Cornell DogWatch

Health and wellness information from the experts at the Cornell Canine Health Center January 2022 – Vol. 26, No. 1

THIS JUST IN

Xylitol Law Pending

Requires label warnings

Xylitol is a common artificial sweetener used in many human products. While safe for people, it causes a drastic drop in blood glucose that is often followed by fatal liver damage in dogs. Many dog owners are unaware products they have in the house have this ingredient until a dog ingests it and becomes ill. It only takes a tiny amount of xylitol to poison a dog.

The American Veterinary Medical Association is endorsing a pending federal law, called the Paws Off Act (HR 5261), that will require products with xylitol to have a warning label about toxic effects to dogs and other pets. Ask your representatives to support and pass this law.

"Despite the deadly harm xylitol presents to dogs and other pets, it is frequently not listed in the ingredient label in products we use on an everyday basis," says AVMA President José Arce.

Xylitol is sometimes listed as "birch sugar" and is found in many products, including baked goods, gum, pudding, jam, peanut butter, mouthwash, toothpastes, and even some medications. Symptoms of poisoning include difficulty walking or standing, lethargy, tremors, vomiting, and weakness.

If you suspect your dog swallowed a product with xylitol, call the Pet Poison Helpline at 855-764-7661. Do not induce vomiting unless instructed by a veterinarian. ■

INSIDE THIS ISSUE

New Laws in New York Benefit Dogs 2
Keep Winter Fun for Your Dog 2
COVID and Myocarditis in Dogs 2
Aortic Stenosis Is Common 4
Impulsive Behavior 5
Urinary-Tract Problems 6
Options for Deaf Dogs 7
Nothing in Life Is Free 8

Suspect Cataracts? Don't Wait

Older cataracts are more difficult to remove

Cataracts happen in dogs both young and old. Causes include inheritance (dogs with cataracts should not be used for breeding), metabolic disturbances (diabetes), trauma, nutritional (orphan pups on milk replacer), and chronic uveitis (an inflammatory disease of vascular tissue deep in the eye).

Healthy lenses are transparent, meaning clear, and all light that hits them passes easily through to the retina. With cataracts, the lenses are opaque, which means light cannot pass through to the retina, resulting in blindness. A cataract is any focal or diffuse opacity of the normally transparent lens, usually caused by proteins in the eye that clump together and cloud the eye. They can be corrected with surgery.

"The ideal time to perform cataract surgery is prior to the cataract becoming mature, as more advanced cataracts (mature and hyper mature) are more likely to cause lens-induced intraocular inflammation, lens instability, and loss of lens capsule integrity," says Dr. Kelly E. Knickelbein, Assistant Clinical Professor, Section of Opthalmology, Department of Clinical Sciences, Cornell University's College of Veterinary Medicine. "These complications may preclude surgery from being performed, may lead to a poorer prognosis for vision and comfort following surgery, and may preclude placement of a synthetic intraocular lens."

Cataract-Related Issues

In addition to vision loss, chronic cataracts can cause excruciatingly painful, unmanageable secondary issues within the eye, for which our only recourse is enucleation, or surgical removal of the eye. This happens because the lens continuously degenerates over time, sparking chronic inflammatory changes around it. These secondary issues include lens-induced uveitis, glaucoma (increased intraocular pressures), and lens luxation (dislocation of the lens). Cataracts can also cause retinal detachment, which can result in blindness.

Surgery benefits include:

- An 80 to 90% success rate
- Avoidance of problems secondary to cataracts
- Restoration of sight

Reasons not to do surgery include:

- General health of the dog
- Dog has poor life expectency
- Unhealthy eyes
- Temperament of the dog

Regaining eyesight and avoiding the problems secondary to chronic cataracts are the two main reasons to consider cataract surgery for your dog. For ideal surgical candidates, the success rate of cataract surgery in dogs has been reported to be as high as 80 to 90%, and the sooner the surgery is done the better the likely outcome. While many of the complications that may arise are manageable, surgery is not without risk. Some complications are both blinding and painful and may require surgical removal of the eye.

(continues on page 3)

The cataract in the right eye shows the classic clouding of the lens.

New Laws in New York Benefit Dogs

They address suspected-abuse reports and breed prejudice

New York Governor Kathy Hochul signed a legislative package that prohibits insurance companies from refusing to insure homeowners with a dog and from imposing an increased premium based solely on the dog. In addition, New York will now require veterinarians to report cases of suspected animal cruelty.

In New York, insurance companies can no longer discriminate against homeowners based on the breed of the dog that they own. It prohibits insurers from canceling, refusing to issue a policy or renew, or charging higher premiums for homeowner insurance based on the breed of their dog.

To help track animal cruelty, New York now mandates that veterinarians report suspected animal cruelty to appropriate authorities to investigate. This legislation protects the identity of such veterinarians and allows veterinarians to receive a copy of any report generated.■

Keep Winter Fun for Your Dog

Know when your dog is too cold

Most dogs love the snow and cool weather.

