Cornell University
College of Veterinary Medicine

DOG Watch

Expert information on medicine, behavior and health from a world leader in veterinary medicine

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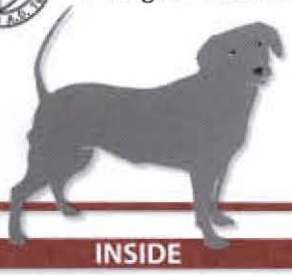

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IN THE NEWS ...

Calling Dr. Google! You're Wanted Online

An overwhelming number of British veterinarians — 98 percent of them in a survey of 1,208 — say that clients who search the internet for advice before visiting a veterinarian are more likely to diagnose and treat their pets themselves.

One result is that professional care is delayed; 81 percent of respondents in the survey by the *British Veterinary Society* say clients brought their pets in later than advisable. "Dr. Google often results in owners misdiagnosing conditions, followed by the client being led to believe that there is a cheap and effective 'treatment' obtainable online or from a pet shop," one veterinarian says. "And thus animals suffer far longer than need be."

Society President Robin Hargreaves, BVSc, MRCVS, concludes: "While some useful information about pets is available online, particularly from the established animal charities [societies], the best source of information for animal health concerns will always be your vet, who knows your pet." ❖

Predicting the Potential for Joint Health

A Cornell website rates the hip and elbow quality of 1 million purebreds for owners, breeders and buyers

If you're looking for a purebred puppy who may grow up to star in agility competitions, win best of show, become a stellar service dog or simply enjoy life as a beloved family member, predicting his hip and elbow fitness has been difficult — until now.

Researchers at Cornell University College of Veterinary Medicine have launched an online service rating the likelihood of dogs' joint health based on lineage. As the first public resource of its scope in the nation, the Estimated Breeding Value (EBV) website offers scores on the genetic potential for the hip and elbow quality of more than 1 million registered purebreds.

BIGSTOCK

Hip dysplasia strikes an estimated 50 percent of certain large breeds, including the Brittany.

Improving Care. Owners, breeders and veterinarians can access the site for help in providing improved care for current dogs and making informed decisions on breeding and buying dogs.

"We are operating on dogs with joint ailments all the time, and people are spending thousands of dollars to

(continued on page 4)

Many Cases of Deafness Are Acquired

Rather than being inherited, they develop when disorders, such as infections of the external ear canal, go untreated

If your dog has become unresponsive to everyday sounds, squeaky toys or his name, if he doesn't know you're in the room unless you touch him, or if a loud noise fails to awaken him, it's time for a veterinary visit to determine if he's losing his hearing. It's one of his sharpest senses and greatly contributes to his self-preservation and comfort with us.

A variety of conditions can cause deafness in dogs. It can be temporary or permanent, complete or partial, acquired or inherited. Because certain breeds are at greater risk, the best line of defense is to be educated about this complex condition.

Some dogs are deaf at birth, and this disability cannot be corrected. Congenital deafness has been reported in dozens of breeds and can affect any dog. However, it is especially prevalent in breeds with white in their coats. (See sidebar on Page 7.) Dalmatians in particular have been found to have a 30 percent incidence of congenital deafness.

Current Research. "Inherited deafness is usually noted within a few weeks to a few months of age, but certain breeds, such as the Cavalier King Charles Spaniel, have a progressive hereditary deafness that may not be noticed until 3 to 4 years of age," says Amanda

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

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A Study Compares Electronic Collars to Positive Training

A recent study suggesting that the use of electronic collars on dogs causes distress will do little to close the divide between impassioned opponents and advocates of the devices. E-collars allow trainers and owners to administer a shock of varying intensity to a dog's neck through remote control.

Many manufacturers say the collars, originally introduced to train gun dogs in the field, can safely prevent undesirable or dangerous behaviors on low settings. Some explicitly advise against using them to control barking. In contrast, the Humane Society of the U.S. says, "The least humane and most controversial use of the shock collar is as a training device. There is a greater chance for abuse (delivery of shocks as punishment) or misuse (poor timing of shocks)."

Now animal behaviorists at the University of Lincoln in the U.K., in carefully guarded language, say their research has found "greater welfare concerns around the use of so-called shock collars than with positive, reward-based training."

The researchers took 63 pet dogs who had poor recall (response to coming when called) and related problems, including livestock worrying (chasing), which are the main reasons for collar use in the UK, the university says. They divided the dogs into three groups — one using e-collars and two groups as controls using positive training.

