?**

The disease is caused by an inherited gene mutation that results in a deficiency in the quantity or activity of von Willebrand factor, a protein in the blood. When an animal is injured, cells called platelets stick to the damaged tissue to form a clot and prevent bleeding. Von Willebrand factor helps the platelets stick to each other, so a deficiency in this factor can result in abnormal bleeding.

**What Are the Signs of This Disease?**

Owners may not be aware that their dog has this disease until the pet experiences prolonged bleeding after a surgery or trauma. In severe cases, dogs may bleed from the nose, around the gum line, from the vagina, or have bloody urine or feces, even without trauma.

**How Is This Disease Diagnosed?**

Pet owners who have a breed with a high predisposition to the disease may want to test their dog as a puppy. A blood test can measure the amount of von Willebrand factor in the blood sample. A DNA test is also available for a small number of breeds and can be performed with a simple swab inside the mouth.
It is important to know if your dog has the disease so that your veterinarian can take the necessary precautions to control bleeding if your dog needs surgery or is injured. Dogs that have von Willebrand's disease or are carriers should not be bred, to prevent passing on the disease to their offspring.

In dogs suspected of having von Willebrand's disease, veterinarians can perform a screening test before surgery. Most commonly, veterinarians will check a buccal mucosal bleeding time. In this test, a small cut is made on the dog’s inner lip (sedation may be needed for some pets), and the length of time required for the bleeding to stop is measured. A prolonged bleeding time may indicate a bleeding disorder.

**How Is Von Willebrand's Disease Treated?**

There is no cure for von Willebrand's disease. However, in the event of a bleeding problem, dogs can be treated with transfusions of blood or plasma products to increase the amount of von Willebrand factor in the system. A synthetic hormone called *desmopressin acetate* may also be given to help the dog increase its level of von Willebrand factor.

It’s always better for the veterinarian to know about the disease before starting surgery. Transfusions may be given before, and if necessary, after the surgery to help prevent excessive bleeding. After treatment, the dog should be kept on strict cage rest and monitored until all bleeding has resolved.
**Weight Check**

- A weight check is the measurement of your pet’s weight and the evaluation of your pet’s body condition.
- A weight check should be performed at every veterinary examination and any time you notice changes in your pet’s weight.
- Unexpected weight loss may be the first sign of diseases such as diabetes, hyperthyroidism in cats, kidney failure, and cancer.
- Weight gain may occur with endocrine (glandular) diseases such as hypothyroidism in dogs.
- Regular weight checks are a good way to monitor the progress of a pet’s weight-loss program.

**What Is a Weight Check?**

When checking your pet’s weight, your veterinarian will not only weigh your pet on a scale but also assess the appearance of your pet’s body condition. Body condition is usually evaluated on a scale of 1 to 9, with 1 being too thin, 9 being obese, and 5 representing the ideal weight. A similar body condition scoring system uses a 1-to-5 scale, with 1 being too thin, 3 being ideal, and 5 indicating obesity.

When your pet is the ideal weight, you should be able to feel (but not see) the ribs, with a minimal fat covering. When observing your pet from above, your pet’s waist should be visible behind the rib cage. In dogs, the abdomen should “tuck up” behind the ribcage when viewed from the side.

Visible ribs, spinal vertebrae, and hip bones are usually signs that the pet is too thin. When pets are overweight, it is difficult to feel the ribs, and the waist is not visible when viewed from above.

**Why Are Weight Checks Important?**

Unexplained weight changes in your pet may be the first sign of a health problem. Regular weight checks enable your veterinarian to investigate these problems early. Excessive weight gain by itself may lead to other health problems, including:

- Diabetes (in cats)
- Arthritis
- Ligament and disk ruptures
- Heart disease
- Skin problems
- Shorter life span

Regular weight checks can help you keep your pet at the ideal weight, which can help him or her have a longer, healthier life.
West Nile Virus and Your Pet

- West Nile virus is usually transmitted to dogs and cats through the bite of an infected mosquito.
- Clinical signs of infection in dogs and cats may be very mild or absent.
- Protecting your pets from mosquitoes will reduce their risk of exposure to West Nile virus. Ask your veterinarian about safe and effective mosquito-repellant products for your pets.

What Is West Nile Virus?

