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Small But Mighty

How one little dog can make a huge difference.

BY NANCY KERNS

Have you experienced that moment when your family has been reduced for whatever reason from multiple dogs to just one, and you keep thinking you need to check the back door to let someone or other back inside? You get used to the rolling thunder of dog paws and canine vocalizations when the doorbell rings, and a circus-like amount of hubbub first thing in the morning when you head to the door to let the pets out – and then suddenly there is just one calm dog, politely following you around. It's weird, but at the moment, given that I've only loaned out my second dog (not lost him), I'm enjoying it.

Tito, the 10-pound Chihuahua we took in about four years ago “for a few weeks,” is currently staying with my sister-in-law and five-year-old niece about an hour away. We lost my brother to cancer just after the new year. I'd been staying at their house a lot, and because they are all “dog people,” I always brought my dogs with me, and my niece has really bonded with little Tito. They lost their family dog, Hannah, to old age a few months earlier, and Ava really misses having a canine companion. She's an only child, and they live in a rural area where there aren't any other children close enough by for casual play dates, so having a little dog run out of the house

every day to greet her when she gets home from kindergarten is the next best thing.

Ava's mom reports that Tito sleeps with Ava, keeps her face clean, and rides on her lap in her car seat in the car. Unlike most adults, Ava is endlessly amused by the fact that he won't give a tennis ball back after he's fetched it, but will allow himself to be chased, merrily playing “keep away” for an hour. I suspect he's going to pretend not to recognize me when I next visit. “Nancy Who? Nice to meet you, but I have to get back to my little girl.”

Tito is a funny guy, full of character and “Don't tread on me” bravado, and he's easy to have around for all reasons save one – his relentless drive to alert the household to anyone's arrival; go to the store for milk and you will be welcomed upon your return to home as Odysseus, lost at sea for 10 years. It's a little *much*, so out of scale that it doesn't seem sincere, somehow; frankly, it feels like small dog hysteria to this large dog person. Without him here it's just . . . so quiet!

I don't know if my sister-in-law will want to keep Tito forever, or just for a few months, or what. All I know is that if they need him and want him, he can stay. He's happy, and Ava is happier with him there. That's huge. Tito gets a lifetime pass for all the barking in the world for that.

NK



Elimination Round

Dogs whose allergies are suspected to be related to their diet will benefit from a food-elimination trial.

BY CYNTHIA FOLEY

When your dog itches, you know it. That relentless licking, scratching, chewing – anything he can do to relieve the itch. He seems obsessed, and he probably is. Whatever you do, don't ignore this problem (as if you could!). Incessant scratching and chewing may indicate food allergy. He'll constantly tear into any place on his body that he can reach with his teeth or claws. You may see ugly hair loss. Until you find the cause, this problem will go from bad to worse.

Yes, persistent skin irritations can also be due to something else, including dry skin, hormonal issues, liver disease, fungal infections, drug reactions, pain, boredom, anxiety, or a combination of any of those! For this reason, if your dog has chronic itching, it's always worth a trip to the vet to rule out some of these potential causes.

But the fact is, 70 percent of canine skin conditions are allergy-related – and most of those are due to flea allergy and/or environmental allergens, such as pollen, mold, or dust mites. If the dog has fleas, or if his symptoms have a seasonal component, it's likely that *environmental* allergies are his primary problem.

But an estimated 10 to 15 percent of the dogs who suffer from allergies are allergic to their food, or at least some ingredient or ingredients within their food. Many owners assume that a dog with a chronically upset stomach has food allergies, but many dogs who have chronic upset tummies may have a food

Dogs with year-round allergies, characterized by whole-body itching (and resulting chewing, scratching, and rubbing) are likely to be allergic to something in their diet. A food elimination trial can help identify the problem ingredients so you can avoid buying and feeding diets that contain them.

intolerance; if there is no hypersensitive immune response, it's not an allergy. (That said, one can use an elimination diet to help determine whether the dog is *intolerant* of certain foods, too.)

The primary symptom of food allergies, just as with inhaled or contact allergies, is itching. Dogs with food allergies *might* also show gastrointestinal signs (vomiting and/or diarrhea), or secondary infections, such as chronic

otitis (ear infections), but they might not; non-seasonal (year-round) itching might be their only symptom.

A DIAGNOSTIC DIET

Puppies aren't usually born with food allergies. These hypersensitive immune responses tend to build up over time, usually appearing between the ages of 1 and 3 (but they can appear late in life, especially if the dog has been on the exact same diet for years and years). The most common food allergens in dogs are protein sources – especially beef, dairy products, wheat, chicken, egg, and soy – but the cause may also be a carbohydrate, a preservative, a dye, or anything else in the food.

While there are skin and blood tests that can be performed for allergies, they're expensive and have only a 60 percent accuracy, frequently returning both false positives and false negatives. No wonder many veterinarians consider them useless! Although all you're going to hurt by trying them is your wallet, a far better solution is an "elimination diet."

Better described as a "restricted diet," this limited-fare menu will help you both identify the foods that cause an allergic (hypersensitive) reaction in your dog, as well as find foods that can be fed to him without causing an allergic response.

The first step in a food-elimination



trial is to think hard about all the types of food you have fed to your dog, and then gather the ingredient lists for all commercial foods the dog has received, or foods you have included in his home-prepared diet. Write down (or list in a spreadsheet) all of the ingredients in the foods your dog has eaten. While it may be difficult to recall (or impossible, in the case of dogs who were adopted as adults) every food a dog has eaten in his lifetime, all of the ingredients in the diets that the dog has received most recently should be included on the list.

You now have a working list of the ingredients you will avoid when selecting foods for the dog's elimination diet.

“NOVEL” INGREDIENTS

The goal for the first stage of the trial is to find ingredients that the dog has *never* received, in order to find some to which he is not allergic. You will then start him on a diet of these “novel” ingredients, in hopes that his itching reduces and then stops, indicating he is no longer eating something to which he is allergic, and that he is not allergic to any of the novel ingredients.

If his itching and other symptoms of allergy stop, you can begin adding other ingredients back into his diet, one at a time. If the itching recurs, the most

recently added ingredient is then put onto your dog's list of forbidden foods.

Ideally, an elimination diet initially consists of just one protein source and one carbohydrate source, neither of which appears on the list of foods your dog has previously eaten.

“I recommend a limited-antigen diet: one protein, one carbohydrate,” says Eileen Fatcheric, DVM, co-owner of the Fairmount Animal Hospital in Fairmount, New York. “The foods should be ‘novel,’ meaning the dog has not eaten them before.”