Winter's a great time to be a dog, and most love the cooler weather, but they need your guidance to keep them safe. If walking along roads or sidewalks that are treated with ice-melting substances, consider boots for your dog. Boots protect your dog's feet from the road and sidewalk treatments, which can be toxic if your dog licks them off his feet. They also can sting a cracked pad.

If your dog says a big no to boots—or you just can't get them to stay on!—wash and dry his paws after every walk. Protective paw coatings like Musher's Secret can help protect the pads and keep them from cracking.

Most dogs are fine without a coat, even with temperatures into the teens, if the dog is dry, the snow is fluffy, and you're not out for a long time. Keep outside outings short if your dog is not acclimated and watch for signs of chilling. Short-haired, thin, small, and elderly dogs are especially prone to chilling.

Picking paws up, sitting up, or refusing to walk all indicate that your dog is cold. Limbs, ears, and tails chill first due to less tissue to hold warmth and your dog's body shifting blood flow to his core. Make sure any coat you put on your dog is dry. Take off wet clothes as soon as you come in and towel or blow your dog dry.■

COVID and Myocarditis in Dogs

United Kingdom study looks at the alpha variant

Myocarditis, inflammation of the heart muscle, is often an immune response to an infection, usually a virus. It is also a possible but rare side effect to the COVID-19 vaccine. A study from the United Kingdom looked at SARS-CoV-2 (the cause of COVID) B.1.1.7 variant (the alpha variant) infections in dogs and cats with suspected myocarditis. All the dogs had clinical signs of heart disease that included exercise intolerance, cough, or arrhythmia.

Two cats and one dog were positive for SARS-CoV-2 on rectal swab, and two cats and one dog were found to have SARS-CoV-2 antibodies two to six weeks after they developed signs of cardiac disease. Many of the pet owners had developed respiratory symptoms three to six weeks before their pets became ill and tested positive for COVID-19. All the pets were referred for acute onset of cardiac disease, but without primary respiratory signs. These findings demonstrate the ability for pets to be infected by the B.1.1.7 variant and question its possible pathogenicity in these animals.■

Ferasin, L., et al. "Infection with SARS-CoV-2 variant B.1.1.7 detected in a group of dogs and cats with suspected myocarditis" Vet Rec. 2021;e944.https://doi.org/10.1002/vetr.944

Cornell DogWatch

EDITOR IN CHIEF
William H. Miller, VMD, Dipl ACVD, Emeritus, Professor, Clinical Sciences

EXECUTIVE EDITOR
Cynthia Foley

TECHNICAL EDITOR
Debra M. Eldredge, DVM

ADVISORY BOARD

James A. Flanders, DVM, Dipl ACVS, Emeritus, Associate Professor, Clinical Sciences

Katherine A, Houpt, VMD, Ph.D., Dipl ACVB, Emeritus, Professor of Behavior Medicine

Joseph Wakshlag, MS, DVM, Ph.D., Dipl ACVN, Associate Professor, Clinical Nutrition

Kelly R. Hume, DVM, DACVIM Associate Professor, Clinical Sciences, Oncology

Meredith L. Miller, DVM, Dip ACVIM Associate Clinical Professor, Small Animal Medicine

Leni K. Kaplan, MS, DVM Senior Lecturer, Community Practice Service

CONTRIBUTING WRITERS
Eileen Fatcheric, DVM
Katherine Basedow, LVT

DogWatch is an independent newsletter produced in collaboration with Cornell University College of Veterinary Medicine

Cornell University College of Veterinary Medicine

For information on pet health, visit the Cornell University College of Veterinary Medicine, website at **vet.cornell.edu**

Send questions and letters to the editor:
DogWatch
535 Connecticut Ave.
Norwalk, CT 06854-1713
dogwatcheditor@cornell.edu

Subscriptions: $39 per year (U.S.) • $49 per year (Canada). For subscription and customer service information, visit www.dogwatchnewsletter.com/cs or write to: DogWatch, P.O. Box 8535, Big Sandy, TX 75755-8535. 800-829-5574

Belvoir

DogWatch® (ISSN: 1098-2639) is published monthly for $39 per year by Belvoir Media Group, LLC, 535 Connecticut Ave., Norwalk, CT 06854-1713. Robert Englander, Chairman and CEO; Timothy H. Cole, Chief Content Officer; Philip L. Penny, Chief Operating Officer; Greg King, Chief Marketing Officer; Ron Goldberg, Chief Financial Officer; Tom Canfield, Chief Circulation Officer.

Postmaster: Send address corrections to DogWatch, P.O. Box 8535, Big Sandy, TX 75755-8535.

(Cataracts, continued from page 1)

Surgery Decisions

The surgery is phacoemulsification. Small incisions are made in the cornea and the lens capsule. High-frequency vibration is used to essentially pulverize the lens, which is then removed by vacuum. An artificial lens is inserted into the eye, and the cornea is sutured closed.