The result: 92 percent of all owners said their dogs' problem behavior improved. "There was no significant difference in reported efficacy across groups," the researchers say. However, dogs trained with the e-collars spent significantly more time being tense, yawning more often — which can be a sign of stress — and had less interaction with their environment.

"It seems that the routine use of e-collars, even in accordance with best practice, as suggested by collar manufacturers, presents a risk to the well-being of pet dogs," lead author Jonathan J. Cooper, Ph.D., professor of animal behavior and welfare at the University of Lincoln's School of Life Sciences, concludes in the journal PLOS One. "E-collar training did not result in a substantially superior response to training."

Nor did it seem to be a hit with owners of dogs trained with the collars. They were less confident about applying the training to their dogs, Dr. Cooper says.

Trending: Together Forever

BIGSTOCK

In a small but growing movement, pet and human cemeteries are allowing joint burials.

New York is the latest state to adopt regulations allowing pet cemeteries to accept the cremated remains of owners to be buried alongside their pets. The regulations also prohibit pet cemeteries from charging for human burials and advertising them.

New Jersey already permits joint burials in pet cemeteries, and Virginia allows them in specially designated areas in human cemeteries. The New York regulations end a nearly-three-year-old dispute that began when the state refused to allow the Hartsdale Pet Cemetery in Westchester County to accept the ashes of a former NYPD officer, according to the New York Daily News.

Thomas Ryan, who wanted to spend his afterlife with his three Maltese pups, had already buried the remains of his wife, Bunny, beside their three Maltese dogs.

The officer's niece, attorney Taylor York, battled the state to allow her uncle to be buried with the dogs, too, and she prevailed. The Hartsdale cemetery estimates it already has 700 owners buried in its People and Pets Garden. ❖

Those Lovely Lilies? They're Lethal

Other holiday plants, such as mistletoe, holly and and Engish ivy used in wreaths, are also poisonous

English Ivy is one plant that can cause mild discomfort.

A touch of green around the house during a long, cold winter provides a reminder of spring and creates a festive mood for the holidays. Although certain plants are lovely, the effects on a dog who ingests them are decidedly not.

Case in point: that perennial favorite mistletoe can cause serious vomiting and diarrhea, a lowered heart rate and blood pressure, and irritable, irregular behavior. "It's a serious intoxication," says Elisa Mazzaferro, DVM, Ph.D., ACECC, a specialist in emergency and critical care at Cornell University Veterinary Specialists in Stamford, Conn.

Aggressive Treatment. Lily of the valley *(Convallaria majalis)*, noted for its small, white bell-shaped flowers, is also seriously toxic and requires aggressive treatment. The general signs of plant poisonings include excessive drooling, nausea and diarrhea. Additional signs of ingestion of lily of the valley are decreased heart rate, severe cardiac arrhythmias and possibly seizures.

On the other hand, true lilies of the large *Lilium* family, although not toxic to dogs, can cause potentially fatal kidney failure in cats — vital information for the many dog owners who also own cats.

"For each of the plants mentioned, after known ingestion, take your dog to the veterinarian," Dr. Mazzaferro says. "The induction of emesis (vomiting) may be warranted before toxic effects occur."

Veterinarians may also administer anti-nausea medications and IV fluids if signs are severe; specific treatments may vary according to the particular plant as described here:

Amaryllis

BIGSTOCK

Noted for their pink flowering bulbs, these plants, such as *Amaryllis belladonna*, can cause lethargy, excessive salivation, anorexia and tremors.

Cyclamen

BIGSTOCK

Another flowering houseplant known for its upswept petals and patterned leaves, cyclamens can cause abnormal heart rhythms, seizures and possibly death. "Treatment may include anti-seizure medication and drugs to treat abnormal heart rhythms," Dr. Mazzaferro says.

Jerusalem Cherry

BIGSTOCK

All parts of this plant *(Solanum pseudocapsicum)*, including its red and yellow berries, contain the toxin solanine that can produce severe gastrointestinal irritation and central nervous system disorders such as depression and seizures.

Yew

BIGSTOCK

The common evergreen (*Taxus* spp.) is also extremely poisonous to other mammals, including humans. Recently, florists have begun using it in holiday wreaths, according to the Pet Poison Helpline. All parts of the plant, including its plump red berries, contain toxic alkaloid taxines. In addition to the typical signs of poisoning, dogs may experience weakness, difficulty breathing, life-threatening changes in heart rate and blood pressure, dilated pupils, tremors, seizures, coma and even death.