In order to ensure the food is new (novel) for your dog, your veterinarian may recommend some seemingly crazy cuisine. Ingredients often recommended for elimination diets include:

■ PROTEINS

- Rabbit
- Venison
- Duck
- Buffalo/Bison
- Kangaroo

■ CARBOHYDRATES

- Pumpkin
- Oats
- Barley
- Quinoa
- Chickpeas (also a good protein source)

Keep in mind that this initial, “one novel protein and one novel carb” diet is being used in hopes that you have eliminated whatever your dog has been reacting to in his diet, so that he stops itching, his skin clears, and any other allergic symptoms he has cease. Once he is totally asymptomatic – and this may take weeks – you can add *one* ingredient to his diet for a few weeks. If he starts itching, that ingredient gets added to the “forbidden” list, and you retreat to feeding the diet that didn't make him itch, wait until all is calm again, and then try adding yet another ingredient.

The ingredients you choose to use for this initial trial should be new to your dog, but readily available to you and affordable. Some of the more unique proteins may be more available in frozen, dehydrated, or canned form than fresh.

Decades ago, beef was the most common animal protein used in commercial dog foods, and so when a dog appeared to have a food allergy, most veterinarians would recommend a lamb and rice food. These ingredients were rarely seen in commercial foods at the time and, therefore, were novel to most dogs. The combination was even dubbed “hypoallergenic” – a misnomer for any dog who is allergic to lamb or rice! Of course, when food-allergic dogs

SUSPECT YOUR ITCHY DOG HAS A FOOD ALLERGY?

If you suspect your dog has a food allergy, follow these steps:

- ✓ See your veterinarian to rule out other possible causes.
- ✓ Save your money if someone recommends allergy tests. They're unreliable.
- ✓ Ask your veterinarian to help you construct an elimination diet.
- ✓ Choose a carbohydrate source and a protein source that you are comfortable feeding, that your dog will readily and comfortably consume, and that you can afford for weeks at a time. (For instance, fresh ground buffalo may be available from your local Whole Foods, but feeding that as the daily protein source for your 80-pound Labrador may not fit into your budget.)
- ✓ Check all your dog's medicines for flavorings and get substitutes, if necessary.
- ✓ Stop all supplements during the trial.
- ✓ Take photos of all chewed, bare, or irritated spots on your dog's body at the start of the trial, so you have something to compare with as the trial goes on.
- ✓ Report any changes in behavior or gastrointestinal upsets to your veterinarian immediately.
- ✓ Be vigilant. Watch your dog 24/7 and ensure that he cannot gain access to a food, bone, treat, or chew he is not supposed to eat.
- ✓ Keep a journal of your dog's activities. If he has an outbreak of itching, you may be able to use this to determine whether he could have managed to eat something that wasn't on the diet during his outing.
- ✓ Once the trial is finished, choose a diet (home-prepared or commercial) that is limited to the ingredients you know your dog can safely consume. If you choose a homemade diet, consult a veterinary nutritionist to ensure the nutrients meet or exceed recommended levels.

It can be a challenge to prevent one dog in your household from eating anything the other dogs receive. Some people solve this by putting all of their dogs on the same elimination diet.

improved on these foods, they became popular; soon, even owners whose dogs didn't have allergies tried them, and more companies began offering foods that contained lamb and rice. The upshot is that within a relatively short time, both lamb and rice lost that all-important "novel" characteristic for many dogs.

The same phenomenon is making it even more difficult for dog owners to find foods that contain ingredients that are novel for their dogs. The popularity of grain-free foods, and their inclusion of potatoes, sweet potatoes, peas, and chickpeas (as replacement carbohydrate sources for grains) means that many dogs have been fed these formerly rare (in dog foods) carbs, eliminating those ingredients from the pool of potential "base" ingredients for the allergic dog's preliminary restricted diet.

Other owners may have fed novel proteins to their dogs in foods that appealed to them for reasons other than food allergies – just to provide the dog with variety, for example.

We suggest that owners avoid feeding foods that contain uncommon proteins to their dogs, so they are available for use in the dog's diet if he should develop food allergies later.

COMMERCIAL FOODS FOR AN ELIMINATION TRIAL?

Today, a visit to any specialty pet-supply store will reveal that any number of companies offer "complete and balanced" foods that contain uncommon proteins such as rabbit, duck, venison, bison, and even kangaroo. Further, many of them are formulated to contain only one type of animal protein – what the makers often call "limited-ingredient" formulas. Those products seem ideal for feeding a food-allergic dog, right? Well, it depends.

A commercial food is most likely to work in an elimination diet if it contains just *one* novel (to your dog) protein and *one* novel (to your dog) carb. However, if it contains (for example) one novel ingredient (say, rabbit) *and* chicken – which is *the* most common animal protein in commercial dog food today



– it probably won't work for use in an elimination diet. You have to look past the "headline" ingredients to see whether a food might also contain ingredients your dog has consumed many times; it doesn't matter if a food is called "Brand X Bison and Barley Dog Food" if it also contains beef and rice.

There is also the matter of the potential for cross-contamination at the pet-food manufacturing facility. A dog who is highly allergic to chicken, for example, may react to a food that contains no chicken, but was made on manufacturing equipment that was inadequately cleaned after running a batch of food that contained chicken.

Also, even if it's a single-protein, single-carb "limited ingredient" commercial diet, any "complete and balanced" food will necessarily contain more ingredients than a home-prepared diet that contains *only* the protein and carb sources. While it's quite rare that the dog's allergy is to a preservative or herb or fiber source in the food, the fewer ingredients that are used in the trial diet, the more certain you can be about what is or is not causing the dog's symptoms.

HOME-PREPARED OPTION

Another option is to prepare your dog's elimination diet yourself – a course of action that has its own benefits and pitfalls. While it provides you with the ultimate method of ensuring that your dog's diet contains only those ingredients that prove to be safe for your dog, it may

take some trial and error to figure out appropriate portion sizes and the best ratio of meat to carbohydrate for your dog. Also, you may be limited as to how long you can keep your dog on the diet, as it isn't likely to be nutritionally balanced.

It can also be expensive. When dog-food manufacturers use something like kangaroo or rabbit in their diets, they have the benefit of buying those novel proteins in bulk, for much lower prices than you are likely to pay. That's why it can be a great boon if you've never fed your dog a diet that contains a common animal protein, that is, when your dog's "novel" protein is something that's easy to find and affordable, like fish or beef.

SERVING THE NEW FOOD

The switch to the elimination diet should take place over the course of a few days. Change your dog's food gradually, substituting increasing amounts of the new food for equal amounts of the old food until the dog is eating only the new food. If you see any signs of gastric distress (vomiting, diarrhea, constipation, which may indicate your dog is allergic to one of the ingredients you have chosen) or if your dog refuses to eat the new food, you'll need to choose different ingredients.

The length of time that you feed the initial diet (of just one protein and one carb), and how long you should wait before introducing a new ingredient, will depend on how your dog's allergies are expressed. Dogs whose primary allergy

symptoms include diarrhea, vomiting, and gas will respond (for better or worse) relatively quickly after dietary changes are made.

