

# DOGWatch

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

© THIS JUST IN

## Making Sense of the Latest FDA Warning

### Oral flea and tick products

The U.S. Food and Drug Administration (FDA) released a notice that stated there is potential for adverse neurologic events when dogs (and cats) are treated with isoxazoline class drugs for flea and tick control. These drugs include the FDA-approved Bravecto, Nexgard, and Simparica. Another product in this class, Credelio, recently received FDA approval.

As part of its routine post-marketing activities, the FDA noticed some animals have experienced adverse events such as muscle tremors, ataxia, and seizures after taking these drugs. The FDA is working with manufacturers of isoxazoline products to include new label information that highlight neurologic events because these events were seen consistently across the isoxazoline class of products.

The FDA is not pulling these products from the market. They are requesting that label changes are made to provide veterinarians and dog owners with the information they need to make treatment decisions about whether the drug is appropriate for an individual dog, based on its medical history.

To help you understand this change, next month we will discuss these oral flea and tick products in depth and explain why the FDA issued this alert. ■

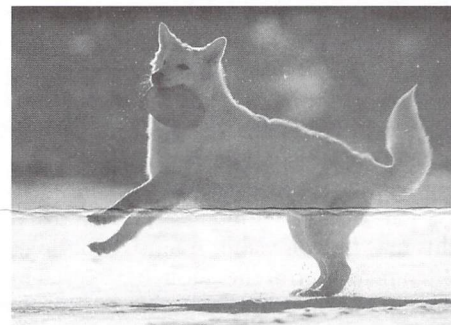
## Oral Hyaluronic Acid for Joints

*It may be what you need to add to your program*

The number of companies selling supplements for joint health is almost as mindboggling as the cost of these products. Glucosamine and chondroitin sulfate—usually sold in combination and sometimes combined with MSM (methylsulfonylmethane)—are virtual mainstays in the field. These ingredients have strong anecdotal evidence and increasing scientific findings that they can make a difference in both delaying the onset of arthritis and slowing its inevitable worsening in many dogs. A newer oral ingredient, hyaluronic acid (HA) is now begging for your attention.

HA is a glucosamine compound. HA occurs naturally in your dog's joint fluid, working as a lubricant and to help absorb shock. In degenerative joint disease, the natural concentration of HA is reduced, which contributes to the pain and decrease in mobility you may see in your arthritic dog.

In people, horses, and dogs, HA has been used as a joint injection to treat a variety of conditions ranging from chronic wear and tear to acute injuries in the joints. When injected, it helps restore joint health and repair damage to the joint. Of course, a sterile joint injection is an involved procedure that requires sedation and runs a risk of joint infection. For that reason, many dog owners are eager to know if giving HA orally might be a feasible option. Many people question if HA is bioavailable (digested and effective) when fed.



Oral HA may help increase your dog's mobility and joint health.

A study done in Hungary with a limited number of dogs did show an uptake of HA into tissues, including joints and bones.

Another study done in Brazil showed that giving oral HA after surgery to repair torn cranial cruciate ligaments could improve healing for these dogs and was bioavailable in the injured/ repaired joints. With oral HA being able to reach the "target tissues" of joints and bones, it should be effective. There may be loss of some HA through digestion, suggesting that injecting HA may be the most effective and efficient way to supplement this to your dog, but oral supplementation is easy and safe for most dog owners to try. Some studies and veterinarians advise that HA works best in conjunction with other joint protectants, such as chondroitin, rather than as the only joint supplement you give your dog. ■

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### Buyer Beware

The U.S. Food and Drug Administration (FDA) does not monitor ingredients in supplements. In 2001, a group of supplement manufacturers formed the National Animal Supplement Council (nasc.cc), an independent organization that established standards for member products and requires members to undergo an independent quality audit.

Any manufacturer's product that passes the quality audit will have an NASC seal on the bottle. That said, not having the seal does not necessarily mean the product is bad. It's simply a call for due diligence in researching the product. Some prominent supplement manufacturers, such as Nutramax who makes Cosequin, are not members.



## A Medicated Shampoo Bath

*For skin infections, it may help avoid antibiotic resistance*

**W**ith the reality of antibiotic resistance all around us, many veterinarians are looking for ways to reduce antibiotic use. One significant way is to use alternative treatment options for dogs with skin infections.