While the needles and sap from spruces, firs and pine trees brought inside for the holidays can be irritants if ingested, they're not truly poisonous. Other common holiday plants used in wreaths, including holly, English ivy and boxwood, can cause mild gastrointestinal irritation, including vomiting and diarrhea — "nothing specific and easy enough to treat," Dr. Mazzaferro says.

BIGSTOCK

Peace Lilies

However, members of the *Araceae* family deserve special caution, she says. These include dieffenbachia, philodendron and *Spathiphyllum*, commonly known as Peace Lilies — evergreen plants with a white, leaf-like flower which, despite their name, are not true lilies.

All *Araceae* plants contain insoluble calcium oxalate crystals that cause irritation to the mouth, esophagus and stomach. Excessive salivation, vomiting and difficulty swallowing can also occur. Treatment consists of pain control, anti-nausea medication, medications to coat the stomach and

(continued on page 5)

RATINGS... *(continued from cover)*

treat their dogs who have genetic predispositions for these joint conditions," says orthopedic surgeon Rory Todhunter, BVSc, Ph.D., ACVS, professor of surgery, who spearheaded the EBV website, along with his colleagues.

"This is truly personalized medicine coming into the dog world. If you know the parents of a dog, you can look up their breeding values for hip and elbow dysplasia and have an estimate of what the hip and elbow quality of your pup is."

Owners of older dogs can use the database to determine their existing dogs' susceptibility to hip and elbow problems and be proactive, providing regular veterinary examinations, weight control to avoid added stress on joints and, when necessary, medical and surgical intervention.

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"People are spending thousands of dollars to treat their dogs who have genetic predispositions for these joint conditions," says orthopedic surgeon Rory Todhunter, BVSc, Ph.D., ACVS, who spearheaded the joint health website with his colleagues.

Checking Pedigrees. Veterinarians commonly take X-rays of dogs' joints when they are 24 months of age. The results are forwarded to the Orthopedic Foundation for Animals (OFA), a nonprofit organization that evaluates, scores and registers information on orthopedic diseases. The data used to produce the breeding values is based on the official hip and elbow scores and pedigrees of all of the dogs with hip and elbow records in the public part of the OFA registry.

"If that dog is intact and has already been bred before age 24 months, then the joint abnormalities could have already been passed on," Dr. Todhunter says. "People want to know early what the potential is for joint issues in dogs. This is very important to know when selecting puppies to be trained as guide dogs for the blind, other types of service dogs, military dogs and border patrol dogs."

Cornell combines OFA's hip and elbow scores of a dog and his relatives with a statistical model — a mathematical calculation — to estimate the potential for hip and elbow dysplasia.

If funding can be obtained, the database could be expanded to include other health conditions, including patella luxation (dislocated kneecaps), and thyroid and heart disease. The additional information could help in mating healthy dogs to produce offspring with fewer chances of some genetic-related conditions.

