



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

THIS JUST IN

COVID-19 Dog's Death Lymphoma the likely cause

AVMA Animal Health Smart Brief reports that Buddy, the German Shepherd Dog that was the first canine in the U.S. to test positive for a SARS-CoV-2 infection, has died. As with many human COVID-19 deaths, a comorbidity was likely a factor. Veterinarians who reviewed the dog's records say the likely cause of death was lymphoma, not the novel coronavirus. What veterinarians don't know is whether that health condition, which was not diagnosed until after the dog died, made Buddy more susceptible to infection and illness. Veterinarian Elizabeth Lennon has applied for a research grant to learn more. ■

Dog-Park Parasites Results from over 3,000 dogs

A study published in *Parasite Vectors* showed that off-leash dog parks do carry a high risk of exposure to intestinal parasites. Fresh defecations were collected from dogs visiting parks in 30 metropolitan areas. Samples were examined from 3,006 dogs, 87.9% at least 12 months old, from 288 parks. Intestinal parasites, the most common of which were *Giardia*, *Ancylostoma caninum*, and *Trichuris vulpis*, were found in 20% of dogs and 85% of dog parks. ■

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New Combo Drug for Heart Failure It combines a blood-pressure pill and an ACE inhibitor

The Food and Drug Administration (FDA) approved Cardalis, a new drug that combines two medications for treating mitral-valve disease, the most common type of heart disease in dogs. The chewable tablet combines spironolactone, a diuretic that fights fluid buildup, with benazepril hydrochloride, a vasodilator that opens blood vessels to enhance blood flow. This combination tablet will make dosing easier in dogs.

Mitral-valve disease is a chronic condition that can be medically managed. It is more prevalent in older dogs, especially in dogs under 44 pounds. "As many as three-fourths of all dogs with signs of congestive heart failure suffer from mitral regurgitation . . . The prevalence increases with advancing age so that approximately 10% of dogs 5 to 8 years old, 20 to 25% of dogs 9 to 12 years old, and 30 to 35% of dogs over 13 years old exhibit murmurs. A higher than average prevalence . . . has been reported for Cavalier King Charles Spaniels, Poodles, Miniature Schnauzers, Chihuahuas, Doberman Pinschers, Fox Terriers, Boston Terriers, and Cocker Spaniels. Male dogs are affected more frequently than female dogs," said David Sisson, DVM, DACVIM-Cardiology, in a World Small Animal Veterinary Association meeting. ■



Heart disease may be noted in your dog's annual wellness exam.

Tick-Borne Diseases Tracked in Hunting Dogs

The study found regional variances in tick-borne disease

A recently published study from Iowa State University looked at regional tick-borne illnesses in dogs. The researchers sampled blood from 214 hunting dogs from four U.S. regions (West, Midwest, South, and East). Hunting dogs were chosen because they have a high risk of exposure to tick-infested environments as they frequently run through brush and tall grass in wildlife areas. Geographical location and the season also can be factors in the spread of these diseases.



Hunting dogs are at the highest risk of tick-borne disease.

The dogs were first tested in January and February 2016, then a second time during August 2016, when adult *Dermacentor variabilis*, *Ixodes scapularis*, and *Amblyomma americanum* ticks were active. The final sampling was in November 2016.

As expected, the hunting dogs had more tick-borne illness exposure than the average pet dog, especially for diseases carried by ixodid ticks: anaplasmosis, babesiosis, and Lyme disease. Regionally, the West had the lowest prevalence of tick-borne diseases. The Northeast was high for Lyme disease and anaplasmosis; the Midwest had the most Ehrlichiosis cases. ■

Mahachi, K., et al. Predominant risk factors for tick-borne co-infections in hunting dogs from the USA. *Parasites Vectors* 13, 247 (2020).

Large Study Addresses Dog-Neuter Debate

Comprehensive study lays out guidelines for 35 dog breeds

Some dog breeds have a higher risk of developing certain cancers and joint disorders if neutered or spayed within their first year of life. Until now, however, studies had only assessed that risk in a few breeds. (Previous studies have found that neutering or spaying female Golden Retrievers at any age increases the risk of one or more of the cancers from 5 to 15 percent.) A new 10-year study by researchers at the University of California, Davis, examined 35 dog breeds and found vulnerability from neutering varies greatly depending on the breed.