The incidence of MRS (methicillin resistant *Staphylococcus pseudintermedius*) is on the increase in dogs. The big problem with MRS is that the bacteria tend to be resistant to many antibiotics. That leaves veterinarians running cultures and susceptibilities in the hopes of finding an antibiotic—any antibiotic—that is effective. This generally means more expense. In addition, sometimes antibiotics that look like they would work well in a laboratory situation don't work so well when it comes to defeating bacteria in a living animal.

Part of the solution has been a move to look at using more topical options. While this may be more labor intensive for dog owners, baths with medicated shampoos can often help control these tough bacterial infections. This is especially true if you catch a flareup of skin problems early on. Chlorhexidine is a favorite medicated shampoo, but others also can be effective.

When doing a medicated bath, be sure to follow directions exactly. If the instructions say to leave the shampoo on for 10 minutes, you really need to leave the shampoo on for a full 10 minutes. Then rinse and dry as directed.

Always check with your veterinarian about which shampoo to use and do not be surprised if you're asked to come in so your veterinarian can determine the type of infection you're battling. Medicated shampoos come in different concentrations and have different drugs in them. Some are formulated to attack yeast or fungal infections while others are oriented toward bacterial infections. It does make a difference. Side effects are generally minimal if any at all so shampoos can be excellent for a dog who is sensitive to oral antibiotics. ■



## Study Looks at Reducing Bacteria on Skin

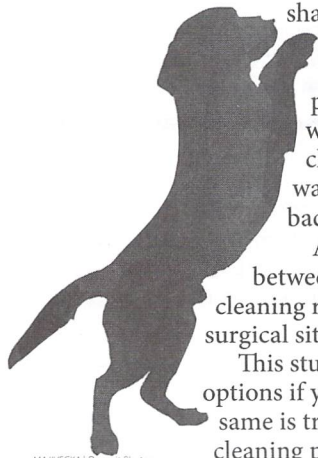
*Alcohol and chlorhexidine perform similarly*

**A**n article in the September 2018 issue of the *American Journal of Veterinary Research* looked at two systems for preparing dog skin for surgery. Prior to making an incision through the skin, a veterinarian wants the lowest possible bacterial count on that skin. Fewer bacteria means less chance of developing an infection around the healing surgery site.

Veterinarians from Florida and Illinois participated in this study. The skin was shaved on the abdomen of the 50 dogs in the study. There were two areas. A plate of bacterial culture agar was placed against the skin on each location, providing a pre-cleaning sample of bacteria. One area was cleaned with ethyl alcohol hand rub and the other area with chlorhexidine scrub, and then a second clean plate of agar was applied to each area. The agar was cultured to see what bacteria grew and how many colonies.

According to the study, there was no statistical difference between the two cleaning protocols for bacterial counts. Both cleaning regimens were effective and should work to minimize any surgical site infections post operatively.

This study shows that your veterinarian may have different options if your dog is allergic to either alcohol or chlorhexidine. The same is true if there is a shortage of either cleaning agent. Both cleaning products performed similarly. ■



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# Sometimes It's Better to Pull

*With pricey options like crowns and root canals now available, you may wonder if pulling the tooth is bad*

**C**anine root canals and crowns are available, but sometimes the best choice is a tooth extraction.

Canine dental extractions differ from human ones. Dog teeth tend to have extensive roots that go deep into the jaw and, in the case of rear teeth, such as premolars and molars, may even reach up near the eye. Important nerves, blood vessels, and even the nasal cavity can all be close enough to be involved in a tooth extraction.

With deeper roots, usually your dog's empty socket will be sutured closed. This prevents food building up in the socket and the exquisite pain that comes from "dry socket," which some people experience post dental extraction. The suture material will dissolve on its own, usually within two weeks.

Larger teeth, such as the premolars and molars, are often extracted in two pieces. That way your veterinarian has a better chance of removing the long roots intact. Overall, it means less trauma to your dog's mouth as well.

## When Extractions Are Necessary

Broken or abscessed teeth in situations where a procedure such as a root canal may not be feasible or cost effective should be removed.

If a dog has severe periodontal disease

that has led to bone loss around the root and in the jaw, extraction may be the best option for a pain-free mouth.

Stomatitis involving the gums around the teeth can be extremely painful and is often best treated by tooth extractions.

Sometimes a fractured jaw will heal best if some teeth are removed. Prior to removing teeth, your veterinarian will discuss options with you.

Dentigerous cysts are cysts that develop when a permanent tooth does not erupt through the gum. This is more common in brachycephalic dogs, like Pugs, and often occurs on both sides of the mouth. The most commonly affected teeth are the mandibular first premolar and the canine teeth.