However, if the dog's primary symptom is itching, it can take a lot longer for the problem to subside after the "trigger" food is removed from his diet. It may also take longer for him to start itching again when a problematic ingredient is added back into the diet.

"For food-allergic dogs whose symptoms are gastrointestinal, you only have to do the 'diet trial' for two weeks," Dr. Fatcheric says, adding that it could take as much as 8 to 12 weeks for skin problems to completely clear.

If there is absolutely no change in the dog's symptoms – no reduction in itching or GI problems – you may want to change both the protein source and the carb source and start a new elimination trial.

If a second trial, with all-new ingredients, produces no reduction in the dog's symptoms, it's very likely that the dog's *diet* is not what he's allergic to; he most likely is allergic to something else in his environment.

In contrast, if your dog's symptoms reduce immediately and disappear quickly, you will know that there was something in his most recent diet (before the elimination diet) to which he was allergic.

CHALLENGING

Few owners are willing to take a further step to confirm the link between their dogs' old diet and the dogs' allergy symptoms – a "challenge" phase – but many veterinarians feel this step is necessary. To definitively establish the link between the dog's former diet (or even the single ingredient suspected of being the allergy culprit in the old food), some vets suggest reintroducing the old diet (or the suspect ingredient); if the dog begins to break out in itching or GI distress, the allergen for that dog is decisively confirmed. Quickly return to the diet that your dog did well on, with no allergy symptoms.

COMMERCIAL FOODS FOR ALLERGIC DOGS

Owners who don't feel capable of or willing to carry out a rigorous trial may prefer to try a commercial dog food that has been processed in such a way as to render the proteins hypoallergenic, or one designed specifically for use in an elimination diet. Chances are good that your veterinarian carries at least one of these types of food. Some are limited-ingredient diets, available over the counter; others are prescription diets. All cost around 30 percent more than even the best nonprescription dog foods.



Diets that are described as "low-antigen" are simply limited-ingredient products. These usually contain a single animal protein source and a single carbohydrate source – but they may also contain a lot of other ingredients, any of which your dog could be allergic to. If, after studying your own list of foods and ingredients your dog has eaten while displaying signs of allergy, you are fairly certain that you have identified an

ingredient or ingredients common to all of those foods, you may be able to find and successfully use a limited-ingredient diet that does not contain the suspected ingredients.

"Certainly, if your dog stops itching on a diet containing whitefish and sweet potato, you can just heave a sigh of relief and feed that," Dr. Fatcheric says. Keep in mind, however, that dogs who display an allergy to one food ingredient are prone to developing allergies to other ingredients over time. In other words, the whitefish and potato diet may be a blessing to your dog now, but he may eventually become allergic to whitefish and then you will need to start over with a search for a new "novel" food.



HYDROLYZED PROTEINS

Products made with hydrolyzed protein are a completely different solution.

Hill's Prescription Diet offers perhaps the best-known of these diets, z/d Ultra Canine. "This is a chicken-based diet, but the chicken protein is molecularly hydrolyzed into smaller amino-acid sequences, which the immune system does not recognize as foreign. Therefore, it won't trigger an allergic reaction," Dr. Fatcheric explains. In the dry version of this product, "starch" is first on the ingredient list, with hydrolyzed chicken liver second, and hydrolyzed chicken fourth; in the canned version, hydrolyzed chicken liver is second only to water on the ingredient list.



Purina Veterinary Diets offers two hydrolyzed diets: HA HypoAllergenic Canine Formula, a vegetarian food made with hydrolyzed soy protein (second to starch on the ingredient list), and HA Chicken Flavor, which also contains hydrolyzed soy protein as the second ingredient (starch is first), but adds hydrolyzed chicken liver and hydrolyzed chicken in the eighth and ninth positions on the ingredient list.

Royal Canin makes six dry foods and two wet foods that contain hydrolyzed soy proteins, as well as an "anallergenic" dry food that is made with "hydrolyzed poultry byproducts aggregate" – which turns out to be made from poultry feathers.



Be aware that the ingredients used in these foods look awful compared to products that meet our selection criteria (see "A Dry Discussion," WDJ February 2015, for more information about identifying a top-quality food). They aren't intended for any but the most intractable, severe cases of canine allergy. For dogs who are hypersensitive to a number of ingredients, they may be the only solution that works well, or works at all. This is one of those rare cases when there are very good reasons to feed a diet containing what we would otherwise consider low-quality ingredients.

Some owners stop there – and who can blame them? It’s a pain to employ such scrupulous supervision over your dog’s diet. If you feel confident that the trial and challenge have identified the ingredient that is problematic for your dog, you can start looking for (or formulating) a new, complete and balanced diet that is free of that ingredient.

However, it can be incredibly useful to continue for a few more weeks, to challenge your dog with a few more ingredients (one at a time), in hopes of finding more ingredients that are safe for him to consume. Feed him the trial diet until his allergy symptoms are gone again, and then add one ingredient that you would like to use in his diet in the future. If you are able to add it and he doesn’t react with signs of allergy within two to three weeks, you can put that ingredient on his “safe” list for now. Once you have challenged his system with a few proteins and carbs without an allergic response, you should have enough ingredients on his “safe” list to enable you to buy or build a complete and balanced diet containing those ingredients (and none of the ones that he’s proven to be allergic to).

If you’re lucky, you may be able to find a commercial diet that contains only the ingredients on your dog’s safe list and none of the ones that trigger an allergic reaction in your dog. But if you can’t find such a diet, or want to continue to prepare your dog’s diet at home, Dr. Fatcheric recommends that you “work with a veterinary nutritionist to make sure your diet is balanced and complete.” Another option is to consult with a company like JustFoodForDogs, which will formulate a diet based on your dog’s special needs. (See “Better Choices for Home-Prepared and Special Needs Recipes,” December 2013.)

TIPS TO ENSURE CLEAR RESULTS

Make sure your dog consumes only the “trial” food – even for treats. For training treats, use dried bits of the animal protein you are using in the trial. (See “How to Make High Quality Dehydrated Dog Treats” in the May 2012 issue of WDJ.)

Be sure to check any medications your dog may be on, such as a monthly heartworm preventative, to make sure they have no flavorings. If they do or you’re not sure, ask your veterinarian for an unflavored alternative. It is critical

TRIALS ARE WORTH THE EFFORT

Allergies can literally cause a dog to tear his hair out, setting acute moist dermatitis (“hot spots”) into motion and triggering fits of paw-licking and head-shaking (caused by allergy-induced ear inflammation and infection). When this happens, many owners head to their veterinarians and beg for corticosteroids, antibiotics, pain-relievers, you name it; if it relieves the dog’s agony, they want it.