"Dogs undergoing cataract surgery generally spend three to four days in the hospital, however, this may be extended if complications arise," says Dr. Knickelbein. "This stay includes an initial examination and pre-surgical diagnostics (ocular ultrasound to rule out retinal detachment) and electroretinogram to demonstrate appropriate retinal function, pre-anesthetic evaluation, anesthesia and surgery, and close post-operative monitoring."

"Following discharge," says Dr. Knickelbein, "at-home care involves treatment with several eye drops four to six times daily, several oral medications, use of a hard plastic E-collar, and activity restriction. Follow-up examinations are performed frequently in the early post-operative period, and patients generally require at least one topical medication and routine examinations life-long."

According to Dr. Knickelbein, the most common post-operative complications are protracted intraocular inflammation and glaucoma. Other complications include corneal ulcers, infection, and retinal detachment.

What's the best way to avoid these complications and ensure a good outcome? Don't wait once your dog has been diagnosed with cataracts. The more mature the cataract the more likely post-operative complications are.

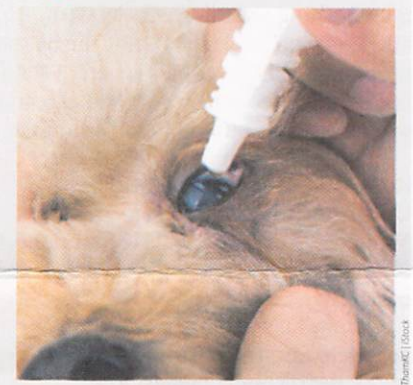
One Eye or Two

Dr. Knickelbein says, "The decision to perform cataract surgery on one or both eyes depends on if both eyes are affected with cataracts, the stage of those cataracts, and the overall health of the eyes. Cataract surgery in dogs requires general anesthesia, so if both eyes have cataracts and are candidates for surgery, both eyes are often operated as one procedure. Some dogs may only have one eye that is a candidate for surgery despite bilateral cataracts, and some cataracts are asymmetrical such that surgery is only indicated in one eye."

Whenever possible, the best advice is to pursue surgical correction of cataracts sooner rather than later. But if you or your dog are not good candidates for this (see sidebar "When Surgery Is Not the Best Option"), don't lose hope. Talk to your veterinarian about instituting topical therapy with anti-inflammatory drops to try to prevent cataract-associated ocular disease, and have your dog's ocular pressures checked for glaucoma every four to six months. Dogs adapt well to being blind in a protected environment, like your home, with a little help from you.■

When Surgery Is Not the Best Option

- **Risk vs. benefits.** If the risk to the dog outweighs the benefit, such as surgery in older dogs with heart or kidney disease, you probably won't do surgery.
- **Life expectancy.** A dog without a reasonable life expectancy, such as very old age or cancer, is probably not a good candidate.
- **General health of the eye.** The corneas must be healthy for a good surgical outcome and vision. If the retinas are not healthy, the dog will still be blind, or will become blind, even with surgery.
- **Ability of the dog owner to commit.** Post-operative care is intense, with multiple eye drops and topical preparations needed around the clock. In some households, it's just not possible.
- **Temperament of the dog.** Let's face it: Some dogs are going to be impossible to medicate/manage with that intense of a post-operative protocol, both while in the hospital and at home afterward. This, unfortunately, needs to be considered.



ThamHC | iStock

Post-surgical care can be intense, including multiple eye drops.

Could It Be Lenticular Sclerosis?

As your dog ages, you may notice a bluish haze developing deep in his eyes, behind the pupils. More than likely, if your dog is still able to see, this bluish haze is a common, normal, aging change called lenticular sclerosis or nuclear sclerosis. With lenticular sclerosis, the lens fibers become compressed and somewhat degenerative over time, resulting in translucency. Translucent lenses are hazy or cloudy, allowing only partial passage of light. Lenticular sclerosis will not make dogs blind; they just may not see fine details like they used to.

Diabetic Dogs

Diabetic cataracts are caused by high blood sugar. Excess sugar (glucose) in the lens is converted to sorbitol, which draws water into the lens. This causes the lens to swell, resulting in disruption of lens fibers and oxidative stress, which results in cataracts. About 75 to 80% of diabetic dogs will develop cataracts within the first year of their diagnosis, regardless of how well-controlled their diabetes is. The cataracts tend to form quickly and frequently cause severe lens-induced uveitis, which can result in glaucoma. Glaucoma is notoriously difficult to manage in these patients, and many dogs need the eye removed. Your best bet for a diabetic dog with cataracts is surgical correction as soon as possible.