Initially, owners just notice a missing tooth or two. A cyst eventually becomes evident. A swelling may be noticed and the cystic tooth can be identified on radiographs. The cyst structure may weaken the underlying bone and lead to pathological fractures. Removal of these dentigerous cysts and any tooth fragments is recommended. Your veterinarian may suggest follow-up radiographs to be sure all tooth fragments are gone and there is no recurrence of the cyst. These are most easily treated if caught early.

Prior to any dental extractions, your

veterinarian will take dental radiographs to evaluate the status of tooth roots and the bone in the jaw around the teeth under consideration for removal. Normal presurgical procedures such as bloodwork to evaluate the kidneys and liver will also be done.

It is extremely important that every bit of the tooth root is removed. Roots left in the gum may abscess and/or create pain in the future. Gum flaps are opened up to be sure all the root is removed and then sutured closed.

## Home Care

Your dog's mouth will be sore after an extraction. Some clinics will do a laser treatment or two post-surgery to help speed healing. You will be given pain medications for your dog in most cases, although it's less likely if it is just deciduous teeth or loose incisors being removed. If your dog has bad periodontal disease or signs of an infection in his mouth, antibiotics will be prescribed.

Your veterinarian may recommend softened food or a slurry for a few days. Most dogs return to regular diet and eating patterns rapidly because mouth tissues tend to heal rapidly. You will probably need to hold off on tooth brushing for a week or so while the tissues heal. ■

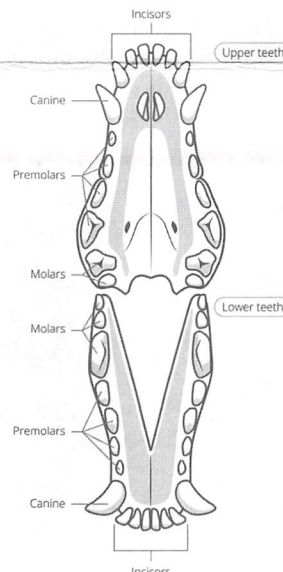
## Bone Grafts

In rare cases with multiple extractions and poor condition of the jaw bones, a dental surgeon may elect to use a bone graft to help fill in defects and encourage faster healing.

## Baby Teeth

The most commonly retained baby or deciduous teeth in dogs are the canine teeth or fangs. Generally, the roots of these teeth resorb, and they fall out by 6 months of age.

Retained teeth interfere with proper positioning of the corresponding adult tooth. In the case of a lower canine, that could mean shifting the adult tooth so that it is growing into the roof of the mouth. Firmly rooted deciduous canines may require anesthesia for removal.



Types of dog teeth.

## What You Need to Know

*Signs your dog may have a dental problem:*

- ▶ Bad breath
- ▶ Blood in the mouth, water, food
- ▶ Cracked tooth
- ▶ Discolored teeth
- ▶ Drooling
- ▶ Dropping food
- ▶ Excess tartar buildup
- ▶ Loose tooth
- ▶ Missing tooth
- ▶ Painful mouth
- ▶ Swollen, inflamed (red) gums
- ▶ Weight loss despite trying to eat and drink



# Ice, Salt, and Dog Paws

*Winter requires special care for your dog's feet*

**S**now, slush, and ice: Just the thought of it makes you want to layer on some thick socks and break out the winter boots. But your dog's need for paw protection in cold weather isn't quite as clear. Sometimes she plays in the snow for hours with no sign of discomfort, and other times she picks up her feet and cries. Does your dog need protective footwear on winter walks, or not?



Watch for signs that your dog is telling you he's cold.

## Special Circulation

In March 2011, *Veterinary Dermatology* published a paper by Dr. Hiroyoshi Ninomiya of Yamazaki Gakuen University in Japan that examined the circulatory system in dogs' paws to look for an explanation for why dogs are so tolerant of cold environments. The researchers found that the veins in a dog's paw run very close to arteries, often in groupings of three (two veins next to one artery). This triad allows the paw to stay warm and helps to prevent heat loss.

Arteries carry blood from the heart and lungs. This blood is warm after its trip through the core of the body. The blood then flows through capillary beds to allow for the exchange of oxygen and carbon dioxide before returning to the heart through the veins.

Veins are usually located closer to the surface of the body, allowing for greater heat loss. Because the veins in dog paws run so close to arteries, the warm blood in the arteries helps to warm the blood

returning back to the heart to maintain body temperature.

## Ice Woes

The biggest risks that ice pose to your dog are its slippery surface and sharp edges. Discourage your dog from running on ice, as slipping and falling can result in a wide range of injuries from soft-tissue damage to broken bones.