All of those medicines *can* help a dog who is in acute distress from an allergy attack. But drugs that are prescribed to address the fallout from the symptoms of allergy (scratching and chewing) shouldn’t be considered as *long-term* therapies for any but the most severely allergic dogs. It makes much more sense to try to identify the substances to which the dog is allergic, and then manage the dog’s exposure to those substances, than to continue giving him the food that causes so many problems and then treating those problems.

Most people who are allergic to shellfish avoid eating shellfish; few who have suffered swelling, hives, and itching after eating shellfish continue to eat the food and dose themselves with steroids in order to survive the aftereffects! So why do so many people take that approach with their dogs? We have two guesses: We suspect few veterinarians attempt to explain food-elimination trials to their clients, much less encourage owners to try one, because of the weeks of commitment and attention required. And we’d guess that many owners just want the problem treated *right then*, and when the dog’s itching stops overnight with a steroid, they put it out of their minds, as if the problem was solved.

that you are vigilant about your dog’s diet during this time.

If you have several pets, you’ll need to oversee dinner time to ensure your dog doesn’t eat someone else’s meal. Or put all the dogs in the household on the same diet for the trial period. With an elimination diet, your dog can’t even lick the cat’s bowl clean or gobble down something he finds outside. You’ll need to watch everything he does. This is another time when it’s valuable for your dog to be happy and habituated in a crate for the periods when you can’t supervise him directly.

“I myself would have a hard time being completely compliant for two to three months. No treats (of foods that aren’t part of the diet). No nothing. Be careful in homes with toddlers who drop food on the floor. And watch for well-meaning neighbors or in-laws slipping a treat,” Dr. Fatcheric says.

THE PROOF

A food-elimination trial can be a valuable tool in determining the cause of your dog’s discomfort. But it does take commitment, vigilance, and a little extra cash. It’s well worth the effort, though, if you do it correctly.

If you stick with the restricted-diet

regimen, you should see a reduction in itching by 50 percent or more at the end of the trial. If not, you haven’t eliminated the cause. That means you either need to try another combination, consisting of a new protein and new carbohydrate, or determine that dietary hypersensitivity is not the issue. That’s why it’s so important to involve your veterinarian right from the start.

If the results do prove a dietary cause, you will have been given the key to an itch-free, happy, comfortable dog. You can then either choose a commercial food that contains only those ingredients you used during the elimination trial or consult a veterinary nutritionist to construct a diet that will work for your dog. It’s important that the dog’s diet for the long-term is complete and balanced.

“Diet trials are hard. But the people with food-allergic dogs who successfully complete them potentially have a comfortable, itch-free pet without expensive and potentially harmful medications. It’s worth it, if you can tough it out,” Dr. Fatcheric says. 🐾

Cynthia Foley is an experienced dog agility competitor. Also a lifelong horsewoman, she served as editor of Horse Journal from its inception in 1994 to 2014.

It's in the Blood

All veterinarians agree bloodwork is important, though opinions differ on when your dog would most benefit from these tests.

BY DENISE FLAIM

When it comes to that most primitive part of us, there's nothing as basic as blood. In virtually every culture across the planet, blood represents the stream of life itself. Because its looping path always leads it back to the heart – that great repository of emotion – blood has come to represent all that truly matters to the human spirit: passion, heritage, mortality, atonement, commitment, sacrifice, even our connection to the divine.

And to veterinarians, it's pretty important, too.

Made up of water, proteins, nutrients, and living cells, your dog's blood is a biochemical tapestry, a complex canvas of interwoven values that, taken as a whole, offer a vividly detailed image of her state of health. Virtually every major organ of the body contributes its own threads, as do external things that you control, such as diet.

"Bloodwork" – that overarching term used by medical professions to refer to a

buffet-like spread of blood-based tests and diagnostics – is the way veterinarians deconstruct what the body is doing, through the evidence its various organs and systems leave in the bloodstream. Whether a dog is healthy, ailing, or perhaps just a bit "off," bloodwork often plays a key role in determining her state of health. (Of course, bloodwork is just one diagnostic tool, and a physical exam as well as medical history are also important components in arriving at a diagnosis or wellness plan.)

What is open for debate, depending on your individual dog, is when to do bloodwork, how extensive it should be, and who should do it.

TESTING, TESTING

When a veterinarian recommends doing "bloodwork" on your dog, chances are likely that she is referring to two distinct groups of tests.

The first is a CBC, short for complete blood count. This catchy acronym covers a trio of cellular elements found in the blood: red and white blood cells and platelets. All three have different functions, and provide different information to your veterinarian. Generally speaking, a CBC is useful for uncovering underlying conditions such as infection or anemia, which is a lack of healthy red blood cells.

Red blood cells transport oxygen to the body's cells, exchanging it for carbon dioxide to be carried back to the lungs, where the process begins anew. The CBC examines the levels of hemoglobin, which gives blood its distinctive red color and is responsible for transporting oxygen. Decreased hemoglobin levels might mean a dog has a reduced oxygen capacity – a critical finding if he is to undergo anesthesia. Another important value is hematocrit (also called PCV, or packed cell volume), which measures the amount of space that red blood cells take up in the blood.

When these values are too low, the dog may be anemic, which isn't a disease itself but rather an indicator of an underlying problem, such as poor nutrition, parasites such as hookworms, chronic infection, and even cancer, inflammatory bowel disease or hormonal issues with the thyroid and adrenal glands. Conversely, a high red blood cell count could signal kidney disease, cancer, or an acute condition such as dehydration.

White blood cells are made in the bone marrow, and are involved in battling infection and inflammation.

Blood tests can tell your vet a lot about what's wrong with your dog, but they are also useful for reassuring you that everything is all right!



There are five different types of white blood cells, and abnormal counts in each can mean different things. Levels of eosinophils, for example, are often high if a dog has a parasitic or allergic condition, while a dog with elevated neutrophils – which typically are the first to attack inflammation, and so are among the most common white blood cells – might be dealing with an infection.

The third type of cell found in the blood, platelets, help the blood to clot. When levels are low, the chances of bruising and bleeding are elevated – again, important to know if your dog is about to go under the knife. Low platelet counts can be caused by infectious and immune-mediated diseases, such as tick-borne diseases like ehrlichiosis, as well as use of certain drugs.

The second group of tests your veterinarian might order is often called a blood chemistry, or metabolic panel. This battery of tests – more than two dozen of them, if your vet checks off all the boxes – assesses the function of important organs like the heart, liver, adrenal glands, and kidneys by measuring fats, proteins, sugar, electrolytes (potassium, magnesium, sodium, and calcium), and enzymes, which provide information about organ function.

A common blood-chemistry value that owners often hear about is BUN, or blood urea nitrogen test, which measures how well the kidneys filter waste. Along with creatinine (another waste product produced by the kidneys), BUN gives a picture of renal health. High BUN levels may indicate incomplete absorption of proteins from the bowel at time of collection, a raw diet, or kidney disease, which is serious, if the creatinine is also elevated, or they could be a sign of something as potentially reversible as dehydration.