Researchers analyzed 15 years of data from thousands of dogs examined each year at the UC Davis Veterinary Medical Teaching Hospital to learn whether neutering, the age of neutering, or differences in sex affect certain cancers and joint disorders across breeds. The joint disorders examined include hip dysplasia, cranial cruciate ligament tears, and elbow dysplasia. Cancers examined include lymphoma, hemangiosarcoma (cancer of the blood vessel walls), mast cell tumors, and osteosarcoma (bone cancer).

As it turns out, in most breeds examined, the risk of developing problems was not affected by age of neutering.

Researchers found that vulnerability to joint disorders was related to body size. The larger the breed, the more likely they were to have joint disorders. Two giant



The giant-breed Great Dane did not show an increased risk to joint problems when neutered.

breeds were surprising exceptions. Great Danes and Irish Wolfhounds showed no increased risk to joint disorders when neutered at any age.

Researchers also found the occurrence of cancers in smaller dogs was low, whether neutered or kept intact. In two breeds of smaller dogs, the Boston Terrier and the Shih Tzu, there was a significant increase in cancers with neutering.

Another important finding was that the sex of the dog

sometimes made a difference in health risks when neutered. Female Boston Terriers spayed at the standard 6 months of age, for example, had no increased risk of joint disorders or cancers compared with intact dogs, but male Boston Terriers neutered before a year of age had significantly increased risks. ■

Benjamin L. Hart, Lynette A. Hart, Abigail P. Thigpen, Neil H. Willits. *Assisting Decision-Making on Age of Neutering for 35 Breeds of Dogs: Associated Joint Disorders, Cancers, and Urinary Incontinence. Frontiers in Veterinary Science, 2020; 7 DOI: 10.3389/fvets.2020.00388*

Blood Loss and Tranexamic Acid Study

Cornell is one of four research centers participating

Researchers at Cornell University, Cummings School at Tufts, North Carolina State University, and the University of Pennsylvania will look at the use of tranexamic acid to help dogs with severe trauma that involves bleeding. This drug is an antifibrinolytic (helps clot blood) that is sometimes used to treat hemophilia, to prevent excessive blood loss in surgical procedures, and for heavy menstrual bleeding.

Tranexamic acid has been used to treat soldiers with severe trauma that involves heavy blood loss. Military dogs, especially bomb-sniffing dogs, are at high risk of severe trauma, but the same treatment could apply to law-enforcement dogs injured during duty and pets with injuries from being hit by a car or shot.

The researchers are looking to get 40 dogs from veterinary-school emergency centers to enroll in the study. Once the dogs are stabilized at the emergency clinic, owners will be asked if the dog can be enrolled. By agreeing to the study, owners will get a hospital credit covering part of their dog's care. ■



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Home Care for an Upset Stomach

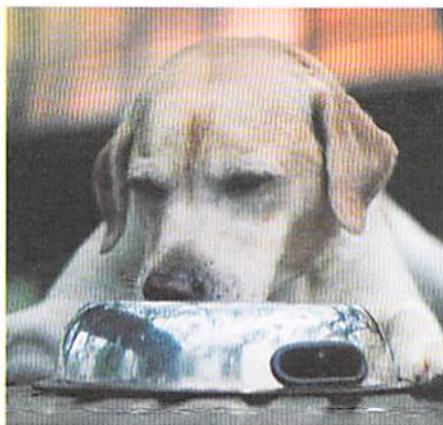
Simple nausea such as vomiting up dinner

Dogs tend to explore their world via scent and by mouth. Considering the things dogs pick up, mouth, chew, or swallow, it is not surprising that mild stomach upsets are common. Many of these cases can be treated at home.

Before trying home care, however, you need to rule out some conditions. If your dog is vomiting and has diarrhea, contact your veterinarian because your dog is at risk of dehydration. The same is true if your dog can't keep plain water down. Any blood in the vomit is a reason for a clinic trip. If you know your dog may have eaten something toxic or is spitting up bits of chewed items, you may have a serious problem, and you need to get to the vet clinic. For the feeling-fine-just-vomiting dog, you can try things at home while closely observing your dog.

The first step is to fast, as in no food. A fast gives your dog's irritated stomach time to settle. Despite the sad eyes and begging postures, your dog can easily skip a meal or two. Be sure to provide plenty of fresh, clean water in small amounts or ice cubes to lick if he acts nauseated. Dehydration occurs much more quickly than starvation no matter what your dog claims. If your dog is a diabetic or a small puppy, then fasting is not appropriate. In both cases, a call to your vet about the vomiting is important.