We can't stop cataracts from forming in diabetic dogs, but technology may be close. Kinostat, by Therapeutic Vision, Inc., is a promising new topical ophthalmic solution with provisional FDA approval. The conversion of glucose to sorbitol in the lens is mediated by an enzyme called aldose reductase. Kinostat uses an aldose reductase inhibitor to block the conversion of glucose to sorbitol in the lens, thereby preventing the damaging influx of water into the lens. In a clinical trial, diabetic dogs treated with Kinostat were 85% less likely to form cataracts than diabetic dogs treated with a placebo.

Aortic Stenosis Is Common

This disease causes your dog's heart to work too hard

Aortic stenosis is a narrow aortic valve, which is the valve in the heart through which blood is pushed to the rest of the body. Aortic stenosis is something your dog is born with, although you may never know he has the problem until it becomes severe. When the aortic valve is narrow, the heart must work harder to pump blood through it.

"It's pretty common," says Bruce Kornreich, DVM, PhD, Cornell University's College of Veterinary Medicine. Aortic stenosis is found most often in large-breed dogs, but any breed or mix can be affected.

Your dog's left ventricle (the ventricles are the bottom chambers of the heart) is the biggest and strongest chamber of the heart. As the heart contracts, it pushes oxygenated blood out through this valve to the rest of the body. In a dog with aortic stenosis, the left ventricle must push harder to force a normal amount of blood through the narrow valve. Over time, this can cause problems, even leading to heart failure or death.

Many dogs do not show obvious signs of aortic stenosis, but they may have a heart murmur, usually identified the first time they visit a veterinarian. If the disease becomes severe, the dog may exhibit:

- Lethargy
- Exercise intolerance
- Difficulty breathing
- Coughing
- Collapse
- Sudden death

Puppies can sometimes have a heart murmur that will go away as the puppy ages. Your veterinarian will take notes describing the murmur that he or she hears and follow up at each exam when your pup comes back for vaccine boosters. If the murmur goes away, all is well. If your new pup has aortic stenosis, the murmur will not improve and may worsen and probably will.

Types of Aortic Stenosis

There are three types of aortic stenosis, based on where the defect occurs.

Subaortic stenosis is when the narrowing is just beneath the aortic valve. This is by far the most common type in dogs, and one of the most common heart conditions in dogs overall.

Valvular aortic stenosis is when the narrowing is in the valve itself.

Supravalvular aortic stenosis is when the narrowing is just above the aortic valve.

cynoclub | iStock

Not all puppies diagnosed with a heart murmur develop aortic stenosis.

All these can then be classified as mild, moderate, or severe, which will impact treatment and prognosis. "If they have mild stenosis then their life span is usually unaffected, with a normal life span compared to the general canine population," says Dr. Kornreich. "Dogs with moderate-to-severe stenosis definitely have a worsening prognosis with the degree of severity. Dogs with severe stenosis have a poor long-term prognosis," he says.

Genetic Risk and Responsible Breeding

Aortic stenosis appears to be an inherited trait. Breeds that are most commonly affected include Boxers, Golden Retrievers, Rottweilers, Newfoundlands, Bullmastiffs, German Shepherd Dogs, Bouviers des Flandres, and Dogues de Bordeaux. Because of the risk of passing it on, Dr. Kornreich strongly recommends that any dog with aortic stenosis should not be bred.

What You Can Do

- If you are thinking about getting a new puppy, ask the breeder about any cases of aortic stenosis in the litter's relatives.
- If you're getting a rescue puppy, get a clean bill of health from a veterinarian before completing the adoption.
- Don't skip puppy checkups. Finding a heart murmur early allows you to implement lifestyle changes to reduce stress on your dog's heart.
- If a heart murmur is found, get an echocardiogram to determine how severe the issue is.

Getting a Diagnosis

If your veterinarian hears a suspicious heart murmur on exam, he or she will recommend some tests to find out if your dog does have aortic stenosis.

Chest x-rays are an easy place to start, but the heart will usually look normal in mild cases or early in the disease process. Some physical changes may be visible in more severe cases. An electrocardiogram also will probably be normal in mild cases but will show some abnormalities in more severe ones.

An echocardiogram (or "echo") is an ultrasound of the heart. This is the best way to check for aortic stenosis because the veterinarian can see the aortic valve and measure the velocity of blood flow across it. An echo can distinguish between mild, moderate, and severe cases. This test is non-invasive and doesn't require anesthesia, but you will need to visit a specialist.

Bloodwork may be run as well, particularly if your dog has a more severe case and may need to be started on medications.

Treatment

Mild cases of aortic stenosis usually do not require treatment. Your veterinarian will listen to your dog's heart during every exam and track any changes in the severity of the murmur.

Moderate-to-severe cases usually require treatment. There is no cure, so the goal is to manage any symptoms and slow progression.

"Usually, these patients are treated with lifestyle modification, avoiding severe exertion," says Dr. Kornreich. "In many cases, we use beta blockers to decrease the force of contraction of the heart." Atenolol is the most commonly used beta blocker.