SAFE, NOT SORRY

Bloodwork isn't just a good idea for dogs who are unwell and in need of diagnosis. They are also important for healthy dogs – particularly before a surgical procedure. Most veterinarians insist on pre-surgical blood tests out of concern for possible complications from anesthesia.

“Bloodwork before surgery is absolutely needed,” regardless of a dog's age or health status, says W. Jean Dodds, DVM, founder of Hemopet, the first nonprofit national blood bank program for animals. “The number of cases where this was not done and a significant subclinical

problem was missed is relatively large. About 50 percent of dogs in published studies have lab-test abnormalities on routine screening.”

Dogs who have abnormal results can have their surgery rescheduled if it is an elective one so the problem can be addressed. Or the veterinarian might opt to go ahead, but handle some aspects of the procedure differently – perhaps using sedation with a local anesthetic instead of general anesthesia, or administering intravenous fluids before surgery.

Owners may of course opt to forego pre-surgical bloodwork for their dogs; at the end of the day, you are your dog's advocate, and have the final say about his care. Just remember that increasingly, some vets have made pre-surgical testing mandatory because of the risk of a subclinical condition that can't be otherwise detected. And if there is the possibility of a hidden complication that could compromise your dog's health, isn't it worth the investment to find out?

FIRST BLOOD

If your dog has a healthy and medically uneventful puppyhood, the first time bloodwork will be done is likely before spaying or neutering, typically as a juvenile or young adult.

When it comes to pre-surgical bloodwork in this scenario, “the main goal is to look for subclinical, or hidden, congenital liver or kidney problems,” says Julie Meadows, DVM, a clinical professor of primary care at the University of California's School of Veterinary Medicine at Davis. Ensuring that the liver and kidneys are not compromised is crucial, because those organs do the heavy lifting in clearing anesthesia-related toxins from the body.

A partial panel for a healthy young dog like this might include BUN and creatinine, to gauge kidney function; ALT (Alanine aminotransferase, an enzyme that becomes elevated with liver disease), and total protein, which can signal hydration as well as liver and kidney function. In addition, Dr. Meadows says, many vets might also include PCV, or packed cell volume, “to assess the red blood cell count and screen for anemia.”

While many owners might never think of running bloodwork on dogs this young, Dr. Meadows underscores the importance of having some key values – “the biggies” – on board before putting the dog under. But there *is* such a thing

as overkill. For a well-dog visit, “I would not expect a general practitioner to do a complete chemical panel and complete urinalysis,” she adds. “Those are things we do when an animal is sick.”

BASELINE

Most vets agree about the importance of pre-surgical bloodwork, and of establishing baseline blood values while a dog is healthy, so that later changes, if they happen, can be analyzed in context. But when it comes to determining when to get that baseline, and how often to check bloodwork throughout a dog's lifetime, veterinary opinions vary.

In Dr. Dodds' opinion, “for healthy dogs, an annual wellness physical exam and full laboratory testing are important. If the dog has any chronic low-grade or other condition, even in remission, testing every six months is wise.” And dogs who have been put on new, long-term medication, especially drugs that can tax the liver and kidneys, such as nonsteroidal anti-inflammatories like Rimadyl and Deramaxx, will need periodic bloodwork to ensure their bodies are processing them properly.

Because there are so many blood values to choose from, some veterinarians may order a partial blood panel, which Dr. Dodds says is typically “just a few of the serum chemistries, without electrolytes, and without amylase and lipase to assess pancreatic function.” She personally does not recommend partial panels, as she believes leaving out potentially important values in the chemical analysis can be “misleading.”

Dr. Dodds feels the following are critical for understanding a dog's state of health: a CBC, complete serum chemistries, thyroid profile (a minimum T4 and freeT4 values, with TgAA added for breeds known to be at risk for autoimmune thyroiditis), and urinalysis. She adds that in an initial workup, the pancreatic enzymes (amylase and lipase) should always be run.

In an otherwise healthy dog, Dr. Meadows believes middle age – around five, six, or seven years old – is an ideal time to do a baseline CBC and chemistry panel, as well as a urinalysis.

“We aren't expecting things to be wrong” at this age, she says. “If we do that lab work, we're saying, ‘This is where the lab work ought to be at this age.’”

Similarly, there is by no means consensus about the age at which to consider

a dog “geriatric.” Dr. Meadows uses 10 as a ballpark, but acknowledges that others’ mileage may vary. (And in some giant breeds, which tend to be shorter lived, senior-citizen status starts much earlier.)

In contrast to the mid-life baseline, bloodwork for a senior dog is “where we’re expecting lab values to start to change,” Dr. Meadows says. As for frequency, “it’s sometimes helpful to have a rate of change,” so that your veterinarian can track progress more accurately.

Once a dog hits his golden years, many veterinarians recommend annual bloodwork, in order to pick up problems early and try to address them before they begin to snowball. “With true senior screening lab work, we’re looking for things, and expecting to find them, because we want to intervene and slow things, and prevent a crisis,” Dr. Meadows explains.

This allows veterinarians to practice preventive medicine, she continues. “The glory of preventive health care is it gives a better outcome over time. If a dog’s liver numbers are perpetually trending up, I’d want to touch base with the family about what our options are, and how proactive they want to be with microinterventions to try to slow the progress of disease.”

IN-HOUSE OR OUT?

Most all veterinary practices have a national diagnostic laboratory, such as Idexx or Antech, to which they send their blood samples. But most veterinary practices also have the ability to do in-house lab work.

The decision on whether to go “in” or “out” is basically “a question of the economics,” Dr. Meadows says. For example, if a veterinarian really only wants to run BUN and creatinine levels, it might be far more economical to send the blood sample out than to run it in house.

Also, the capacities of in-house testing units will differ from practice to practice. And a veterinarian’s decisions will vary from patient to patient. “On a sick animal, you might want results on the same day,” she explains. “But if I need to know what your electrolytes are, and I don’t have that capacity in my practice, I might do part of the blood work in house, and part out. There are all these variables that go into it.”

For her part, Dr. Dodds feels that in-house tests “should be reserved for a quick look at the animal. They don’t look at amylase and lipase, for example,

and provide only basic CBC differential assessment.” By contrast, she thinks “reference vet lab testing is more comprehensive and reliable,” with the added benefit of getting a professional review of the results from the laboratory.

VIVA LA DIFFERENCE

Dogs are individuals, and there may be valid reasons why their bloodwork might fall outside the range of normal, and still be perfectly fine.

For starters, “there are going to be breed differences,” says Dr. Meadows, offering sighthounds as an example. With their aerodynamic builds and low fat reserves, speedsters like Greyhounds and Salukis often have thyroid levels that are lower than other breeds. A primer that Dr. Meadows and many veterinarians refer to for breed-specific issues is *Veterinary Medical Guide to Dog and Cat Breeds* by Jerold S. Bell, DVM, and Kathleen Cavanagh, DVM, BSc.