BOTH DYSPLASIAS CAN LEAD TO LAMENESS

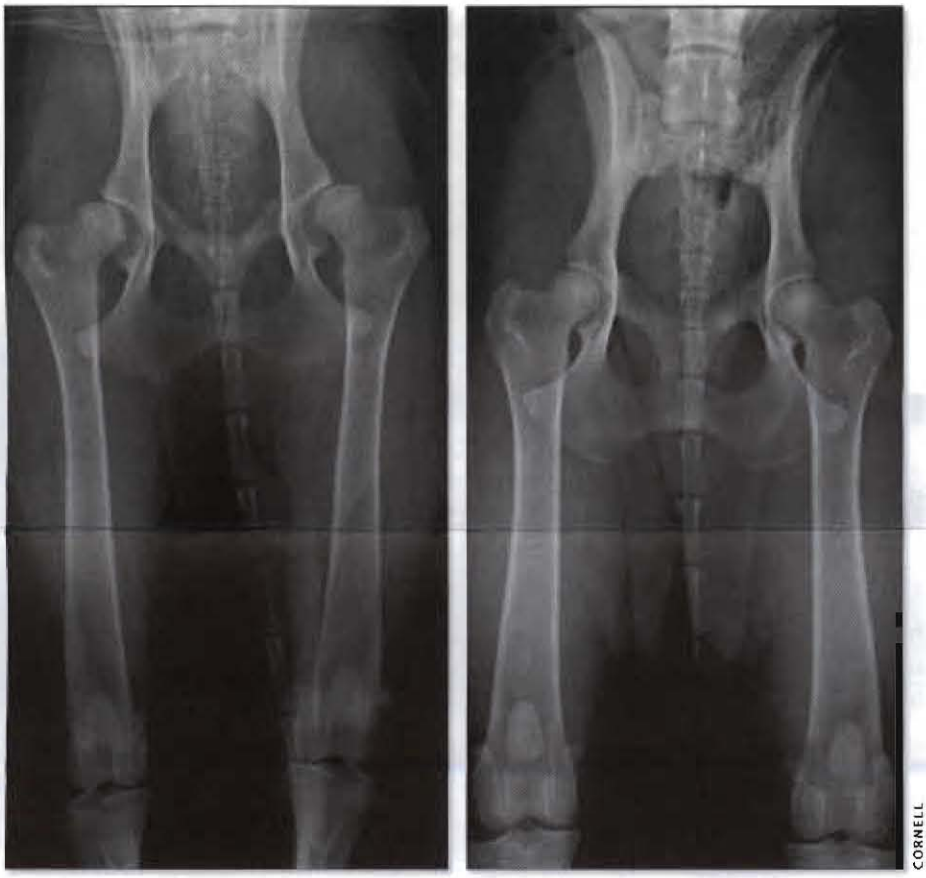
Canine hip and elbow dysplasia are inheritable conditions resulting from developmental malformation. Both can lead to painful osteoarthritis and crippling lameness. Hip dysplasia can affect any dog of any size but strikes an estimated 50 percent of certain large breeds, according to Cornell's Baker Institute for Animal Health.

Breeds include the Bernese Mountain Dog, Bloodhound, Boxer, Brittany, Chesapeake Bay Retriever, English Setter, English Springer Spaniel and Golden Retriever.

Elbow dysplasia commonly results in front-leg lameness in large breeds such as the Golden and Labrador Retriever, English Setter, English Springer Spaniel, Rottweiler, German Shepherd Dog, Bernese Mountain Dog, Chow, Chinese Shar-Pei and Newfoundland.

Visitors to Cornell's Estimated Breeding Value database can check registered purebreds and certain mixes' hip and elbow quality and that of their relatives, and print or download 25 records at a time. They can search by a dog's registered name, American Kennel Club registration number or the Orthopedic Foundation for Animals' number. In addition, a simulated "mating button" allows users to choose two dogs and the likely genetic quality of their hypothetical offspring is calculated for them.

Registration is required to use the free database and donations are welcome. To learn more, visit www.vet.cornell.edu/research/bvhip/.



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An X-ray of 1-year-old Newfoundland on the left shows the dog has bilateral hip dysplasia in which the balls of the hip joint fit loosely into the sockets. The dog on the right, a 2-year-old Newfoundland, has normal hip conformation

The database may also be able to cover cats at some point. "The software is there," Dr. Todhunter says. "Cat fanciers associations and particular breed clubs keep registries of various cat breeds. If there is a large enough pedigree and the accuracy of the phenotypes [observable traits] is reliable, we should be able to produce a similar database for cats."

Communication Gap. Education about today's powerful new genetic tools is needed across the board, Dr. Todhunter says. "We need to educate veterinary students who will one day be seeing dogs and talking to owners and to breeders, and we need to link up with geneticists who are doing the mapping of genes in dogs. Finally, we need to educate the public on websites like ours and publicize at meetings." Genetic conferences, such as the one held every two years at Cummings School of Veterinary Medicine at Tufts University, are helping to bridge the communication gap, he says.

Dr. Todhunter has had a long-standing interest in the research and treatment of dysplasia and views the Estimated Breeding Value database as one step closer to producing healthier dogs. "When people breed cattle, pigs, poultry and plants, they do so based on the same statistical methodology we're using. There are universal breeding databases in agriculture. Why not in dog breeding?" ❖

FOR MORE INFORMATION

Cornell's Estimated Breeding Value website:

www.vet.cornell.edu/research/bvhip/

PLANTS... *(continued from page 3)*

esophagus, and IV fluids if there is difficulty swallowing. Happily, the prognosis is good.