West Nile virus (WNV) is a virus that causes encephalitis (brain inflammation). WNV is usually transmitted to dogs and cats through the bite of an infected mosquito. Some birds, including crows, jays, sparrows, finches, grackles, and robins, are competent reservoirs for the virus (meaning they are able to infect mosquitoes). Some infected birds can shed WNV in their feces and other body fluids. In theory, cats and dogs can become infected through ingestion of (or contact with) an infected bird, but mosquito bites remain the primary route of infection.

Currently, WNV is relatively uncommon in dogs or cats. Birds, horses, and humans are more likely to become infected. Although WNV occurs in people, transmission of the virus from dogs or cats to people has not been documented.

What Are the Signs of West Nile Virus in Pets?

Clinical signs in WNV-infected dogs and cats may include fever, lethargy (tiredness), and polyarthritis (joint inflammation). However, most infected dogs and cats do not display clinical signs, or signs may be very mild.

How Is West Nile Virus Diagnosed and Treated in Pets?

Blood tests are generally used to confirm a diagnosis of WNV in pets. Fortunately, most pets recover fully from the infection. Treatment of WNV is mostly supportive. Your veterinarian will show you how to manage any clinical signs until they disappear.

How Can I Protect My Pet From West Nile Virus?

Dogs and cats are usually infected with WNV through the bite of an infected mosquito. There is currently no vaccine against WNV for dogs and cats. Prevention focuses on reducing exposure to mosquitoes and using approved products that safely and effectively repel mosquitoes from dogs and cats.

The best ways for people to avoid being bitten by mosquitoes are to wear long-sleeved shirts, long pants, and socks outdoors; limit outdoor activities and take extra precautions during evening and early morning hours when mosquitoes are most active; and use an insect repellent that contains DEET. (Note: DEET-based repellents are not approved for use in dogs and cats).
Talk with your veterinarian about safe and effective mosquito-repellant products to use on your pets.

To mosquito-proof your home, drain any standing water on the property and install or repair screens so mosquitoes cannot enter.
When to Consider Euthanasia

- Euthanasia is the painless, humane termination of life.
- The decision regarding when to euthanize is fraught with medical, financial, ethical, religious, moral, and sometimes legal considerations.
- Seeking counsel from family, friends, and others can help with this difficult decision. Ultimately, you must trust yourself to make the best choice for your pet.

What Is Euthanasia?

Euthanasia is the painless, humane termination of life. There are times when medical science has exhausted all of its capabilities and euthanasia is the only way to prevent an animal from suffering needlessly. However, the decision regarding when to euthanize is fraught with medical, financial, ethical, religious, moral, and sometimes legal considerations. Euthanasia is therefore a medical procedure that needs to be discussed (however painful that discussion may be) and considered fully before a final decision is made.

How Is Euthanasia Performed?

Most veterinarians use a concentrated solution of a barbiturate, administered as an injection into a vein, to perform euthanasia on a pet. The medication enters the circulation immediately, and it generally stops heart and brain function very quickly. Most pets fall quietly asleep within a few seconds, followed quickly by termination of heart and brain function. However, some animals may experience an excitement phase as the medication begins to affect their brain. During this time, the pet may vocalize or exhibit other distressing behaviors. The excitement phase is not painful in any way; it is merely a reaction of the pet’s brain to the chemicals in the medication. The excitement phase generally lasts for only a few moments, after which the animal becomes calm and falls asleep; heart and brain function soon cease, and the euthanasia procedure is completed.

Your veterinarian may be able to offer you several options based on your preferences for conducting your pet’s euthanasia. Some veterinarians offer the option of being present or stepping out of the room as the injection is given. Some veterinarians may recommend placement of an intravenous catheter for administering the injection, and some veterinarians also administer a tranquilizer to calm the pet before the final injection is given. For pets that are too sick to travel, some veterinarians may be able to schedule a house call so that the procedure can be performed at your home. Ask your veterinarian what options he or she offers. Your veterinary team will make every effort to accommodate your wishes at this very difficult time.

When Should I Consider Euthanasia?