Dr. Dodds echoes the importance of understanding bloodwork values in light of breed, noting that Japanese breeds such as Akitas and Shiba Inu can have high serum-potassium levels. “That’s normal for them, as their red blood cell membrane sodium potassium pump is different and leaks potassium into the serum,” she explains.

Age is another variable in test results. For example, “for thyroid testing, young dogs – puppies and adolescents – should have higher levels and older dogs – 10 or above – lower levels,” Dr. Dodds explains. The testing laboratories don’t provide reference ranges for thyroid levels of dogs based on breed type or age; they provide the same listed ranges for *all* dogs, which, Dr. Dodds says, “is obviously misleading and can be just wrong.”

Diet can also impact test results. “Raw-fed dogs can have several lab values that differ from those fed cereal kibbles – for example, BUN and red blood cell

parameters,” she continues. “The BUN can be high with a normal creatinine if the animal is still digesting and clearing urea protein nitrogen from the bowel – this is often misread by vet clinics as indicating renal disease. In young dogs, the lymphocyte counts are higher and total protein lower.”

If your dog is raw-fed, be sure to inform or remind your vet before any bloodwork is done, especially before a surgical procedure. Don’t assume that she will know about this differential regarding raw-fed dogs; otherwise, you might find that you’re incurring costs for pre-surgical hydration, or cancellation of the surgery altogether, because your vet is unduly concerned.

Finally, says Dr. Dodds, drawing blood after an overnight fast (no food or water after midnight) is preferable. “If a dog takes medications, like thyroxine, testing should be four to six hours post-pill. For other medications like anticonvulsants, it may not matter but should still be stated on the test submission form.”

A dog’s diurnal rhythm peaks around 2 p.m., Dr. Dodds says, so try to schedule routine testing in the morning or midday. “At least have it be around the same time of day each time, to compare apples to apples and not oranges.”

WORTH THE INVESTMENT

If you’re bringing your dog into the vet for a “routine” procedure such as a dental cleaning or spay or neuter, that line item on the bill estimate for pre-surgical bloodwork may seem like an expendable one. Ditto for your vet’s request to do bloodwork during your dog’s annual wellness exam, even if she is the picture of health.

Of course, in the end, the decision is yours. And it is possible to take things too far, like running test after test to run down one errant, “off” chemistry value when the dog is otherwise healthy and happy. But be sure to keep in mind the fact that bloodwork can be very valuable as a bellwether for problems that might be invariably coming down the pike. And if the outcome is no problems at all, then you hang up the phone with that most valuable commodity of all: peace of mind. 🐾

Denise Flaim of Revodana Ridgebacks in Long Island, New York, shares her home with three Ridgebacks, 11-year-old triplets, and a very patient husband.



YOU'VE GOT CHEMISTRY

Here are some of the values you might find on your dog's chemistry panel, or "chem screen," and what they may indicate.

ALBUMIN (ALB)

Low levels of this liver-produced protein can point to chronic liver or kidney disorders, gastrointestinal problems such as inflammatory bowel disease or parasitic infection. Elevated values can mean dehydration.

ALANINE AMINOTRANSFERASE (ALT)

The level of this enzyme often rises when the dog has liver and bile-duct disease.

ALKALINE PHOSPHATASE (ALKP)

Produced by the liver, this enzyme can be elevated as a result of liver disease, Cushing's syndrome or steroid therapy. Mildly elevated levels can be normal in puppies.

AMYLASE (AMYL)

The pancreas produces this enzyme to help in digestion. High levels can indicate pancreatitis, or inflammation of the pancreas.

BLOOD UREA NITROGEN (BUN)

Urea nitrogen is a waste product created by the liver and excreted by the kidneys. High levels might indicate kidney abnormalities or dehydration, while low levels can signal liver disease. Often compared with creatinine levels (see below).

CALCIUM (CA+2)

Increased levels of this mineral can signal disease of the parathyroid or kidney, or certain kinds of tumors.

CHOLESTEROL (CHOL)

Elevated levels of cholesterol can be symptomatic of a number of disorders, including hypothyroidism and liver and kidney disease.

CREATININE (CREA)

Like BUN, with which it is often assessed, creatinine is excreted by the kidneys. High levels can point to dehydration, kidney disease, or obstruction of the urinary tract.

BLOOD GLUCOSE (GLU)

High levels can mean a dog is simply stressed, but they can also be a symptom of diabetes. Low levels can be an indicator of hypoglycemia, liver disease, and some types of tumors.

LIPASE (LIP)

Released by the pancreas into the small intestine, this enzyme helps the body absorb fat. Elevated levels can indicate problems with the pancreas, liver or kidneys, as well as digestive-tract obstructions.



PHOSPHORUS (PHOS)

Most of a dog's phosphorus stores are in her bones, but a small amount circulates in the blood. High levels can indicate kidney failure, or the ingestion of a toxin like antifreeze.

TOTAL BILIRUBIN (TBIL)

Secreted by the liver into the intestinal tract, bilirubin is responsible for the yellow color found in bruises, urine and, and its name suggests, bile. Abnormally high levels can mean liver disease or bile-duct problems, and help diagnose anemia.

TOTAL PROTEIN (TP)

Another value that can point to several issues if elevated, including dehydration or diseases of the liver, kidney or intestines.

ELECTROLYTES (SODIUM, POTASSIUM, CHLORIDE)

These electrically charged minerals in your body are involved in regulating many important processes, including blood acidity (pH), muscle function and body hydration. Because electrolytes are so integral to cell function, imbalances can be life threatening.

Electrolyte tests are important in evaluating vomiting, diarrhea, dehydration, and cardiac symptoms, and they can tell a vet what kinds of fluids to use with a sick patient, and if any kind of electrolyte supplementation is needed. They can also add important diagnostic clues for some chronic diseases: For example, dogs with Addison's syndrome (hypoadrenocorticism) often have low sodium levels (hyponatremia).

GAMMA GLOBULIN

Immune gamma globulins, also called immunoglobins, are antibodies that help fight bacterial and viral infections, cancer or parasites. Elevated levels can indicate that the body is mounting such a defense, while low levels could reflect a compromised immune system.

T4, FT4 AND TGAA

The T4 test measures the levels of circulating thyroid hormone in the body. For a true picture of thyroid function, however, FreeT4 (which measures the amount of T4 available to cells and tissues) and TgAA (thyroglobulin autoantibodies, high levels of which can mean immune-mediated thyroid disease) should be run. Dr. Dodds calls T4 by itself "basically useless."

High-Tech Dogs

A recent conference unites professional trainers, scientists, inventors, and dog owners – and sparks further K9 technology investigation.