The jagged edges of broken ice can be sharp and cut into your dog's paws. If your dog cuts her paw, apply pressure to stop any bleeding and then gently clean the wound while you assess the damage.

A scrape that only affects the pad may be painful, but will heal on its own in most cases. You can coat the abrasion with liquid bandage as a protective layer.

Deeper cuts may require veterinary attention and possibly stitches to close the wound. Your veterinarian may prescribe antibiotics to prevent infection,

especially if there is any debris in the cut. Most cuts on paws can be scheduled as appointments during regular hours, but uncontrolled bleeding or severe damage warrants an emergency visit.

Your dog's paw will need some extra protection while it is healing. Paws can be bandaged with nonstick sterile pads and self-adhering flexible wrap for more serious cuts. Waterproof booties will keep the bandage dry, or protect a more mild injury.

## Avoid That Salt

If you walk your dog on roads or sidewalks that use salt in the winter, her paws will need extra attention. Salt-based chemicals work by lowering the freezing point of water, which results in some very cold slush. Salt and other de-icing

chemicals are often unsafe for pets, especially if consumed. Even "pet safe" de-icing pellets are harmful if ingested.

Most dogs do not intentionally eat salt or de-icing chemicals, but dogs often lick their paws after a walk. If you go through areas that have been salted or otherwise treated, be sure to wipe off your dog's feet when you get back in the house. This can be done with a clean dry towel, but you may need to dampen it to loosen up debris stuck in the hair on your

## Freezing Temperatures

While dogs are anatomically better adapted to cold weather than we are, breed and lifestyle will play a role in your individual dog's tolerance of cold. Nordic breeds, such as Siberian Huskies, Alaskan Malamutes, and Samoyeds, were selected to withstand frigid temperatures. These dogs not only tolerate extremely cold weather, they thrive in it.

Individual dogs sometimes defy breed tendencies. You might have a Chihuahua mix who loves playing in the snow or a Labrador who prefers to be inside on the couch snuggled under some blankets.

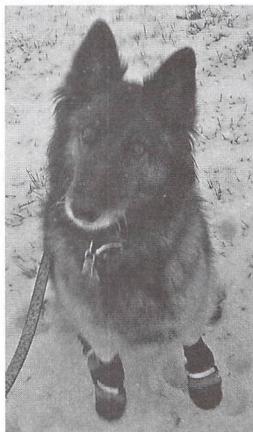
Remember that older and arthritic dogs may have more trouble walking in deep snow or over slippery areas. Seniors and puppies, as well as dogs battling chronic illnesses like diabetes, will be less tolerant of cold temperatures.

## Case Study: Queezle and Salt

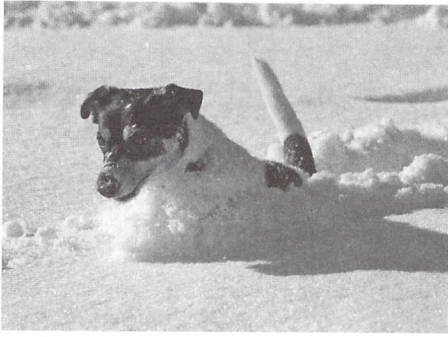
Queezle is a 13-year-old Belgian Tervuren who spent several years living in a town. Her primary exercise was a daily walk around the college campus. When temperatures dropped below 20°F, she frequently resisted her walks and would lie down on the ground holding her paws up.

She had never had trouble playing or walking in snow elsewhere, so her owner suspected that road salt was the issue and bought a pair of booties. With her boots on, Queezle was able to resume her daily walks happily.

The picture on the right shows Queezle in the Original Fleece-Lined Muttluks. She also also worn the Pawz rubber dog boots. Both keep her comfortable on winter walks.







*Be careful with deep snow. Little dogs will get cold more quickly because so much more of their body is covered by it.*

dog's foot.

Walking directly on salted sidewalks can dry out your dog's pads, causing cracks. The salt can also irritate the skin between the toes and is painful if it gets into a cut or scrape.

### Booties

Booties work well to keep salt off your dog's paws. There are endless color and style options available, but the most important feature is that the bootie will stay on your dog's paws.