If your dog is keeping water down, and no longer seems nauseated, try feeding some bland food. You might want



If your dog is keeping water down, you can offer him a little bland food.

to start with some low sodium broth, given in small amounts. If that stays down after a couple of hours, you can try some plain canned pumpkin, a teaspoon or so for a small dog and a tablespoon or two for a big dog. Make sure it is plain pumpkin, not the pie filling with the extras added. Ginger can help to settle a stomach, so a tiny bit on the pumpkin or banana may help, or even give your dog a ginger snap to eat.

Other bland foods to try include:

- ▶ Smushed banana is also a bland food that many dogs like.
- ▶ Plain rice (using broth for the liquid makes it more enticing)
- ▶ Mashed potato (no spices or butter)
- ▶ Boiled chicken or hamburger but skim off the fat first

Control Car Sickness with Counter Conditioning

Car sickness can cause vomiting and nausea in dogs. While many dogs do outgrow this condition, for others it is a lifelong battle. Feeding a ginger-snap cookie before the drive works well for many dogs. You may need to play around with different conditions in your car to see what works best for your dog. For instance, some dogs do better if they can see out. Others do best hunkered down with limited vision.

Not feeding your dog ahead of a drive is helpful. Many dogs do best if you keep the car cool, so put the air conditioning on even if the outside isn't really warm, and possibly have a fan directly on your dog. Try to plan your travels with a minimum of stops, turns, and bumps (we know—it's not always possible!).

Counter-conditioning can help dogs resistant to other options. This means start by putting your dog in the car, giving him a food treat, and then letting him out without shutting the car door or starting the engine. Progress with tiny steps to help your dog. Eventually, you want to do short trips to positive places like the park so your dog develops positive associations with the car. If this doesn't work, ask your vet about medication options for car sickness.

Emergency: Bloat or Gastric Torsion

Vomiting, even a few times, can be serious if it is associated with bloat or gastric torsion. In these cases, your dog usually will vomit multiple times fairly close together, but nothing will come back up. The abdomen will distend, and your dog will be in obvious distress. This is a medical emergency, and your dog needs veterinary attention immediately.

▶ Canned mackerel

Over a couple of days, gradually work back to your dog's normal diet starting with 75% bland, 25% regular, then move to 50/50, then to 75% regular and 25% bland to normal, if this is all well-tolerated.

Famotidine (Pepcid) is a human medication that may be recommended by your veterinarian for your dog's upset stomach. You need to touch base with your veterinarian to determine the dose for your dog and verify that famotidine is safe for your individual dog. There can be drug interactions and other precautions you should know about.

If your dog has a sensitive stomach, discuss with your veterinarian having some prescription medications on hand to use as needed. Cerenia is an effective medication, but you should let your veterinarian know if you feel you need to use it so a record can be kept. That might help to determine what triggers your dog's stomach upsets.

If the vomiting continues for more than 24 hours, you need to contact your veterinarian. The same is true if diarrhea starts up, any blood appears, or your dog acts ill (has a fever, is lethargic, etc). ■

You Should Know

Signs of nausea in dogs:

- ▶ drooling
- ▶ walking up to the food bowl and then backing away
- ▶ eating grass
- ▶ licking their lips
- ▶ swallowing (without any food in their mouths)

Incision Complications

Handling the odd case of things going wrong

Surgery, whether it is a small lump removal from the skin or an involved fracture repair, is an expensive undertaking. Ensuring that a surgery is a success requires care and attention during the healing process as well as on the day of the event.

Normal Healing

The incision should look neat and clean, with the edges of the skin held close together by suture material. The skin should be its normal color, with allowance for a little redness due to inflammation.

A small amount of clear or bloody discharge is nothing to be concerned about in the first day or two after surgery. This local inflammation is part of the normal healing process. Bruising can appear at or around the incision up to several days after the surgery, and is most common in pale-skinned dogs.

Incisions heal side to side across the gap. The most important thing for quick healing is that the edges of the incision are held next to each other. A long incision that is lined up well will heal more quickly than a small open wound,



This spay incision is healing well: The little redness is normal, and there is no drainage.

because the body's cells have a bigger gap to bridge in the latter case.