BY BARBARA DOBBINS

My Border Collie Duncan solves all 10 of his interactive puzzles within five minutes; it takes me longer than that to fill them with treats! So when CleverPet announced its Kickstarter campaign for the development of a next-generation pet-learning console, I signed right up. Thirteen-year-old Duncan has pretty severe arthritis so I'm constantly searching for low-activity ways to engage him. This eagerly anticipated device features three durable yet sensitive touch pads that interactively light up and are designed to be touched by a dog's nose or paw, triggering food to be dispensed. CleverPet adjusts learning levels based on your dog's performance, which can be monitored through the website and an app-based program.

CleverPet, along with several other dog-related device makers and four speakers presenting on the intersection of animals and technology, were featured at the first-ever Pet Technology Conference, hosted by Smart Animal Training Systems and held at the Humane Society of Silicon Valley in Milpitas, California, in early November of last year. From the first speaker, I had a blast learning about the wide range of ways that dog lovers and scientists are using technological innovations to advance our understanding of and cooperation with dogs.

TECH IN CLIENT TRAINING

Ethologist, trainer, and behaviorist Jennifer Cattet started off the first day's discussions with a look at how technology can help dog trainers help

their clients learn. Cattet emphasized that dog training is at heart a "people" job; she emphasized that trainers need to be aware that clients arrive with their own value systems and preconceptions, are emotionally involved and concerned with their pets, may react emotionally and become defensive when their beliefs are challenged, tend to be task-oriented, and want fast results.

Cattet has found success in addressing these considerations with technology. She uses videotaping and apps such as the Coach's Eye while clients work with their dogs, in order to allow clients to review the session and observe their dog and themselves, giving themselves a very different perspective of the training session. By engaging the client in this way, the teaching dynamic changes, the client becomes part of the solution, and

technology enhances the relationship between the client and her dog.

Jean Donaldson, founder of The Academy for Dog Trainers, which was operated at the San

Francisco SPCA for 10 years, was the next speaker and is another enthusiastic adopter of technology in education. Acknowledging that dog trainers have a high rate of burnout, she recently re-envisioned her dog-training Academy in the form of a two-year e-learning program; the new technology-based approach has expanded the scope and content of the course.

Now an on-line certificate program, The Academy for Dog Trainers has an expansive curriculum that includes the latest research in behavior and training taught through lectures, modules, practica, assignments, quizzes, exams, webinars, case mentoring, discussion, and support.

The course is implemented through Articulate, a hosted e-learning service that allows the creation of educational content and delivery, enabling students to self-pace lectures and interact with different platforms and programs. This is supplemented with the use of other technology such as videos, Moodle (an open-source education platform), Adobe Connect, Vimeo Pro, and extensive on-line archives. This format for education allows students from all over the world to participate and is proving to be a good fit for teaching trainers who, due to the very nature of the business, tend to work in isolation.

TECH FOR TREATING SEPARATION ANXIETY (SA)

The phrase "separation anxiety" strikes a chord of fear in every dog trainer I know. But when a good friend came to me recently about this very problem with her dog, I immediately knew who to refer her to: another speaker at the conference, Malena DeMartini, who discussed how technology has been a game-changer for treating SA. DeMartini works strictly through technology; in fact, she never meets with her clients in person. While DeMartini does miss the in-person connection, she firmly believes that the use of technology is integral to the treatment of SA.

DeMartini explained how her "intake" process begins with an initial consult via phone or Skype. She asks the same questions any trainer would during an in-person interview and reviews the dog's symptoms and case specifics. In lieu of touring the client's home (where the dog has been displaying SA), she has her clients take her on a virtual tour of



the home via a smart device or laptop. This remote consult functions well, since the presence of a trainer can change the dynamics of the environment and result in an inaccurate assessment.

The training sessions are also conducted through smart devices, laptops, and cameras that not only allow DeMartini and her client to communicate in real-time, but also provide the ability to observe and study the dog's behavior (DeMartini uses FaceTime, Skype, and Google Hangout). The use of multiple cameras allows her to guide clients through an absence protocol via phone or computer while observing the dog's behavior in real time, and frequent observation allows for flexibility in treatment.

The technology removes much of the guesswork about what the dog is doing when alone, and because the viewing is done remotely, the dog is not aware of the trainer's presence. Furthermore, technology has virtually eliminated so many of the client compliance issues of the past. DeMartini says the benefits of this approach include:

- More accurate assessments
- More convenient and thus more frequent reassessments
- More support for the client
- Potential savings to client because travel fees have been eliminated
- Increased client motivation due to the frequency of sessions and the resulting coaching, encouragement, and cheerleading

Thanks to technology, DeMartini has created a protocol for SA treatment that has greater efficiency and success.

TECH IMPROVES BONDS

While all of the conference speakers shared their experiences of how humans can use technology to support working with or training dogs, Dr. David Roberts, professor of Computer Science at North Carolina State University, talked about improving the bond between people and dogs through the use of computer-mediated interaction. Inspired by a dream he had about developing some form of technology to put in between the dog and the human to help communication between

the species to be more effective, he and his team members embarked on developing the Smart Harness (see the harness in this National Science Foundation video here: tinyurl.com/smartharness).

The team focused on developing a system that can help decode canine postures and body language and then interpret it in a form that humans can better understand. The platform, a harness that fits comfortably on the dog, contains a suite of technology with dual communication functions. The first allows humans to communicate with the dog through speakers and haptics (vibrating motors).

The second provides feedback to the handlers through the use of harness-mounted physiological sensors, which monitor the dog's heart rate and body temperature and detect his posture and behavior, thus enabling handlers to assess the dog's physical condition and characterize his emotional and mental states.

The Smart Harness can be customized depending on the specific application, such as adding environmental sensors for search and rescue applications that can detect environmental hazards such as gas leaks, as well as cameras and microphones for collecting additional data. The team is especially interested in addressing ways to mitigate stress in service dogs, particularly because working dogs are bred and trained not to display signs of stress and stress is one of the main reasons these dogs are often retired early.

Dr. Roberts is also involved with the Canine Instruction with Instrumented Gadgets Administering Rewards (CIIGAR) Lab at NCSU. Devoted to canine research, the lab staff use artificial intelligence, machine learning, human/computer interaction, cognitive neuroscience, social psychology, and behavioral psychology to help humans and dogs better understand each other.

Roberts admits that if there's a dog around, he has a difficult time focusing on anything else; he credits the connection that he feels with his dog when training to be the biggest reason he's

doing this type of work. "It's never going to replace the human interaction with our dogs, but what it can do is help us interact with them in new ways," Roberts says.

PRODUCTS READY FOR USE NOW

In between presentations, the conference attendees had the opportunity to view a few technology-based dog products.