Some things to keep in mind when choosing booties:

- ▶ Sock-style booties are not very water-resistant and so won't protect your dog from salted melting ice.
- ▶ Thicker styles can be too heavy to be comfortable.
- ▶ Fleece lining can be warm, but most dogs do just as well with unlined booties. It's usually the salt that causes discomfort rather than the cold temperature.
- ▶ Booties wear out faster if you walk your dog on hard surfaces like cement or asphalt. Read product reviews to get an idea of durability.
- ▶ Expensive booties are not necessarily sturdier. Look for booties that fit well and stay in place. ■

### Cold Cars

**We all know hot cars are a threat to our dogs' lives, but many of us forget that cold cars can be harmful, too. A cold car can quickly become a refrigerator and chill your dog, especially if he's young, old, or ill. It's important to be aware of this and not leave your dog unattended in the winter in a car.**

*Source: American Veterinary Medical Association*

## Introducing Booties

Hopefully your dog is already used to having her feet handled. If not, start working on that by rewarding her when you touch or hold each of her paws. Once she is comfortable with having her feet handled, introduce the booties. Place one bootie on a paw, tightening it appropriately. Praise and reward with some of her favorite treats, then allow her to sit or move around as she pleases. Sniffing at the bootie is fine, but gently discourage any efforts to chew it or pull it off. Ask her to perform easy behaviors, such as sit or touch, or play with her with a favorite toy to distract her from the bootie.

Some dogs freeze in place when booties are put on. Encourage her to relax by petting her, and ask her to do something easy. Reward any efforts to walk with high-value treats.

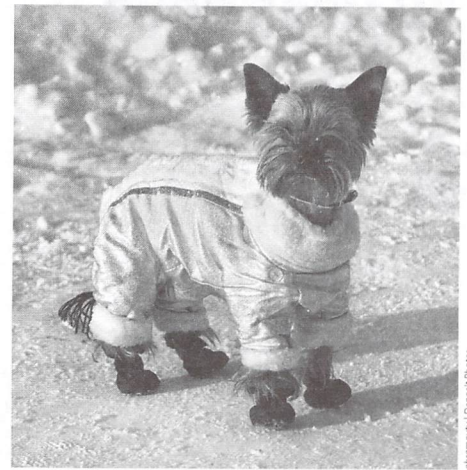
Once you have at least two booties on, take your dog for a short walk. Being outside will give her something to think about other than the booties. You can then work up to using booties on all four feet.

If your dog panics when she has one or more booties on, remove them immediately. She may require a slower progression or to go back to practicing having her feet handled. Some dogs never learn to accept booties, in which case you can adjust where you walk her or be diligent about wiping off her paws after walks.

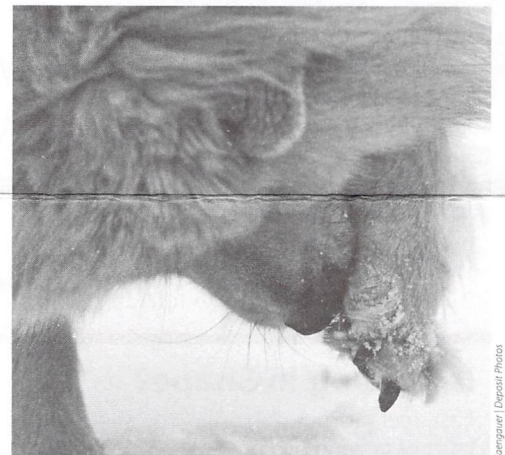
### © 5 THINGS

## Five Grooming Tips for Winter Paw Health

- 1** Prevent your dog's paws from drying out and cracking by avoiding unnecessary baths. If your dog's paws need some softening up, try a moisturizing product like Tomlyn's Deep Moisturizing Pad Cream.
- 2** For dogs who don't tolerate booties, consider a compound such as Musher's Secret that protects paws, keeps pads from drying out, and helps to prevent "snowballs" from building up on the paws.
- 3** Trim the long hair on your dog's feet. That added hair simply helps to build up "snowballs" and even ice accumulations on the feet. Trim on the bottom as well as around the edges of the paw.
- 4** Keep a towel near the door you normally take your dog in and out, and wipe your dog's feet dry after a snowy walk.
- 5** Stay on top of nail trims and care. Long nails get brittle in cold weather and may break off. They don't help your dog on ice. ■



*Dressed for snow, with booties that are properly sized and fit snugly.*



*Snow in a paw can be irritating to your dog.*



# All Dogs Need Daily Exercise

*But there is no one-size-fits-all recommendation*

At one point or another, every dog owner has been given the advice, “Make sure he gets enough exercise!” But what does that mean? And is there such thing as too much?