If the dog is showing signs of congestive heart failure, additional medications will likely be added to address those issues. "In some cases, we may end up treating with other antiarrhythmics," says Dr. Kornreich. These medications will need to be continued for the rest of your dog's life.

Exercise restriction is often recommended. Intense play and hard exercise require the heart to beat harder, which puts extra strain on your dog's already overworked heart. If your dog has experienced episodes of fainting or collapse during exercise, limiting his activity will likely be part of his treatment plan. Dogs with moderate-to-severe aortic stenosis could experience sudden death if they are too active.

You can keep your dog moving, just stick to low-impact activities that don't get him panting hard. Walks are usually fine, and obedience and trick training will work your dog's mind. Avoid hard running, such as games of chase or fetch, and discourage crazy or rough play.

Surgery

Surgical procedures have been attempted to correct aortic stenosis, with mixed results. The most promising technique is called "cutting balloon valvuloplasty."

A tiny balloon with little blades on it is inserted into the carotid artery and guided into the heart to the location of the restriction, and once in place, the balloon is inflated so that the blades can score the inside of the narrowed region. A second balloon is then inserted and inflated to dilate the vessel to a normal width. Dogs who undergo cutting balloon valvuloplasty for subaortic stenosis may have better exercise tolerance and less strain on their left ventricle after the procedure, but results overall have not been good.

"Initially, it looked promising, but more recent studies have shown that these dogs often re-stenose over time," says Dr. Kornreich. "This procedure has not been shown to improve lifespan in dogs with subaortic stenosis. We don't routinely recommend it here except for extreme cases in which there is no other option and owners understand its risks and limitations." Cornell has done this procedure on a handful of patients.

The problem is that the cutting balloon valvuloplasty does not provide a permanent solution. It may not be initially successful, and in those cases in which it is, most dogs regress back to where they were within a year or two. There is also the potential for damage to the aortic valve. Going through the procedure does not seem to extend overall survival time, and of course, it comes with the typical risks of going under anesthesia and the introduction of catheters into the cardiovascular system.

For most dogs with subaortic stenosis, the risk of this procedure is presumed to be greater than its potential benefit at this time.

There is no cure for aortic stenosis, but you can help your dog's heart by limiting hard exercise. Medications may be needed in severe cases. Dogs with mild cases can live normal, happy lives without any symptoms.■

Impulsive Behavior

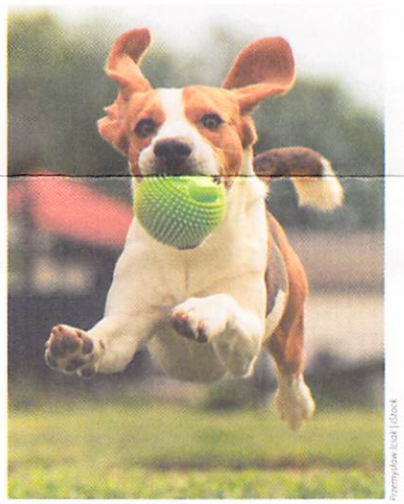
May have a link to ADHD in kids

A research group from the University of Helsinki collected data on more than 11,000 dogs with an extensive behavioral survey. Hyperactivity, impulsivity, and inattention were examined using questions based on a research survey utilized for human attention deficit hyperactivity disorder, commonly known as ADHD. The goal of the study was to identify environmental factors underlying canine ADHD-like behavior and potential links to other behavioral traits.

The study found that hyperactivity, impulsivity, and inattention were more common in young dogs and male dogs. Corresponding observations relating to age and gender in connection with ADHD have been made in humans, too.

Dogs who spent more time alone at home daily were more hyperactive, impulsive, and inattentive than dogs who spent less time on their own. As social animals, dogs can get frustrated and stressed when they are alone, which can be released as hyperactivity, impulsivity, and inattention.

The researchers discovered a new link between hyperactivity and impulsivity, and the owner's experience with dogs, as the two traits were more common in dogs who were not their owners' first dogs.



Przemyslaw Iciak | iStock

Some dogs become obsessive about playing ball, never wanting to stop..

Breeding has had a significant effect on the behavior of different dogs. Differences among breeds can indicate genes underlying the relevant traits. Hyperactivity and impulsivity on the one hand, and good concentration on the other, are common in breeds bred for work, such as the German Shepherd Dog and Border Collie. In contrast, a calmer disposition is considered a benefit in breeds that are popular as pets, making them easier companions in everyday life.

The study confirmed previously observed links among hyperactivity, impulsivity, and inattention, and obsessive-compulsive behavior, aggressiveness, and fearfulness. ADHD is also often associated with other mental disorders and illnesses, such as obsessive-compulsive disorder (OCD).

The findings suggest that the same brain regions and neurobiological pathways regulate activity, impulsivity, and concentration in both humans and dogs.■

Sulkama, S., et al. "Canine hyperactivity, impulsivity, and inattention share similar demographic risk factors and behavioural comorbidities with human ADHD." Translational Psychiatry, 2021; 11 (1) DOI: 10.1038/s41398-021-01626-x. Science Daily.