The complete healing process can take several months as your dog's body remodels the skin and other tissues at the incision site to get everything back to normal, but the most important period of time is the first two weeks or so after surgery. For most routine surgeries, you will be instructed to bring your dog back to the hospital for a suture removal appointment 10 to 14 days after surgery. This gives the skin time to heal so that the body can hold itself together without the support of the sutures or staples. If the incision was closed with absorbable suture, no removal is necessary, but the incision still needs to be protected during the initial healing process.

What Can Go Wrong

"Although a gap in an incision that occurs a few days after surgery may be due to a missed suture bite on the part of the surgeon, most incision issues in dogs and cats are due to the patients themselves," says James Flanders, DVM, DACVS, Emeritus Associate Professor Section of Small Animal Surgery at Cornell. "If there are sutures present in the skin or if there is any discomfort or itching from an incision, then dogs and cats are going to want to chew, lick, or scratch at the incision. Unfortunately, there are few places on their bodies that they can't reach with their mouths or their feet!"

What makes incisions itch? Local inflammation during the healing process,

as well as nerve regeneration in the skin and the regrowth of hair. As your dog tries to relieve that itchiness by chewing or scratching, she can accidentally catch the sutures on a tooth or nail and rip them through the skin. Even licking can damage the fragile healing skin.

Dr. Flanders says, "The most common complications would be an incision that opens up (a dehiscence) or an incision that becomes infected." An opening in the incision causes delayed healing and increases the risk of infection.

"Also, incisions over joints (like the knee or elbow especially) or areas of motion are an extra challenge to get to heal," adds Dr. Flanders. Too much activity puts extra tension on the incision. Tumor removals that require the removal of a large amount of skin also have added tension because of the new gap that they must cover and close up. If the dog is allowed to run or jump, even more pressure is applied, and the sutures can rip through the skin and cause the incision to open. Even if the incision remains intact, activity can cause the buildup of fluid under the skin and lead to the formation of a seroma.

Dehiscence

Dehiscence is when an incision ruptures and opens. This can happen at any layer of the surgical closure. Dehiscence can allow fat, muscle, and even internal organs to herniate out of their normal positions. Depending on the severity, it may be necessary to put your dog back under anesthesia to repair the damaged incision. A dehiscence that occurs shortly after surgery is more likely to have dramatic effects than one that occurs later on after some healing has taken place.

If an internal layer of suture dehisces, you may notice a new bump under the skin or that your dog is suddenly more tender in that area. These require veterinary examination, but are often left to resolve on their own unless they become a problem or organs herniate through the opening.

If the external layer dehisces, the incision will be open. Depending on the size of the opening and if other layers are also affected, your veterinarian may be able to close it with tissue glue or allow it to heal on its own. More profound openings will require surgical closure.

Why does dehiscence happen? In most cases, it is because the dog has either traumatized the incision directly

Seromas

A seroma is a pocket of sterile fluid (serum) that can form at or near an incision. Usually, a seroma is not painful and not infected.

Seromas usually occur when a dog has been too active after surgery, causing the different layers of tissues to rub across each other. They generally appear within a few days of the procedure.

Your veterinarian can verify that the swollen area is just a seroma and not an infection or hernia. For most seromas, you will be instructed to keep your dog's activity more restricted than it has been and to alternate warm and cold compresses over the area to encourage the fluid to disperse. If the seroma is draining through the incision, your dog may be started on antibiotics as a preventive measure (if fluid can go out, bacteria can go in).

by chewing or scratching or because she was too active and damaged it that way. For incisions over joints and other areas with a lot of motion, Dr. Flanders recommends, "A bandage to reduce motion is often needed along with some careful suturing." Dehiscence can also occur if the tissues are compromised and unable to support the tension of the incision—this could happen after a large wound repair if the tissue becomes necrotic, or after the removal of a cancerous lesion or large lump. Thankfully, this is not common for routine surgeries, and your veterinarian will warn you if there are concerns about the incision's integrity. Any dehiscence needs veterinary attention.

Infection

"A normally healing incision will rarely become infected unless a gap is created by the pet or by other trauma," says Dr. Flanders. Most surgeries are performed in a sterile environment from start to finish, limiting the introduction of infectious agents into the surgery site. "Dirty" wounds, such as cuts from being hit by a car or punctures from a dog fight, are a different story. These wounds are likely to be contaminated. Dental procedures fall somewhere in the middle, because your dog's mouth is home to a variety of bacteria that are difficult to completely remove before surgery, especially if your dog is one of the estimated 80% who have periodontal disease.