“Every dog and every patient I see is unique,” says Christopher W. Frye DVM, Assistant Clinical Professor of Sports Medicine and Rehabilitation at Cornell University. “The degree of exercise depends on the age, health status, conditioning status, nutrition, and environment [of the dog]. I also would include these factors for the people that could be exercising with the dog.” Evaluate your dog’s state and situation—as well as your own—to tailor a customized exercise plan.

## Senior Dogs

“Geriatrics benefit from daily low impact activity in which exercise time is titrated up slowly over time as tolerated,” says Dr. Frye. “This type of activity may include walking, swimming, specific physiotherapy and games, or new environments to stimulate their minds and curb cognitive disease.” Keeping your senior dog moving will help him to stay fit both physically and mentally. Many senior dogs are not up to the stress and challenge of a game of fetch or a hike up a mountain, but a walk around your neighborhood or a favorite park every day will be greatly appreciated.

If your older dog is not currently accustomed to regular exercise, start with short walks that he can tolerate well.

## Is My Dog in Shape?

First, feel for your dog’s ribs. You should be able to easily feel them under a thin layer of fat, and on short-haired dogs may even be able to see them. Really stark ribs indicate that the dog is too thin. Difficulty to feel the ribs under fat or a complete inability to feel them means your dog is overweight and you need to make some serious dietary and exercise changes with the help of your veterinarian.

Second, evaluate muscle tone. The hind legs and shoulders are the easiest to check. His muscles should be firm, with some definition. On short-haired dogs who are fit you will be able to see the muscle definition just like on a person. Flat, soft muscles that are not accustomed to regular or hard exercise indicate that you should take it easy with your dog at first and increase exercise gradually.



*A fit dog—meaning he is at an appropriate weight and conditioned for the task at hand—is happier, healthier, and less likely to be injured.*

Gradually increase the length of the walks over time as his endurance improves. Inclines, stairs, and changes of cover (tall grass, dirt, sand) add extra challenge. For dogs who have had an injury, consult with your surgeon or rehabilitation team for exercises to use long-term.

Dr. Frye also notes, “In addition, geriatrics are often sarcopenic (show muscle loss due to aging) and require a degree of strength training and an appropriate diet to meet their protein needs.” Senior dogs don’t need as much protein as younger dogs, but they also do not absorb protein as well, so they need to be provided with more protein than their base need. Core work and strengthening exercises will help to maintain muscle mass—use it or lose it!

## Sport and Working Dogs

Working dogs need to be in shape to perform their jobs both to the best of their ability and with the least risk of injury. If you train for or compete in sporting events, treat your dog like an athlete. He will need a regular exercise

plan to keep him physically fit along with training that is specific to his tasks. Your job as the handler is to be vigilant for any signs that he has hurt himself.

“These dogs have high drive and often ignore injuries,” says Dr. Frye. If your dog does something foolish or has a bad fall but then keeps on working, don’t assume that he is fine. Make him stop and check him over for any signs of pain or injury once he has calmed down. Dogs actively engaged in a task, especially something they like and are excited about, may not register an injury until well after the fact when their adrenaline levels go down. If you have a

really intense dog, it is up to you to act as his common sense and make him stop for breaks as needed.

For entertainment during healing or overall physical wellbeing, Dr. Frye recommends cross-training. “Cross-training type activities allow for more mental stimulation: a task or job. Sometimes we transition a retiring agility dog to perform a new, but lower impact task, such as obedience.” Training for multiple sports has the added benefit of helping to avoid boredom and injuries from repetitive exercise. Learning and practicing something new, even if it doesn’t specifically apply to your sport of choice, will keep your dog active and fit.

## Head Off Injury

- ▶ Remember that mature dogs can build up to long periods of exercise according to their physical fitness and enthusiasm levels. The key is “build up.”
- ▶ Always bring water and be ready to intervene if your dog is acting in a way he might hurt himself.
- ▶ Make adjustments for your dog’s condition and the environment in which you are working.
- ▶ Cross-training, or using multiple different types of exercise or training, helps to prevent injury from repetitive motions. Some examples are taking your dog both swimming and jogging or training him for both agility and tracking.





**Post-Injury**

If your dog has sustained an injury, follow your veterinarian's instructions for activity. For most orthopedic injuries, the recovery period involves weeks to months of restricted activity (and this goes for both patients who undergo a surgical repair or who opt for conservative management). These rules and guidelines are designed to allow your dog time to heal safely while also trying to minimize the muscle loss that comes with inactivity. Even after the initial recovery period ends, remember that your dog's muscles are not in the same condition that they were before and that he will need to work back up to his previous activity level slowly.