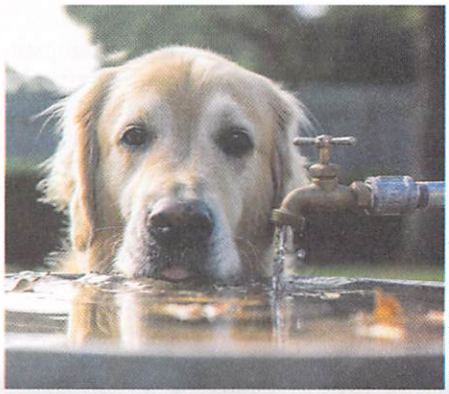
Urinary-Tract Problems

It can be more than an infection or "UTI"

When something goes wrong with the urinary tract, many people assume it's a urinary-tract infection (UTI) in the bladder and that an antibiotic is all that is needed. But the urinary tract is more than just the bladder. It includes the kidneys, ureter, bladder, and urethra.

General signs that you should have your dog examined for a urinary issue include unusual amounts of drinking and urination, abnormal accidents in the house, and straining to urinate.

A urine specimen is liquid gold when it comes to a diagnosis of urinary-tract disease. It is, however, non-specific as to where in the urinary tract the problem is. Your veterinarian needs additional means to localize the problem, including: the signalment (breed, sex, age, spay/neuter status) of your pet, the history you provide (be thorough and complete; you never know which tiny detail might be important), the physical exam, and other diagnostic tests as indicated (bloodwork, urine culture, x-rays, abdominal ultrasound, and contrast studies).



tschwanmeyer | iStock

Unusual excessive thirst can be an indicator of a urinary-tract issue.

Lower Urinary Issues

Signs of lower urinary-tract disease caused by infection, inflammation, stones, tumors, or crystals are usually associated with changes in the act of urinating, or changes in the look of the urine, as opposed to symptoms of systemic illness.

These signs include:

- Straining to urinate (stranguria)
- Urinating frequent, small amounts (pollakiuria)
- Painful urination (dysuria)
- Licking at the penis or vulva
- Urinating in the house
- Visible blood in the urine, dark urine, or cloudy, malodorous urine

If your dog shows any of these signs, bring your dog and a fresh urine specimen to your veterinarian. Results of the physical exam and urinalysis will dictate what happens next.

Lower Urinary Treatment

If infection is suspected, a urine culture may be submitted. This test confirms infection and indicates which antibiotic is most appropriate. If bladder stones are suspected, an abdominal x-ray will be recommended. Not all stones are visible on x-ray. An abdominal ultrasound is useful for identifying bladder tumors and stones that don't show up on x-ray.

Some bladder stones can be dissolved by feeding a prescription diet that is lower in phosphorus, protein, and magnesium and increasing water intake. Stones that are not amenable to this must be surgically removed. Once the stones are gone, prescription diets are used to prevent recurrence of stones. If crystals are identified without stones, feeding the appropriate prescription diet can prevent stones from forming.

Intermittent urinary incontinence, usually while sleeping or relaxing, is commonly associated with urinary sphincter incompetence and is most common in spayed female dogs. Medications can help, but you should still have a urine sample checked, as incontinence can be associated with underlying infection or disease.

Similarly, if you suspect your dog is having behavior issues that are causing urination in the house or submissive wetting, for example, you may need a behavior-specialist consult to determine the reason. Before that, however, you should have a urine specimen checked to rule out an underlying medical problem. Some dogs with crystals, infection, stones, or kidney disease may urinate in the house due to increased urgency associated with the need to urinate.

Upper Urinary Issues

Signs of upper urinary tract issues are typically systemic in nature. Excessive thirst and urination is a common early indicator of chronic kidney disease (CKD). As kidney disease progresses, the dog will become increasingly ill with signs including a lack of appetite, vomiting, and weight loss.

If your dog is diagnosed with CKD, a prescription kidney diet geared toward lessening the work burden on the kidneys typically will be recommended. Additional supportive care measures including antacids, appetite stimulants, phosphate binders (sucralfate), and subcutaneous fluid therapy for diuresis may be recommended as the disease progresses. Well-managed dogs can live for years with CKD.

Pyelonephritis and protein-losing nephropathies can be present with no outward signs, sometimes discovered during routine screening of healthy pets or while performing diagnostics on a patient with non-specific signs of not feeling well. A urine specimen submitted for urinalysis and culture is key to diagnosing these harmful diseases.

Upper Urinary Treatment

Treatment for pyelonephritis (PLN) is oral antibiotics, sometimes for extended periods (six to 12 weeks), until repeat urine culture is negative. Treatment for PLN depends on the stage of the disease and the degree of proteinuria, but typically involves a prescription kidney diet, blood pressure medication, fish-oil supplementation, and possibly low-dose aspirin therapy. Well-managed dogs can live for years with PLN.