If your dog's surgeon is concerned about infection, he or she may choose to prescribe an antibiotic as a preventive measure or may even place a drain at the time of the procedure. While messy, drains allow fluid that builds up in an infected wound to exit the body, helping to clear the infection and promote healing more quickly.

Infection is still a possibility even if your dog had a routine sterile surgery. This is because even the most perfect incision is still technically a wound and can allow bacteria to enter the body. If your dog licks the incision, any bacteria on her tongue can be transferred to that area and potentially set up camp. Incisions on feet and legs can be contaminated when your dog walks outside. And if your dog manages to open her incision through either chewing, scratching, or chasing squirrels, that opening provides an even larger entryway for opportunistic pathogens.

Signs of infection include redness, irritation, swelling, heat, and discharge (in large quantities or thick and pus-like). Your dog may also act uncomfortable or even ill depending on the location and severity of the infection and may limp if it is located on a limb.

If you suspect your dog's incision has become infected, contact your veterinarian immediately. She will be put on antibiotics, and your vet may send out a culture and sensitivity to identify the cause of the infection. If an abscess has formed, it may be necessary to flush the area and place a drain temporarily.

Home Care

"Animals can access their incisions in spite of the best intentions of pet owners," says Dr. Flanders. "Owners must monitor their pets carefully and if they are not in direct contact/visualization, then they need to make sure that an E-collar, bandage, or body suit is in place to protect the incision." Even the best-behaved dog can have a lapse in judgment and chew at an itchy incision when you leave the room. Dogs can reach almost every part of their bodies with their mouths, and some intrepid canines can even reach around the end of a too-short cone to access a paw. And while incisions on the head and neck are safe from teeth and tongues, they aren't safe from your dog's back feet.

All incisions need to be protected to promote healing, but some are more prone to issues than others. "The most common incisions are the most common ones to have complications!" says Dr.

What You Can Do

To prevent your dog from having incision complications, you should:

- ▶ Follow discharge instructions.
- ▶ Restrict your dog's activity.
- ▶ Use a protective device to prevent your dog from reaching the incision.
- ▶ Monitor your dog and her incision.
- ▶ Restrict your dog's activity. Use a crate or baby gates to shut her in one room in the house, and keep a leash on your dog at all times when outside.

Flanders. "So, spay and castration incision problems pop into my mind immediately." These dogs are generally young, so staying quiet and calm after surgery can be a challenge. Limb surgeries, such as repair for a torn cranial cruciate ligament, are also at high risk for damage if the dog is too active. Use a large crate or an exercise pen to limit your dog's activity when at home, and keep her on a leash when outside, even if you have a fenced yard.

Unless your dog is under direct supervision (watching TV or checking email doesn't count!), she should be wearing something to protect her incision. For surgeries on the lower limbs and feet, she will need a waterproof bootie when going outside to keep the incision clean and any bandages dry. ■

My Dog Doesn't Like the Cone!

Few dogs would choose to wear one, but most quickly adjust to life in a cone. For dogs who panic in a cone, keep slipping out of it, or are able to reach around the cone, there are alternatives. "The [Elizabethan] collars and bandages have been around a long time, but now there are softer versions of the old, stiff plastic E-collars. Another new thing is a body suit that fits over the legs and abdomen and can be used to protect incisions in multiple different locations," says Dr. Flanders.



If it's impossible to use a cone, a full-body suit might do the trick.

Inflatable "donut" collars can also be effective for some dogs. If you aren't sure which options will work best for your dog after surgery, just ask your veterinary staff.

Even if your dog does not seem interested in her incision, leaving the incision unprotected is a risk. She may start chewing at it when the hair starts to grow in and becomes itchy or catch it accidentally when scratching. It only takes a second for an incision to be damaged. And if there is one thing your dog will like less than the cone, it is a second trip to the vet to be sewed back up again.

Feeding Your Performance Dog

Look at carbs, fat, and the work you're asking him to do

Cornell University has long been the leader in canine nutrition for working dogs, starting with Arleigh J. Reynolds, DVM, PhD, DACVN, who did groundbreaking work in sled-dog nutrition, to Joseph J. Wakshlag, DVM, PhD, DACVN, DACVSMR Professor, Sections of Clinical Nutrition and Sports Medicine and Rehabilitation who now holds the reins. Not all performance events are equal in the type of demands they put on your dog. Dr. Wakshlag likes a three-tier system for determining the nutritional needs of your sports dog:

Level 1: Endurance Dogs. For true endurance dogs, like the racing sled dogs, a diet high in fat is important. Up to 35% of the diet (dry matter basis) should be fat, with 500 to 600 calories per cup of food. These dogs do not need this "high octane" food all year, however. During the "off season," the intense diet can be backed off. Then, as competition season approaches, food should be shifted over to the high-fat diet as the training and

workload increases. Four to six weeks is a good guideline for acclimating to the working diet.