The decision regarding when to euthanize is never an easy one – not for you and certainly not for your veterinarian. This is partly because there are very few times when euthanasia is the only option available. For example, if a dog is hit by a car and sustains a broken back and other extensive injuries that cannot be treated, most people would not argue that the dog is suffering and euthanasia is the only reasonable option. However, most situations are not so clear cut. What
about the pet that has been sick for a long time with kidney disease, heart disease, cancer, or another serious illness, and the owners have reached their emotional or financial limits? What about the elderly pet that is progressively having problems walking and seems to be in pain most of the time? What about the elderly pet that has started to urinate and defecate uncontrollably in the house? These are just a few examples of some situations that may lead a caring pet owner to consider euthanasia.

In short, there are very few times when euthanasia is the only option for a pet. It can therefore be very difficult to know with certainty when it is absolutely time to terminate your pet’s life. Here are a few points to think about when struggling to come to a decision:

- Is my pet suffering?
- If my pet is suffering, what can be done about it?
- Are there any treatments that may help my pet?
- Will diagnostic tests provide useful information that can help me decide?
- Should I seek a second (or third) opinion?
- What are my limitations (e.g., financial and moral/ethical) in terms of diagnostic and treatment options?
- Does my pet enjoy his or her life right now?
- If I do this right now, am I doing it for myself or for my pet?
- If I don’t do this right now, am I doing it for myself or for my pet?
- When I look back on this decision, will I think that I gave up too soon? Will I think that I let things go too far?
- If I’m not ready right now, is there anything that can be done temporarily to help my pet while I struggle to come to a decision?

Although euthanasia is a very personal and private decision, you may not have to make this difficult choice on your own. Your veterinarian may be able to recommend alternative treatments or diagnostic options that can help your pet. In some cases, family members, friends, or clergy can also offer counsel. If finances are a key concern, family members may be willing to help finance further treatment if euthanasia is the only other option. Some veterinarians can also offer you payment arrangements if finances are an issue.

The decision to euthanasia is literally a life-or-death choice that should not be made in haste or without careful thought. Consulting friends, family, and others for support can be very helpful. Ultimately, as a loving pet owner, you must trust yourself to make the best decision for your pet.
Whipworms

- Whipworms are small parasites that can live in the large intestines of dogs and, rarely, in cats.
- Dogs become infected by eating the whipworm eggs in the soil, usually during grooming.
- Not all dogs show signs of a whipworm infection, but those that do may have diarrhea with blood and mucus, dehydration, and weight loss.
- Whipworm infections are diagnosed by finding parasite eggs during a veterinary fecal exam.
- Infections are treated with medications given once a month for a few months or with monthly heartworm preventives that protect against whipworms.

What Are Whipworms?

Whipworms are one of several internal parasites that can live in the large intestines of dogs and, rarely, in cats. This type of worm is named for the whip-like appearance of its body, which has a thicker head that tapers into a thinner tail.

Whipworms live in the dog’s large intestine, where they burrow their tails into the intestinal wall, leaving their mouths free to eat. Female whipworms produce eggs, as many as 2000 or more a day, which are passed in the dog’s feces. The eggs enter the soil, where they become infective in about 2 to 3 weeks.

How Do Dogs Become Infected With Whipworms?

Dogs become infected by ingesting eggs from the environment, often during grooming. The eggs hatch in the dog’s small intestine, releasing larvae, which eventually travel to the large intestine and become adults.

What Are the Signs of a Whipworm Infection?

When the infection is limited to a small number of worms, the dog may show no signs at all. Larger infections may cause inflammation of the large intestine, resulting in diarrhea with mucus and fresh blood. Severe infections may cause bloody diarrhea, dehydration, weight loss, and anemia (low numbers of red blood cells). People cannot get whipworm infections from their dogs.

How Are Whipworm Infections Diagnosed?

A whipworm infection is diagnosed by finding microscopic parasite eggs during a veterinary fecal examination. However, there are a number of reasons why parasite eggs may not be found on a fecal examination, even when the dog is infected with whipworms. First, female whipworms don’t lay eggs all the time, so multiple fecal exams may be required over several weeks before eggs are found. Second, from the time a dog ingests a parasite egg, it can take up to 3 months before the female whipworm lays eggs. As a result, dogs may show signs of infection
long before eggs are released in the feces. Finally, even when eggs are in the feces, they may be difficult to find in the fecal exam.