While upper urinary stones and tumors can cause abdominal pain, overtly bloody urine, and illness, they are frequently silent, initially discovered only when microscopic blood is identified in the urine by urinalysis. If a stone, tumor, or stricture causes an actual urinary obstruction, however, this dog will usually have significant abdominal pain, lethargy, and vomiting, and require emergency surgical intervention. Fortunately, this disastrous situation is not common.

Whether your dog is showing signs of urinary-tract disease or is seemingly healthy and you want to keep him that way as long as possible, a urine specimen offers a wealth of information about your dog's health. Remember, fresh samples are best, so don't hesitate to bring a clean, dry container with you to the veterinary clinic and grab a sample on your way in.■

Options for Deaf Dogs

Hearing doesn't have to impact quality of life

Deafness in dogs ranges from 2.5 to 6.5% for the canine population, with a lack of hearing in one or both ears. A unilaterally deaf dog will often go through life normally. You might notice him cocking or turning his head at times to catch a sound, but he functions just fine. A totally deaf dog can use some help but may still have a full life.

Causes

For some breeds, the risk of deafness is much higher. Breeds with piebald and/or merle coloring are at highest risk, as are Dalmatians (some Dalmatian breeders test puppy hearing before placement). In Dalmatians, up to 8% have bilateral hearing loss and 22% have unilateral loss.

Congenital deafness is usually related to pigment absence in the inner ear. The blood supply to the cochlea (bone in the inner ear) degenerates, leading to the death of the nerve cells in that area. The degeneration seems to be associated with the absence of melanocytes (pigment-producing cells) in that area.

Senior dogs, however, may go deaf as part of an aging process. Tumors, ruptured ear drums, trauma, and simply degeneration of auditory nerves can all contribute to deafness in older dogs.

A less common cause is toxicity, including from antibiotics such as gentamicin. "I often see dogs that present with sudden acute hearing loss," says Ellis Loew, PhD., Emeritus Professor of Physiology, Department of Biomedical Sciences at Cornell University's College of Veterinary Medicine. "They are behaviorally hearing one day and totally non-responsive the next day. In my experience, this has occurred coincident with an ear infection, the ingestion of certain drugs, or the eating/drinking of a toxic substance. In some cases, at least partial recovery of hearing may occur."

What to Do

Medically, there aren't many options for deafness. Researchers are looking at injecting stem cells to try to regenerate the auditory nerve cells. This work is in the early stages but holds hope for people and dogs.

People often ask about hearing aids for dogs. One veterinarian tried using human hearing aids attached to dog collars, with tubing in a foam insert, which was then put into the dog's ear. One of the problems with this is that a hearing aid is basically a "sound amplifier," which means if the necessary nerves aren't present, it won't help to make sounds louder.

Luckily, dogs use their other senses to adapt to the hearing loss. Once you know your dog is having hearing problems, you can use a variety of techniques to help him enjoy his day.

First, as obvious as this may sound, remember that your dog is deaf. He should not be let off leash unless in a safely enclosed area. This is extremely important. Remember, he will not hear an approaching car or a stray dog running up to him. You need to be proactive for his safety.

A sleeping deaf dog can be startled by your touch and might even snap as a reflex. It is best to stomp your feet as you approach a sleeping deaf dog in the hopes the floor or ground vibrations will stir him awake. Standing by him for a minute before touching him may also allow your scent to penetrate his sleeping mind so he knows it is you.

Deaf dogs can be trained to hand signals for basic commands. Dogs are acutely tuned into our body language to begin with and even dogs with normal hearing quickly learn hand signals. They intuitively read our body language. The catch, of course, can be getting your deaf dog's attention so that he sees the signals.

One way to get attention is the use of a penlight (or flashlight out in the yard). There are also "vibration" collars (NOT shock collars) that can be used to signal a deaf dog to look for you. In a confined setting, you can work on getting your dog to focus on you. Use very tasty, smelly treats.

Whenever your dog makes eye contact, treat him. With time, you will find he seeks you out to establish contact and get treated. You can also use a penlight just as you would a clicker for a dog with normal hearing.

Older dogs who have developed hearing problems may still respond to one of the "silent" dog whistles that use high-pitched sounds. They also figure out quickly that if you flick the porch light on

(continues on bottom of page 8)

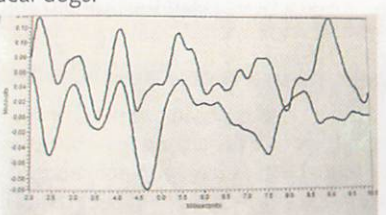
Eugen Fedorov | iStock

If one dog alerts to an odd sound and the other sleeps through it, this might indicate a hearing problem.