Despite its bright red leaves that seem to shout "danger," poinsettias *(Euphorbia pulcherrima)* are only mildly toxic. The plants are indigenous to Mexico and Central America and widely used as holiday decorations. Their name derives from Joel Roberts Poinsett, an an American diplomat in Mexico, who introduced the plant in the U.S. in the 1820s.

The milky white sap in poinsettias contains chemicals called diterpenoid euphorbol esters and the detergent-like molecule saponin that can cause mild vomiting and gastrointestinal discomfort, Dr. Mazzaferro says. Signs of ingestion include drooling, skin irritation and licking the lips.

The best strategy to prevent holiday plant poisoning isn't keeping these plants out of reach. Curious dogs might still get to them. Dr. Mazzaferro's recommendation: "Before bringing a plant into the household, check the ASPCA National Animal Poison Control online list of poisonous plants. If it's on there, don't bring it into the house." ❖

EMERGENCY NUMBERS FOR HELP

If you suspect your pet has ingested a questionable plant or substances, call his veterinarian, the 24-hour Pet Poison Helpline at 800-213-6680 or ASPCA Animal Poison Control at 888-426-4435. Both charge a fee.

Identification of the suspected substance is crucial. Having the plant itself, the container, package, or label in hand saves valuable time, whether on the phone or in the veterinary clinic.

DEAF... *(continued from the cover)*

Full, DVM, ACVIM, a former resident in neurology at the Cornell University Hospital for Animals now at Chicago Premier Veterinary Group.

"Most of the current research in this area is reviewing the genetic or inherited forms of deafness, and most literature is focused on early recognition of hearing loss for owners and the genetic component to identify high-risk breeds for owners and breeders."

In dogs genetically predisposed to deafness, the incidence can be decreased through responsible breeding that doesn't use hearing-impaired dogs. However, even dogs with healthy hearing can give birth to puppies prone to hearing loss.

Common Cause. Many cases of deafness in dog are acquired. Among these, otitis externa (external ear canal disease) is the most common. If left untreated, the infection can progress into the middle and inner ear.

"Disease of the external ear canal is much more common in dogs than cats," says dermatologist William H. Miller, Jr., VMD, Medical Director of the Companion Animal Hospital at Cornell University College of Veterinary Medicine. "If the ear canal is filled with pus, wax or mite debris, sound waves don't reach the eardrum completely or at all. This decreases the animal's hearing to varying degrees. Some don't hear well, while others are deaf."

Dogs often experience recurrent or persistent ear disease because of allergies, swimming or excessive production of wax, seen in many Cocker Spaniels. If ear debris is removed and the infection treated, a dog's hearing can return. But when external ear canal disease becomes chronic, the eardrum can be breached. This can lead to inner ear disease, which usually results in impaired hearing that can be permanent, Dr. Miller says.

Result of Disease. In contrast to inherited deafness, acquired deafness usually develops over time as a result of ear canal disease. "Sudden loss of hearing without pre-existing ear canal disease is rare in animals," Dr. Miller says. "It can be associated with a drug the animal might be taking, but it can also be due to brain disease."

Ototoxicity — also known as ear poisoning — results from exposure to drugs or chemicals that damage the inner ear or the nerve that sends balance and hearing information from the inner ear to the brain. Certain antibiotics, ear cleaners, household chemicals and chemotherapy drugs can lead to ototoxicity. The toxins might be ingested or seep into the inner ear through a perforated eardrum. Depending on the toxic agent,

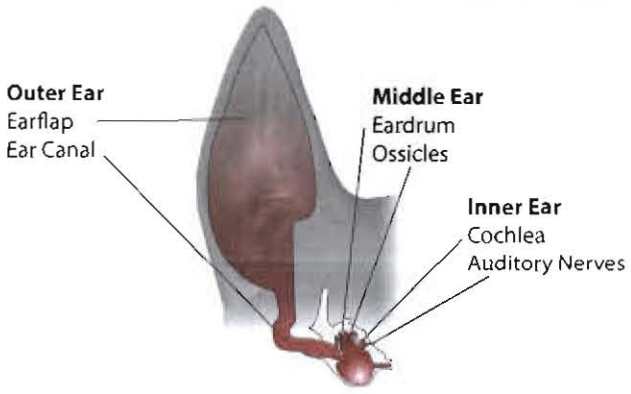
THE IMPRACTICAL OPTIONS

When a dog is diagnosed with partial hearing loss, owners frequently ask about the possibility of a hearing aid for him. While the option is available, it's not always practical.