Even if whipworm eggs aren’t found, veterinarians often treat for a whipworm infection if the dog shows signs associated with an infection.

**How Is an Infection Treated?**

Whipworm infections are generally treated with medications given once a month for a few months. Some monthly heartworm preventives also contain medications that are designed to eliminate whipworm infections. Talk with your veterinarian about giving your pet preventive medication against whipworms.

**How Can I Protect My Dog From Whipworm Infections?**

To prevent your dog from being exposed to whipworm eggs, you should make every effort to pick up and dispose of feces as soon as possible. However, whipworm eggs are very resistant to temperature extremes and radiation from sunlight, so they can contaminate the soil for months or even years. That’s why it’s a good idea for your dog to have periodic fecal exams and receive monthly heartworm preventives that protect against whipworms.
Why Do I Need To Vaccinate My Pet?

- Vaccination is an important weapon against infectious diseases.
- Some diseases, like rabies, are transmissible to humans, so protecting your pets also protects your family members and community.
- Pets that stay indoors also can be exposed to infectious diseases, so even indoor cats can benefit from vaccinations.
- Vaccines are safe and generally well tolerated by most pets.
- Vaccine selection and scheduling should be an individualized choice that you and your veterinarian make together.

Companion animals today have the opportunity to live longer, healthier lives than ever before, in part due to the availability of vaccines that can protect pets from deadly infectious diseases. Over the past several decades, the widespread use of vaccines against diseases like rabies has saved the lives of millions of pets and driven some diseases into relative obscurity. Unfortunately, infectious diseases still pose a significant threat to dogs and cats that are unvaccinated; therefore, although vaccine programs have been highly successful, pet owners and veterinarians cannot afford to be complacent about the importance of keeping pets up-to-date on their vaccinations.

How Do Vaccines Work?

Although there are many types of vaccines, they tend to work through a similar principle. Most vaccines contain a very small portion of the virus or bacterium that is the infectious agent. Some vaccines contain small quantities of the entire virus or bacterium, whereas others contain particles that are part of the infectious organism. When this material is introduced into the body in a vaccine, the body’s immune system responds through a series of steps that include making antibodies and modifying other cells that will recognize the target organism later. When the vaccinated individual encounters the “real” organism later, the body recognizes the organism and reacts to protect the vaccinated individual from becoming sick.

Why Does My Pet Need Vaccines?

*Vaccines protect your pet*

Vaccines are one of our most important weapons against infectious diseases. Some diseases, such as “kennel cough,” in dogs and rhinotracheitis in cats can be transmitted directly from pet to pet. If your pet is ever around other animals, such as at a kennel, dog park, grooming salon, or daycare facility, exposure to infectious disease is possible. Even pets that look healthy on the outside may be sick, so keeping your pet’s vaccines up-to-date is a good way to help prevent illness.

*Even primarily indoor pets can be exposed to diseases*

Even if your pet doesn’t have direct contact with other animals, some diseases can be transmitted indirectly. For example, parvovirus infection, which is potentially fatal, is spread through contact with feces from an infected dog. Even if your dog never has contact with a dog infected with
parvovirus, exposure to the virus can occur through contact with feces from an infected dog, such as in a park or on a beach. Lyme disease—a dangerous infection that is carried by ticks—is another disease that your dog can be exposed to without coming into contact with other dogs.

In cats, panleukopenia infection is potentially fatal and spread through contact with body fluids (mostly urine and feces) from an infected cat. Once a cat is infected with panleukopenia, it may shed virus in body fluids for a few days or up to six weeks. Panleukopenia can live in the environment (such as on contaminated bedding, food bowls, litter boxes, and other items) for a very long time, so contact with contaminated objects can spread the infection to other cats. Additionally, if a pet owner is handling an infected cat, failure to change clothes and wash hands thoroughly with the correct disinfectant can expose other cats to the disease.

So, even pets that spend most of their lives indoors or have very limited contact with other animals are not completely safe from exposure to infectious diseases.

**Vaccines protect your family and community**

Some infectious diseases, such as leptospirosis in dogs and rabies in dogs and cats, are zoonotic diseases. That means humans also can become infected. In the case of rabies and leptospirosis, both diseases can cause serious illness and death in infected individuals— including humans. Protecting your pets against these diseases also protects the rest of your family members, as well as other pets and people in your community.