Level 2: Medium-Activity Dogs. Medium-level dogs include hunting dogs running in field trials (or out hunting all day), working foxhounds, open-field herding trial dogs (usually Border Collie events), and search-and-rescue dogs. For medium level workers, "Post exercise carbohydrate repletion during competition is important," stresses Dr. Wakshlag. These dogs need more fat and caloric density, especially building up to competitions or events. Dr. Wakshlag also has a "medium level 2." These dogs include dogs in hunt tests, arena herders, and tracking dogs. For the most part, these dogs could be fed more like the sprinters (level 3) since they don't work for long periods of time, but they still need to build up for competition with fat.

Level 3: Sprinters. Sprinters—think agility, dock diving, flyball, and lure coursing—need diets heavier on the carbohydrate side and lighter on the fat. For them, 40 to 50% carbohydrates (dry matter basis) and fat in the mid to low teens is appropriate, with 300 to 400 calories per cup of food. These dogs should have small meals the day before an event and receive carbohydrates post activity, especially if they do multiple short events in one day.

Boils Down to Energy Use

Dogs draw on three systems for energy:

- ▶ **Immediate energy** for five to 20

seconds comes from burning adenosine triphosphate (ATP).

- ▶ **Glycolytic energy** to power a dog from about 20 seconds to two minutes (this system involves the anaerobic breakdown of glucose).
- ▶ **Oxidative metabolism**, which starts after about two minutes of exertion. This system is the most efficient and can use various sources of energy (fat, carbohydrates, and protein).

Basically, "as the distance and duration of exercise increase, dogs use fat as an aerobic fuel source. . . . fat likely has the most profound effect on increasing stamina in dogs," says The American College of Veterinary Nutrition.

One older study published in the *Journal of the American Animal Hospital Association* looked at Beagles and endurance. The researchers found Beagles fed a high-fat diet were not exhausted until after 20 miles. When the dogs were fed a lower fat diet, however, they were exhausted at 15 miles.

While burning fat, an endurance dog holds off on using up muscle glycogen, and this delays the fatigue. Incidentally, using fat for energy is metabolically "cooler" than using protein. Keeping body temperatures from rising is a plus for dogs doing endurance events.

Pure, Fresh, Clean Water

Provide your dog with frequent, small amounts of cool water. Don't let him gulp down large amounts, as this may cause bloat. Instead, during your cooldown, offer frequent drinks. Dogs don't need electrolyte drinks, as they don't sweat away electrolytes like we do. Some canine sports drinks and things like Gatorade may cause gastrointestinal upset. ■

Senior Dogs

If your dog is a senior athlete, you need to be sure to provide plenty of high-quality protein. Dogs tend to lose muscle mass as they age. The exception to feeding extra protein would be for a dog who has other health problems, such as liver or kidney ailments, where extra protein would be detrimental. Senior canines, whether performance dogs or not, also benefit from joint supplements and omega 3 fatty acid supplements.

Supplements Hype

Many nutrition supplements are touted for improving canine performance. We're not so sure. "I am not a huge fan of global supplements other than use of post-exercise carb repletion of glycogen during eventing days to provide the fuel for the next day. I think things like fiber and probiotics for stress diarrhea are likely the No. 1 thing to consider," says Dr. Wakshlag. Maltodextrin supplements can be used for the carb replacement but only on days of competition.



Herding dogs need high-fat in their diets to build up prior to their work and carbs for post-exercise repletion during the work.

Help, My Dog Is Choking!

Common items dogs choke on and how to help

Just like us, dogs can sometimes eat a bit too fast and start choking on their food. Since dogs also put lots of other things in their mouths (toys, bones, your sneakers...), there are even more items that can potentially get stuck when playing or chewing.

Common Items

"Balls are one of the most common things dogs choke on," says Debra M. Eldredge, DVM, Cornell University School of Veterinary Medicine Class of 1980. "They leap to catch a ball and if it is the 'wrong' size, it gets stuck in the back of their throat. Second would be big pieces of food they gulp without chewing."