"Hearing aids have been utilized in a few research studies but are not common practice," says Amanda Full, DVM, ACVIM, a former resident in neurology at Cornell. "They are expensive, and patients often do not tolerate them very well."

Owners also ask about cochlear prostheses or cochlear implants such as those implanted in deaf people. The devices have been tested in deaf Dalmatians. However, they cost $20,000 to $25,000, in addition to the cost of the surgery and post-surgery training. Even though the concept is feasible, cochlear prostheses are not practical or recommended.

THE ANATOMY OF THE EAR



The Normal Canine Ear

A dog's ear is comprised of three structural areas: the outer ear, middle and inner ear. Each area plays a distinct role in hearing.

- The outer ear consists of the external earflap and the ear canal, where sound vibrations enter from the outside environment.
- The middle ear contains the eardrum and the auditory ossicles, the small bones that transmit the eardrum vibrations to the inner ear.
- The inner ear contains the cochlea, which houses nerve endings that receive vibrations and pass nervous system signals along to the brain.

MARTY BEE

some effects are reversible. The faster the hearing loss in a dog can be identified and addressed by a veterinarian, the better the prognosis.

Beyond infections and toxins, owners should also keep in mind that age-related deafness in dogs is common due to some degeneration process of the component of the inner ear. Hearing difficulties and sometimes deafness are found in older dogs regardless of whether their ears have been infected.

First Step in Prevention. To reduce the chances you dog will experience a serious ear disorder that could lead to deafness, keep his surroundings clean to discourage mites and other infectious agents. And regularly check his ears for signs of infection, such as a swelling and discharge, and the presence of debris. If you observe signs of a problem with your dog's ears, or he persistently scratches his ears, consult his veterinarian as soon as possible.

Slow Development. Deafness can be difficult to detect when it develops gradually, as animals tend to adapt to compensate. When deafness follows ear canal disease, owners might observe head shaking, ear scratching and odor emanating from the ear, Dr. Miller says.

If you suspect your dog might be deaf or experiencing difficulty hearing, you should immediately seek veterinary treatment. Diagnosis is relatively easy with a complete physical examination. "When there is middle ear disease or a suggestion of brain disease, special tests like a CT scan, MRI or brainstem auditory evoked response (BAER) test — which evaluates the brainstem's electrical response to an auditory stimulus — may be indicated. These latter tests need to be done by a specialist." (See sidebar.)

In cases of congenital deafness, no treatment is available. Medicine can treat most acquired ear disorders, including otitis externa. "In very chronic infections where the eardrum is totally destroyed, the hearing will be lost," Dr. Miller says. "But most cases of external canal disease can be treated with a return to hearing."

Even in cases of permanent hearing loss, dogs often prove extremely adaptable. They rely on other senses, and many continue to enjoy a good quality of life. ❖

AMONG THE MANY BREEDS AT RISK

Dozens of breeds with white in their coats are prone to deafness at birth, including:

- Those with mottled or speckled merle coats: Collies, Shetland Sheepdogs, dappled Dachshunds, harlequin Great Danes, American Foxhounds, Old English Sheepdogs and Norwegian dunkerhounds.
- Those with piebald (white-patterned) coats: Bull Terriers, Samoyeds, Greyhounds, Great Pyrenees, Sealyham Terriers, Beagles, Bulldogs, Dalmatians and English Setters.

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Dogs with white in their coats like blue merle Shetland Sheepdogs are among breeds prone to deafness at birth.

DIAGNOSING DEAFNESS

Neurologists conduct brainstem auditory evoked response (BAER) tests that often provide a definitive diagnosis of deafness. In the 10-minute procedure, ear plugs or headphones are placed over the dogs' head, and clicks or tones are delivered to the ears. Small electrodes placed under the skin measure the electrical response in the brain to the auditory stimulus from a computer.

LIVING WITH A DEAF DOG

Deaf dogs use other senses to compensate for hearing loss, but owners should still take steps to keep them safe, including:

- Confining them indoors when possible to protect them from cars and other threats that are often detected via auditory cues.
- Avoiding startling your deaf dog. If approaching from behind, clap your hands, stomp your feet or use another means of alerting the dog to your presence via vibrations. Better yet, try to alert your dog to your presence visually.
- Attaching a bell to his collar so you can find him if he does go outside.
- Training him with hand gestures or other visual means to help better communicate with him.