**Are Vaccines Safe?**

All of the available vaccines for dogs and cats have been thoroughly tested and found to be safe when administered as directed. Most pets tolerate vaccines very well, although reactions can occur in some cases. Some pets can seem a little “tired” after receiving vaccines. But notify your veterinarian if your pet develops breathing problems, facial swelling, vomiting, hives, redness on the skin, or other unusual changes after receiving a vaccine. You also should tell your veterinarian if your pet has ever had a problem in the past after receiving a vaccine.

**Which Vaccines Does My Pet Need?**

Many vaccines are available for dogs and cats, but every pet does not need to receive every available vaccine. So how do you know which vaccines your pet should have? The American Animal Hospital Association (AAHA) and the American Association of Feline Practitioners (AAFP) have summarized vaccine recommendations to help veterinarians clarify how to best protect dogs and cats through the use of vaccine programs. AAHA and AAFP evaluated the available vaccines and categorized them to provide guidelines on how commonly they should be used. Vaccines are categorized as core, non-core, or not recommended. A core vaccine is one that all pets should receive. The core vaccines for dogs are rabies, distemper, adenovirus-2, and parvovirus; and the core vaccines for cats are rabies, rhinotracheitis (feline herpesvirus-1), panleukopenia (feline distemper), and calicivirus. Non-core vaccines are optional ones that pets can benefit from based on their risk for exposure to the disease. Examples include the vaccines against Lyme disease and leptospirosis in dogs, and the vaccines against feline leukemia virus.
and feline immunodeficiency virus (or feline AIDS) in cats. Categorization of a vaccine as “not recommended” does not mean that the vaccine is bad or dangerous. This designation simply means that widespread use of the vaccine is not currently recommended.

Because core vaccines are recommended for all pets, your veterinarian will recommend keeping these vaccines up-to-date at all times. The decision regarding non-core vaccines should be made after you and your veterinarian have discussed the vaccines in question and whether your pet might benefit from receiving them. Factors to consider include your pet’s lifestyle (how much time your pet spends outside), where you live, where you travel with your pet, and how often your pet has contact with other animals. Bear in mind that vaccine recommendations and your pet’s lifestyle can change. Your veterinarian may want to discuss modifying the vaccine recommendations to ensure that your pet is well protected.

**What Is The Recommended Schedule For Vaccines?**

Puppies and kittens generally receive their first vaccines when they are around six to eight weeks of age (depending on the vaccine and manufacturer’s recommendations). Booster vaccines are generally given during your puppy or kitten checkup visits; your veterinarian can discuss the recommended schedule with you. Vaccines are generally repeated a year later.

Although puppies and kittens are considered especially vulnerable to some diseases, it is also very important for adult pets to be up-to-date on vaccines. Traditionally, many vaccines were repeated yearly, during regular checkup examinations. However, research has shown that some vaccines can protect pets for longer than one year. In light of these findings, the AAHA and AAFP guidelines note that some vaccines don't need to be repeated more frequently than every three years. The decision regarding how often your pet needs vaccine boosters depends on several factors, including your pet’s overall health status and risk for exposure to the diseases in question. Your veterinarian may recommend annual boosters after considering your pet’s lifestyle and disease exposure risk. The decision regarding how often to administer any vaccine (annually, every three years, or not at all) should be an individualized choice that you and your veterinarian make together.

Vaccination remains one of the most important services your veterinarian offers, and although vaccination is a routine procedure, it should not be taken for granted. It also allows a regular opportunity for your veterinarian to perform a physical examination, which is very important for keeping your pet healthy. Protecting patients is your veterinarian’s primary goal, and developing an appropriate vaccine protocol for your pet is as important as any other area of medicine.
Winter Hazards and Your Dog

- Winter can be hazardous for dogs, and it is important to be aware of the dangers to keep your pet healthy.
- There are indoor and outdoor winter threats to dogs, especially around the holiday season.

What You Need to Know

As the temperatures outside start to get lower and you prepare for colder weather, it is important to also prepare your dog for the winter. Whether your dog lives indoors or outdoors, there are dangers in colder conditions. Your dog’s health, food, and environment all need to be taken into consideration when “Old Man Winter” approaches.