Rawhides are a common source of trouble, because they are edible but do require some chewing. If the dog gets bored or lazy toward the end of the chew, he may try to swallow that last chunk before it is small enough to do so safely.

Many dogs enjoy destroying toys, and may swallow some pieces in the excitement of the kill. This is obviously less than ideal for many reasons: a) toys are not intended to be consumed, b) the pieces could get stuck in the throat and cause the dog to choke, and c) the toy could cause an obstruction even if it is successfully swallowed.

Sticks also pose a choking hazard, though more often pieces of sticks like to get lodged in the roof of the dog's mouth. If your dog is playing with a stick and

suddenly starts gagging or pawing at his head, check the top of his mouth for a stick stuck crosswise.

Even your dog's regular, carefully selected diet could cause him to choke if he eats too quickly, takes too large gulps of food, or tries to bark with his mouth full.

Is My Dog Choking?

There are some telltale signs that a dog is choking. "A choking dog will often make gagging sounds, but not as loud as you would think due to the obstruction. In some cases, they simply 'faint' or go limp due to reduced oxygen from the blockage. The gums may turn pale or bluish due to decreased oxygen. With a partial obstruction you might notice drooling," says Dr. Eldredge.

How to Help

"If you think your dog is choking, you can try a canine Heimlich maneuver. You can also open your dog's mouth and look to see if you can spot the object. Then try to retrieve the object by pulling it out. It might help to try and scoop it out with a spoon. If you can't get it and your dog is turning blue, try to puncture the object so air can flow through. Then head for your vet! Beware of possible bite injury to you," says Dr. Eldredge.

When reaching into your dog's

What You Should Know

The Canine Heimlich Maneuver

The canine Heimlich maneuver is similar to the human version. With the dog standing, stand over him and wrap your arms around him so that your hands are locked together under his belly in a fist. Then push up and forward just behind the rib cage. If your dog is lying down and can't or won't get up, you also can do it by stabilizing his back with one arm and pushing the belly up and forward with the other.

mouth, try to get your whole hand in quickly – with your hand holding his mouth open he is less likely to accidentally chomp a finger. Most dogs try to spit your hand back out. Reach for his throat with your fingers and feel for anything that doesn't belong, such as a firm piece of toy or a flat slimy chunk of chewed rawhide. If you can, grab the offending item and gently remove it.

If your dog is panicking, do not try to reach into his mouth. A panicked dog is likely to bite, even by accident. Try to calm him and get him to the vet as quickly as possible. Your veterinarian (or the emergency vet hospital) will be able to quickly sedate him if needed to keep him calm and relaxed while the offending item is removed. In rare cases, a firmly lodged item may require surgery to remove it. ■

© 5 THINGS

A Dog's Hero

Dr. Eldredge recalls her most memorable choking-dog case

"I was working the evening hours at our clinic, and a woman rushed into our crowded waiting room, half carrying a good-sized German Shepherd Dog who was limp in her arms. The receptionist hollered, and I ran out. I opened the dog's mouth and pulled out a stuck tennis ball! The dog took a big gasp and started turning pink right away and perked up. Everyone cheered and clapped, and I think it was at that moment that the woman realized she was in a room full of strangers in her pajamas!"

5 Things to Know About Your Dog's Liver

- 1 A healthy liver can recover from 25% of its normal size to full regeneration in eight to 15 days.
- 2 Many of the liver's functions can't be duplicated elsewhere in your dog's body, such as detoxification of toxins and medications, processing nutrients for use by other body parts, and producing clotting factors.
- 3 At any given time, approximately 10% of your dog's blood volume is collected in the liver. Trauma to the liver such as being hit by a car or rupture of a cancer like hemangiosarcoma in the liver can cause deadly hemorrhaging.
- 4 The liver is the largest organ in your dog's body after the skin. It accounts for about 3% of the body weight in the average adult dog.
- 5 All the blood from the gastrointestinal tract goes to the liver where nutrients and toxins can be filtered out. Fats, proteins, and carbohydrates can be metabolized here and glycogen, vitamins, and some minerals may be stored in the liver. ■

Truck Lunging

This dangerous behavior needs counter-conditioning

Q I find your column very informative and helpful. We have a major problem with our 4-year-old Great Pyrenees, Bo, that we adopted from a rescue group two years ago. He was surrendered by his owner who was being transferred to London. Overall, Bo is wonderful and affectionate, but he has recently started lunging at vehicles, particularly loud trucks (he generally ignores cars), during our walks. Bo just started doing this out of the blue. While we try to avoid encountering any trucks while on our walks, this is difficult, even in our residential neighborhood. As you can imagine, controlling him during his lunging episodes isn't easy, even with the Gentle Leader on. We would appreciate any advice and insights you may have on this behavior and how we should address this problem with Bo.