Evaluating Hearing

Brainstem auditory evoked response (BAER testing) is an electronic test done to evaluate hearing in dogs. It's most commonly done in puppies to evaluate for congenital deafness but can be done in any dog.

Tiny electrode needles are placed under the skin in your wide-awake dog. Then "click" sounds are transmitted through a special ear plug. The result is a tracing showing that your dog is passing along the sound information to the auditory centers in the brain. A relatively flat tracing means no info is being received. BAER testing is the only way to definitively identify unilaterally deaf dogs.



The top line in this BAER graph is the left ear. Both ears showed normal hearing.

Nothing in Life Is Free

This technique can get your dog's attention

Q For seemingly no reason, my little mixed-breed dog, which we got from a shelter, attacks other animal members of the household. He hasn't really hurt anyone yet, but he terrifies them. While the other two dogs just run away from him, they scream in terror, and I have noticed wet marks on their coats. Sometimes, the littler dog cannot get away, and I have to grab the aggressive dog and pull him off of him. Now my daughter wants a kitten, and I am afraid it might be too dangerous.

I am not sure what provokes him, but it does seem to be related to something he wants, whether it's "stay away from my food bowl" or "it's my turn for Daddy's lap."

I have tried grabbing him and putting him in his crate for a timeout—but I have heard this is irresponsible and may cause crate problems down the road. He's pretty good in his crate. I have yelled, "No!" at him, and sometimes that works, and he stops. But I can't trust him.

He's not aggressive with people, and I really don't think he attacks for no reason, I just don't understand why he wants to be such a bully.

A The good news is that he has not hurt anyone. You are insightful to have noticed that the attack happens when another dog has something he wants, for example, food or attention on his owner's lap. This is called resource guarding, so the best approach is to be sure there is no resource for him to guard. That is easily accomplished with food bowls. Each food bowl should be in a different room with doors between the rooms shut. The idea of three dogs happily scarfing down their dinners while wagging their tales is a pretty picture, but not a behaviorally wise one. Toys and treats should not be left lying around.

Attention is more difficult to present separately to the dogs, but a technique called "Nothing in Life Is Free" should work. No dog gets petted, or let out, or gets a toy until he sits. So, when one dog wants to jump on your lap, make him sit first and do the same for the aggressive one. You choose which dog gets in your lap first.

Be aware of signs of impending aggression such as staring, yawning, holding up a paw, showing the whites of the eye, hackles up, stiffening up. Situations that often lead to fights are food, toys, you or any guard-able resource, the dogs moving through a narrow passageway, such as when entering or leaving the house, yard, or car. Company coming arouses them, and they may fight then.

Safety first. Have short leashes on all three dogs, all the time, so that you can pull them apart easily. If he does attack, you can use a loud noise like striking two pan lids together or an airhorn to startle him into letting go. Do not try to separate them with your hands. You are more likely to be hurt than the dogs because they have loose skin and you don't. Silently put him in his crate or just another room. Yelling "No!" may excite him and does not always cause him to stop an attack, as you noticed.

As for the kitten: If your dog is a mighty hunter—chasing squirrels and chipmunks—he may consider the kitten fair game. I would hesitate to introduce a kitten. If you must, have baby gates between them to see what his reaction is. Make him do sit, stay, and down in the kitten's presence. If the dog is calm and not staring intently at the kitten, you could try them in the same room (remember he has a leash on so you can stop him in mid-attack). Make sure the cat has several escape routes such as up a cat tower or under a couch where the dog can't fit.■

Dogs quickly learn "nothing in life is free" when it is used kindly and consistently in training.

(Deafness, continued from page7)

and off it is time to come in from the yard if you associate that with a small treat.

For play time, most deaf dogs can still track a thrown toy. For extra help, you can use some of the toys that have flashing lights when thrown or glow when tossed. The hearing may be gone, but the noses still work. Deaf dogs can excel at scent work competitions and tracking. They aren't distracted by noisy crowds, revving cars, or thunder.

Make sure your deaf dog has both an ID tag and a microchip. You won't be able to call him if he gets lost. Many owners will put a bell on the dog's collar when he goes outside to help them locate the dog in a yard. It helps indoors, too, as long as you can handle the sound.

If you have a multi-dog household, remember that your deaf dog won't pick up on auditory warnings, such as a growl to back off from another dog's treat. You need to be hyperaware of all dog-to-dog interactions.■

Do You Have a Behavior Concern?

Send your behavior questions to Cornell's renowned behavior expert Katherine Houpt, VMD, Ph.D., shown here with Yuki, her West Highland White Terrier. Email to dogwatcheditor@cornell.edu or send by regular mail to DogWatch, 535 Connecticut Ave., Norwalk, CT 06854-1713.

Scan this code for more information on Cornell Canine Health Center.

Coming Up ...

- *How Long Can You Leave a Dog Alone?*
- *Copper Storage Hepatopathy in Dogs*
- *Common Canine Autoimmune Diseases*
- *Introducing New Pets to the Household*