Indoor Winter Hazards

During the winter, people and their pets tend to spend more time indoors, so it is important to keep the home environment safe for your dog. The following are some common issues to be aware of:

- Many types of houseplants can be poisonous to dogs. If eaten, these plants can cause problems such as vomiting and diarrhea, as well as other reactions that can be severe or even fatal. It is important to keep all dangerous plants out of your dog’s reach.
- Burning candles, fireplaces, wood-burning stoves, and space heaters create the potential for burns and smoke inhalation. The flickers and warmth of a fire can be an attraction for dogs; therefore, dogs should not be left alone in a room with open flames or hot electric elements. When these items are in use, monitor your dog at all times to keep him or her from getting burned or possibly starting a house fire.
- Carbon monoxide poisoning can be a threat to dogs as well as people. Furnaces, gas water heaters, and gas/kerosene space heaters should always be evaluated for any leakage. Because dogs tend to be in the house for longer periods of time during the winter, they can be exposed to carbon monoxide leaks for longer, which may cause serious health issues or death. Checking smoke detectors (and purchasing smoke detectors that also detect increases in carbon monoxide) are good ways to help protect your pets and family.

Outdoor Winter Hazards

Being outdoors in the winter can be a lot of fun, but it is important to keep in mind that dogs are susceptible to frostbite, hypothermia (low body temperature), and other cold-weather hazards. Dogs that live outdoors in the winter need special attention to protect them from the wind, rain, and cold. Hypothermia can affect normal body functioning and produce injury or, eventually, death. Fresh, unfrozen water must be available at all times. If your dog has a dog house or igloo, make sure the interior is insulated. Safe heated mats, along with a good layer of straw, are an option that can help keep your dog warm and comfortable.
Dogs that live outside should be able to come inside when they want to. Old or sick dogs should be kept indoors when possible and monitored closely for signs of illness. Even a dog that is used to being outside can suffer hypothermia and frostbite. If severe winter storm warnings or extreme cold weather alerts recommending that humans stay indoors are issued in your area, it is a good idea to bring your dog indoors, too. If your dog cannot be brought indoors, a garage or mud room can provide enough shelter in some cases.

Chemicals like ice melts and salts, antifreeze, and windshield wiper fluids can all be toxic and cause serious complications if dogs eat or drink them. Ice melts and salts can stick to the bottom of dogs’ paws, so it is best to wash your dog’s feet after he or she has been outdoors. Methanol and ethylene glycol, the toxic ingredients in windshield wiper fluid and antifreeze, can cause permanent kidney damage and even death. Carbon monoxide poisoning can occur if dogs are left in cars with the motor running or in a garage with a running car.

Going for walks in the winter can be invigorating, but it is best to keep dogs away from frozen water. Dogs can fall through thin ice into freezing water and may suffer hypothermia or drown.

**Holiday Season Hazards**

We all look forward to the winter holiday season each year, so it is particularly tragic when a family pet is harmed during this time. Paying special attention to safety as you celebrate is very important.

- **Christmas trees can be very attractive to dogs.** Dogs may eat the needles (even from artificial trees) or drink the water at the base of the tree, which can be toxic (especially if preservatives are in it).
- **Electrical wires can be a serious hazard.** Dogs that chew on these wires can sustain severe burns to the mouth, injury to the brain and lungs, and death from electrocution. It is best to keep wires out of reach or taped down securely. Also, lights may become hot and are best used only on upper branches of trees.
- **Ornaments are beautiful for people to look at, but dogs may think they’re toys.** Fragile, breakable or edible ornaments may be knocked over, and wire hooks can get caught in your dog’s hair, skin, or—if eaten—stomach and intestines. An alternative to wire hooks is to use loops of yarn, ribbon, or lightweight twine. Hang the ornaments out of reach of your dog.
- **Tinsel can block the intestines if swallowed, requiring emergency surgery.** Tinsel also has sharp edges that can cause cuts in the mouth. Angel hair, which is made of spun glass, is also irritating if touched.
- **Gifts should be checked for small, breakable parts that can be easily swallowed.** As with tinsel, string and ribbon can cause intestinal injury or blockage. Monitoring your dog around these items is highly recommended.
- **Human holiday foods, like chocolate, coffee, macadamia nuts, yeast dough, and alcohol, can all be hazardous to dogs.** For example, theobromine, an ingredient in chocolate, can cause seizures and death if eaten by dogs. Caffeine (in coffee and chocolate) also causes seizures, along with diarrhea, abnormal heart rate/rhythm and death.
We all want our pets to enjoy the winter and holidays with us. By taking a few precautions and preventive measures, dogs can be protected from many common winter hazards.