Suzanne Nevada, owner of SilverAurora Kennels in Wasilla, Alaska, had a BAER test for her Australian Cattle Dog, Teddy, and it showed no hearing impairment.

Katherine A. Houpt, VMD, Ph.D., here with her Cairn Terrier, Denver, provided the answer on this page. Dr. Houpt is a diplomate of the American College of Veterinary Behaviorists and emeritus professor at Cornell University College of Veterinary Medicine.

Please Share Your Questions

We welcome questions of general interest on health, medicine and behavior. We regret however, that we cannot comment on specific products and prior diagnoses. Please send correspondence to:

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COMING UP ...

DOMINANCE DISCREDITED

❖

SCALY SKIN

❖

HEMOPHILIA

❖

ADVANCES IN ANESTHESIA

Her Doxie Excels at Excavating the Yard, Including the Garden

Q I know many dogs like to dig. My 4-year-old Doxie [Beagle-Dachshund] excels at it. We live in a warm climate — no snow — so the yard is inviting practically year round. He roots through the little flower garden I have out back and even the welcoming dirt space at the front door where I have decorative stones. Bennie has an upscale diet and gets plenty of exercise, but he persists in digging in the yard — it's fenced all around.

How can I stop this destructive behavior and, more important, is there a health risk associated with his piling through all that dirt?

A *I am not sure what an upscale diet is, but Bennie is probably not training for the Iditarod, so he needs only about 20 percent protein and enough calories to keep his waist in view. A couple of miles a day or several games of catch is plenty of exercise.*

To answer the more important question first: Digging in the dirt will not hurt him, although it may wreak havoc with your cream-colored rugs. Eating the dirt would not hurt him either unless your backyard was a former toxic waste site or if the soil has high levels of some heavy metals. Eating dirt can be a sign of gastrointestinal abnormalities, but Bennie seems only to be digging.

You asked how you could stop the behavior. A better question might be "Why is he digging?" If you can discover the answer to that, then you can much more easily modify his behavior.

Dogs dig for several reasons. Some dogs are digging to escape. That sort of digging can be separation anxiety. The dog who scratches at the door when left alone in the house may try to dig under the fence or gate when left in a fenced yard. Your yard is fenced so you would have noticed if most of his digging was directed at the barrier or the gate — the way to freedom.

Presumably, it is warm in your snow-free climate. Another reason for digging is that it is part of behavioral thermoregulation. Dogs dig holes and lie in them because the freshly dug earth hasn't been exposed to the hot sun and therefore is cooler.

I associate digging to keep cool with Northern breeds like Huskies. They are more likely to dig for two reasons: They are behaviorally more like wolves — and wolves are avid diggers — and Huskies have heavy coats that cause them to suffer more from the heat than a thin-coated dog. Because Bennie is shorthaired and smaller, I doubt if he is trying to cool himself, but if he lies in his holes, that heat may be the reason. Cooling beds for dogs are commercially available and a child's wadding pool might help him keep cool without disturbing the turf.

Still another reason for digging is predatory behavior. There may be gophers, mice, voles, moles or even burrowing insects he can hear because they make ultrasonic noises or noise too soft for you to hear five feet from the ground, but Bennie can perceive them perfectly well with his ear almost literally to the ground.

Dogs can mimic human behavior, so if he sees you on your knees digging in the dirt with a trowel, he may be more inclined to do the same. This could be called social facilitation of behavior or maybe just stimulus enhancement — you have made the soil look more inviting. The fact he digs preferentially in your flower garden indicates that might be the reason.

Finally, dogs dig to bury things. A dog holding his precious bone in his mouth as he frantically digs is almost iconic. Does Bennie put anything in his holes? Burying by dogs is apparently similar to the behavior of rodents who "squirrel" away their food in the ground or in holes for later consumption. Dogs are not as good at recalling where their bones are buried.

There are things you can do to make your flower bed less enticing. You can put a layer of chicken wire under a layer of soil. Your flowers can grow through it, but Bennie should not be able to dig. You could be kind and provide him with a digging pit of his own. Turn up the soil, and put a bone or rawhide in it to encourage him to dig there and only there.

There are also food puzzles that dogs have to manipulate with their paws that might provide him with the digging time he needs. You could always accompany him on his forays in the yard and throw a ball or otherwise divert him from digging. ❖

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