A I definitely understand your concern. Bo is a big dog, and this behavior can be dangerous. There are a few things you can do to start correcting this behavior. First, make sure Bo has reliable "sits" and "stays" as these behaviors are incompatible with lunging at vehicles.

You can also begin counter-conditioning Bo's response to the passing trucks. When you know a truck is approaching (but it's still far enough

off), begin feeding him high-value treats until the truck has passed. These treats should be ones that Bo is especially fond of but doesn't get in any other situation. In other words, the treats appear only in the presence of the trucks and disappear as soon as the trucks are gone. Examples of these types of treats include cut-up hot dogs, cheese sticks, and shredded chicken. Turn toward the road and have Bo face you, so he has the least opportunity to see the trucks. Ask him to sit and give him treats the entire time the truck drives by. You may have to start quite a distance from the road and truck, so the vehicle is not such a threat. Repeat this every time a truck drives by so Bo learns to associate the presence of trucks with tasty treats.

It may also be beneficial to have Bo wear a ThunderCap (thundershirt.com) as well as a front-hook harness on walks. The ThunderCap will help decrease his visual acuity, which may reduce some of his reactivity. You can use a leash coupler to attach Bo's Gentle Leader to a harness for added safety. A front-hook harness (e.g., Easy Walk harness, Walk-in-Sync harness, Freedom No-Pull harness, or SENSE-ation SENSE-ible harness) will allow you to steer Bo away more easily than with a neck collar and may help give you more control of his body.

You can also teach Bo a "look" command to have him redirect his attention toward you. To do this, hold a piece of food out of reach. As soon as he looks at you, say "look" and give him the food. After many pairings, you should be able to say "look," and he'll look at you. Practice this 10 times a day at home. Once he has mastered this, add increasingly more distracting situations, and practice in different places in your home, outside, and in new places. Having this command may help to pull Bo's

attention from the passing trucks, which will help keep you all safer. Note: Sarah Wright, a second-year veterinary student at Cornell, assisted Dr. Houpt with this question.

Spinning and Itching

GSD puppy's odd behaviors

Q Our 6-month-old German Shepherd Dog (GSD), Ranger, is in training at our local dog club to become a therapy dog. Ranger's problems are spinning and a persistent itchy body. We wonder if you have any suggestions regarding this matter. He is a wonderful dog and so bright. Fortunately, when I train, play games or walk him, he does not itch or spin, but during his free time, those negative activities begin to occur. Thank you for your time.

A Unfortunately, circling or spinning appears to be a genetic problem in GSDs, and some genes have been identified that are more common in spinning dogs than in non-spinning dogs. We hope that will eventually lead to better drug therapy.

The itching (presumably you know he is itchy because he scratches himself) is usually an easier problem to solve. He should visit a veterinary dermatologist (acvd.org). He may have parasites, an infection, or an allergy.

To help reduce his spinning, you can try to enrich his environment as much as possible. As a young dog, he needs lots of exercise with other dogs and with you. He should have lots of puzzle toys. Half his food can be given in food-dispensing toys. Psychoactive medication helps most dogs with this problem. Your veterinarian can prescribe an appropriate drug or he can refer you to a veterinary behaviorist (dacvb.org) or you could come to Cornell and see both types of specialists (call 607-253-3060) for appointments. ■

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.



Coming Up ...

- ▶ *Tips and Tricks for a Shiny Coat*
- ▶ *Dogs Who Dirty Themselves*
- ▶ *Canine Hemophilia*
- ▶ *The Benefits of Shock-Wave Therapy*

© HAPPENING NOW...

Reduced Forces—The Marine Corps is reviewing their working dog program as part of restructuring, and the number of working dogs will likely decline from 210 to 150 over the next two years. More dogs will be trained to perform multiple tasks, says military.com.

Oops, Wrong House—When a family found a strange Labrador snoozing on their porch, they started a search for the owner. Much to their surprise, they found that the dog belonged to the family who sold them the house two years earlier. The dog apparently traveled 57 miles to find his old house's porch, says CNN. ■