**More Cold-Weather Tips**

Xylitol Toxicosis

- Xylitol is a sugar substitute that is safe for people but can cause low blood sugar and liver damage in dogs.
- Toxic effects of xylitol in dogs can occur within 10 to 15 minutes, but may be delayed up to a few days.
- If you suspect that your dog has eaten a product containing xylitol, see your veterinarian immediately.
- Children should be advised to never give candy or gum to pets.

What Is Xylitol Toxicosis?

Xylitol is a sugar substitute that is commonly used in sugar-free gum and candy, nicotine gum, toothpaste, baked goods, and chewable vitamins. Xylitol has been used safely in these human products for many years, but it is toxic (poisonous) when eaten by dogs. Xylitol toxicosis occurs when a dog eats enough of the product to cause damaging effects in the body. Currently, xylitol is not known to be toxic in cats. Other artificial sweeteners, such as aspartame, are not known to be toxic in pets.

In dogs, xylitol stimulates the pancreas to release insulin. Insulin is a hormone that helps the body’s cells take glucose (sugar) from the bloodstream and use it for cellular functioning. When cells take too much sugar from the blood (in response to increased insulin levels), the pet’s blood sugar can drop dangerously low—a condition known as hypoglycemia. This effect is not seen in people who eat xylitol. Xylitol can also cause liver damage in dogs. In severe cases, liver cells can die in large numbers, and the pet may develop liver failure.

How Does Xylitol Toxicosis Occur?

Many cases of xylitol toxicosis in dogs are accidental. A pet may find and chew on a package of gum or candy or steal food from a countertop or table. Unfortunately, other cases of xylitol toxicosis occur when dogs are given a product containing xylitol. Children should be advised to never give candy or gum to pets. If you suspect that your dog has eaten a product containing xylitol, see your veterinarian immediately.

What Are the Clinical Signs of Xylitol Toxicosis?

Signs of xylitol toxicosis can occur within 10 to 15 minutes of a pet eating xylitol but may be delayed for several hours. The most common side effect of xylitol toxicosis is hypoglycemia. Vomiting and seizures can also occur, as well as weakness and collapse. Liver damage can occur within a few hours or may be delayed for up to 3 days. Clinical signs of liver damage can include diarrhea, spontaneous bleeding and bruising, and vomiting.

How Is Xylitol Toxicosis Diagnosed?

Diagnosis of xylitol toxicosis is commonly based on a history of recently eating xylitol. Your veterinarian may recommend blood testing, such as a chemistry panel and complete blood cell
count (CBC), to assess the extent of the damage. If severe liver damage is suspected, additional diagnostic testing is warranted.

**What Are the Treatment and Outcome for Xylitol Toxicosis?**

If it is recognized within a few hours that a pet has eaten xylitol, vomiting can be induced to remove the material from the stomach and limit further absorption. If the patient is very weak or minimally alert, vomiting is not recommended.

There is no specific antidote for xylitol toxicosis. Treatment may include intravenous fluid therapy (with a sterile sugar solution added to correct hypoglycemia), medications to help control vomiting, and additional medications and supplements to help support liver functioning. Blood sugar levels should be monitored closely during hospitalization.

Xylitol toxicosis can be fatal. However, pets can survive if the condition is recognized, diagnosed, and treated quickly. If complications are limited to hypoglycemia, the pet may recover fully. However, if severe liver damage has occurred, the outcome is less likely to be favorable.
Your Pet's Prescribed Diet

If your pet is on a prescribed diet, keeping him or her on that diet is essential for the best possible health and quality of life. Your veterinarian has carefully selected your pet’s prescribed diet based on his or her specific needs, so this food should not be changed.

Please order refills of your pet’s prescribed diet at least 2 weeks before he or she will finish the current supply. Your veterinarian will appreciate your help with keeping your pet healthy and properly fed.