**Environment**

Weather and terrain will affect your dog's exercise plan. Running on hard asphalt puts more strain on your dog's joints than running on grass, and therefore should be reserved for physically mature dogs in good physical condition. Tall grass, sand, and deep snow are harder to move through than mown grass or sidewalks, so your dog will wear out more quickly, just as you would.

In hot weather, keep hard exercise short and bring plenty of water along on low-impact hikes and walks. Be mindful of pavement temperatures in direct sun. Extremely cold weather brings its own risks, and even the most intrepid canine athlete may need booties to protect his feet from ice and salt.

**How Much Is Too Much?**

Learn to read the signs that your dog is becoming tired. Ideally you want to stop exercise before he reaches the point of overexertion, so that you can prevent him from being sore later. Watch for him to start panting a little heavier, and his tongue to loll out. If playing fetch, he may start to trot back to you instead of loping.

Even if your dog seems to have plenty of steam left, you will often find that once you stop the game and settle in to relax, he will lie down to take a long nap. This means that you have done a good job of deciding when to stop! It is also perfectly OK to play or exercise for a short period and then go do something else without getting anywhere near your dog's limit. You can always have some more fun at other points throughout the day.

Any sign of lameness means that your dog has done too much and should stop now to prevent serious injury. ■

*Ulcers, continued from page 8*

as the team at Cornell) depending on the severity of the ulcer and if there are other problems with your dog's eye(s).

**Treatment**

Treatment depends partly on the severity of the ulcer and how much damage has been done to the cornea. Topical medications are usually the best option for eye injuries (and other conditions) as the medication can be applied directly at the source of the problem. This provides greater efficacy while also limiting potential side effects. Ointments last longer than drops, but most eye medications still need to be applied multiple times a day.

For minor scratches and abrasions, treatment focuses on preventing infection and relieving pain. Neomycin, polymyxin, and bacitracin are frequently combined as a triple antibiotic for the eye. Terramycin and ciprofloxacin are two other examples. Atropine eye drops are one of the most common options to

relieve pain. Atropine will also cause your dog's pupil to dilate, so don't be alarmed if your dog seems more sensitive to bright light after starting treatment.

If the ulcer is not responding to treatment or is already severe, a culture and sensitivity may be done to determine the best antibiotic for the job.

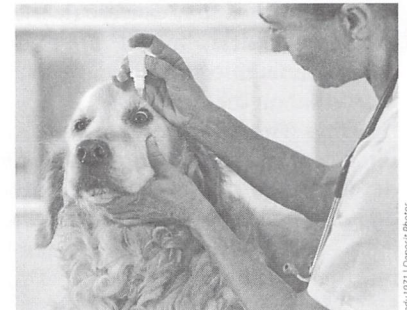
For ulcers affecting more layers of the cornea, it may be necessary to protect the eye as well as treat any infection and relieve pain. Elizabethan collars are an easy thing to try, but more severe cases may require more drastic measures, such as contact lenses and/or surgical repair.

A grid keratectomy is a procedure in which the surgeon removes dead or damaged tissue from the cornea, leaving behind healthy tissue that is more likely to heal properly. A corneal graft can also be performed to cover up the gap in the cornea. Continue treatment until your veterinarian instructs you to stop. Depending on the severity of the corneal ulcer, he may need several rechecks with fluorescein stains to evaluate whether or not the ulcer has completely healed. ■

**Help Applying Eye Medications**

Most dogs are more tolerant if you bring the tube or bottle from the side rather than the front. For ointments, gently draw a line of the desired amount across the eye, moving from the nose out toward the ear. Your dog may prefer to rest his head on your leg or the floor while you apply the medications. Don't forget to praise for good behavior!

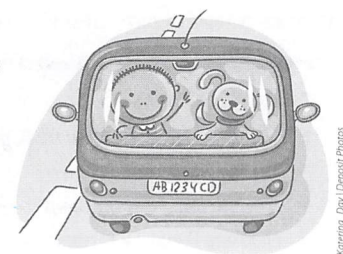
For more rambunctious dogs, you may need a second person to support the dog's head while you manipulate the eyelid and dropper.



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**Prevention**

- ▶ Avoiding corneal ulcers is mostly up to your dog, but you can help him:
- ▶ Discourage him from sticking his head out the window on car rides. While this seems like fun, car tires kick up all kinds of debris that can lodge in your dog's eye and damage his cornea.
- ▶ Keep artificial tears on hand. If your dog gets pollen, a grass seed, or something similar in his eye, you often can flush it out using artificial tears. This will get the foreign item out of your dog's eye and preclude him from pawing at his face to try to get it out himself.
- ▶ Squinting and/or discharge from the eye warrant a veterinary visit, and catching a problem early will help to keep your dog pain-free. Apply medications as instructed, and don't forget recheck veterinary appointments to monitor healing.



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# Corneal Ulcers

*Whether caused by a scratch or trauma, corneal ulcers cause pain*

**A** corneal ulcer occurs when epithelial cells are lost or damaged more quickly than new ones can be produced. This results in a thinning of the cornea and eventual exposure of the inner layers. Severe cases can progress to perforation of the cornea, which can lead to blindness or loss of the eye. Eye problems are emergencies.

## Causes

Corneal ulcers can be caused by trauma and/or infection. Traumatic causes include scratches from other animals or debris caught in the eye, ingrown eyelashes, and caustic chemicals (including shampoos). Your dog can even cause an ulcer by doing something normal like rubbing his face against the carpet or running through brush. The physical damage from trauma provides an opportunity for a secondary bacterial infection, which may exacerbate the problem and delay healing. Both viral and bacterial infections also can cause ulceration on their own.

Dogs with keratoconjunctivitis sicca, or dry eye, are at an increased risk for developing corneal ulcers because they do not produce sufficient tears to wash debris off the surface of the eye. For more information on dry eye, see “Big Dogs Don’t Cry” in our May 2018 issue.



*Dogs love to run through tall grasses, which can pose a risk for debris entering the eye.*

## Signs and Symptoms

Mild ulcers may come and go without ever being noticed. But if your dog starts to show clinical signs of an eye problem, he should be examined promptly to resolve the issue before it can cause permanent damage.

Signs that your dog may have a corneal ulcer include:

- ▶ Squinting
- ▶ Rubbing at the eye
- ▶ Discharge from the eye
- ▶ Cornea appears cloudy
- ▶ Visible damage to the cornea
- ▶ Hypersensitivity to bright light

Corneal ulcers are painful, so dogs usually show signs of being uncomfortable. Try to prevent your dog from pawing at his eye, as he could do more damage. Elizabethan collars are useful for keeping your dog’s paws away

from his face. Putting socks on his paws will cushion his toenails, but does not prevent him from reaching and rubbing at his eye.

Squinting and/or discharge from the eye is always a reason to schedule an appointment with your veterinarian. Eye problems are much easier to treat when caught early and can progress quickly if left untreated.

## Diagnosis

Corneal ulcers are usually difficult to see with the naked eye. If your veterinarian has one available, he or she may use a slit lamp to examine the eye—this is a special microscope with a light source that allows the veterinarian to see the various structures of the front of the eye and through the pupil.

One of the most common tests done if a corneal ulcer is suspected is a fluorescein stain. Fluorescein is a special dye that is safe to apply to the eye and binds to damaged areas on the cornea. Any scratches or ulcers will shine bright green. Larger ulcers can be easily seen once stained, and smaller ones will show up if viewed with a black light and/or slit lamp. Excess stain runs off the surface of the eye and escapes through your dog’s tear ducts, which then drain through the nose (so don’t be alarmed if you see bright green discharge from your dog’s nose after this test—it’s a good thing and means that his tear ducts are clear!).

For severe or recurring corneal ulcers, it may be necessary to take a sample to do a culture and sensitivity to determine which antibiotic will be most effective for clearing the infection.

Your regular veterinarian may refer you to a veterinary ophthalmologist (such

*(continued on page 7)*

## © DID YOU KNOW?

### Contact Lenses for Dogs

**D**ogs can wear contacts. They are not usually used to improve vision, however. A lens can be placed on your dog’s eye to protect the cornea while it heals following an injury or surgery. ■

#### Coming Up ...

- ▶ *Should I Do a DNA Test on My Dog?*
- ▶ *The Big Worry with Pyometra*
- ▶ *When to Bring Out the Blanket*
- ▶ *Choosing Puppy by Personality*

### A Taste of Medicine

Remember how the tear ducts drain through your dog’s nose? This can occasionally result in eye medications dripping into the back of your dog’s throat where he can taste them. If your dog drools or paws at his mouth after you apply an eye medication, he is probably just reacting to the unpleasant taste.



## © HAPPENING NOW...

**New California Divorce Law** - Effective January 1, in a divorce settlement case, the presiding judge now has specific criteria to use when deciding who gets the dog (or cat). While pets are still

considered community property, the judge’s decision can be based on criteria of “who feeds them, who takes them to the vet and on walks, and who protects them,” according to news outlets. ■