■ IFETCH

Ideal for the ball-obsessed dog, this automatic ball launcher designed for smaller dogs launched a ball across the conference room. With a little bit of training, a dog can learn how to play fetch with his robotic buddy as well as decide when and how long he wants to play. The company hinted that it's working on a new model to accommodate larger balls so the big dogs can play, too. See goifetch.com or call (512) 219-3271 for more information.

■ PET TUTOR™

The symposium sponsor, Smart Animal Training Systems, demonstrated its Pet Tutor™ through live demonstrations and examples of remote dog training. The Pet Tutor is a smart multipurpose feeder that can be triggered via remote or programmed to feed automatically at set times. It quietly dispenses only one to a few pieces of kibble at a time, so



You can reward your dog at a distance with the remote control, or program the Pet Tutor™ to dispense food to your dog throughout the day.

eating takes longer and becomes a fun and engaging experience.

The device also offers new and unique ways to support behavior-modification protocols for issues such as barking and separation anxiety. See smartanimaltraining.com (the company does not list a phone contact).

BEYOND THE CONFERENCE

While this conference was the first of its kind, the use of technology in association with our canine companions is not all that new. My dog has been microchipped for 13 years. I use a lighted leash when we walk in the dark. My veterinary hospital offers the latest diagnostics and treatment equipment from MRIs to CT scans to ultrasounds to lasers to electrochemotherapy.

What *is* new are the ways in which we now apply technology to the way we work, train, play, live, and communicate with our canine companions. As a culture, we are obsessed with technology and with our dogs, so it is only fitting that we are drawn to a combination of the two. The abundance of ever-smaller components created for the smart-device industry has allowed technology-based pet-friendly devices to proliferate at an unbelievable rate.

The following are some of the other high-tech pet products or innovations I've been impressed by that are on the market or in development today.

■ TREAT & TRAIN®

Sophia Yin, DVM, a pioneer in the field of merging technology with dog training, introduced a product that is similar to the PetTutor mentioned above – 10 years ago! Dr. Yin's product was called the Treat & Train Dog Training System. Dr. Yin sold the rights to market the product to Sharper Image, who changed the product's name to the Manners Minder™ Remote Reward Training System; it has since reverted to the name Treat & Train and is available through drsophiayin.com.



■ AUTOTRAINER™

The category of automatic reward-based training devices also includes PetSafe's AutoTrainer, developed by Dr.

Ian Dunbar and Dr. John Watson. This training aid was created to help eliminate problem barking and help calm dogs when their owners are away. A base unit dispenses kibble or treats and records the dog's bark history; a collar transmits the dog's barks to the base unit. The AutoTrainer uses the method of shaping behavior to decrease barking by marking and rewarding the dog for increasingly longer periods of quiet. Behavior that gets rewarded tends to get repeated. See petsafe.net or call (866) 738-4379.

■ GOPRO FETCH

Want to see things from your dog's perspective? Try GoPro's Fetch, a dog harness/camera mount featuring two mounting-location options and compatibility with all GoPro adventure cameras for capturing your dog's eye view with a video recording. If you want your pet to become a photographer, look at one of the many pet camera collars that take still photographs at set intervals. See gopro.com or call (888) 600-4659.

■ ICPOOCH

You can turn to a number of devices to help you interact with your pet while you're away. The concept for iCPooch, a device that allows pet owners to interact with their pets from anywhere, was developed by a 12-year-old girl in association with her 8th-grade school project to stay in touch with her Golden Retriever. iCPooch utilizes technology to enable remote communication (two-way video, with the tablet required, not provided) and treat dispensing (via tablet or smart phone). You can check in on your pet at any time from anywhere (that is, provided your pet is near the unit). See icpooch.com for more information.

■ PETZICONNECT

The PetziConnect enables you to audio chat with your pet (as far as that is possible) and provide treats via smart device. The device has its roots in a popular Indiegogo crowd-funding launch that saw the company raise 265 percent of its needed start-up cash; dog owners are eager to receive and start using these interactive devices. It has the added options to take video and photos of your pets. The PetziConnect requires connectivity directly into an outlet, so placement is not as flexible as some of the other devices. See petzila.com for more information.

■ NO MORE WOOF

To further explore communication with dogs, the Nordic Society for Invention and Discovery, a small Scandinavian research lab, announced their plans to develop No More Woof, a device with sensors that is placed on a dog's head to pick up EEG signals from the dog's brain and attempt to translate this activity into human language.

The device utilizes microtechnology, special brain-computer interface software, and EEG sensing to translate thought-pattern recognition into message such as "I'm tired," "I'm curious," or "I'm excited." On the surface, the product appears to be a technology-based way of supporting what many of us already understand our dogs to be telling us, but advanced development could prove interesting. It's extremely complicated to understand the canine brain and thought processes, as recent brain-mapping research with dogs undergoing MRIs has shown.

VETERINARY TECHNOLOGY

Technology abounds in the veterinary field.

■ Most of us are familiar with ultrasounds, CT scans, MRIs, and lasers. Many of us also know that dreadful period of waiting while biopsies come back from the pathology lab after a surgery. Because malignant cells are so difficult to see, researchers at the University of Missouri College of Veterinary Medicine are testing out "cancer goggles" that can help surgeons see the actual cancer cells during the actual time of an operation with the help of a contrasting agent.

Dr. Samuel Achilefu, director at the Optical Radiology Lab and a professor of biomedical engineering at Washington University is the head researcher for this new technology designed for humans and other animals. It is hoped that the use of the goggles will reduce follow-up surgeries as well as decrease some of the anxiety, suffering, and pain on the part of patients (and owners).

■ A few years ago, the USDA-approved **VacciCheck**, a new technology that allows quick and easy titer testing for parvovirus, distemper, and infectious hepatitis using a small blood sample and a testing kit. Within 21 minutes, the test determines whether or not the dog has



VACCICHECK

antibodies to these diseases (indicating the dog has been adequately immunized against the diseases); it also can indicate if the dog might be carrying the disease.

VacciCheck has great potential for use in veterinary offices to prevent over-vaccination; an owner can ask for a blood sample to be taken at the beginning of a wellness exam, and by the end, the results of the test can help the owner decide whether further vaccination is needed. In larger facilities such as shelters, this technology can be cost-prohibitive and time-consuming for use on a regular basis (most shelters find that vaccinating is less expensive and quicker). However, many shelters use VacciCheck when they have breakouts of one of the diseases, to assist with isolation and preventing the spread of these highly contagious viruses. See vaccicheck.com for more information.

■ Animal Oralectrics plans to introduce a truly innovative canine oral-health tool in the spring of 2015. The product, called **Zumby**, looks like a dog toy but emits micro-current technology (undetectable to the dog) that finds the bacteria in a dog's mouth, above and below the gum line, and destroys the bacteria's cell walls. The technology has been safely used in humans for more than a century.

Zumby is constructed using a super-durable, nontoxic, rubber-like material formulated to withstand strong biters surrounding the rechargeable battery/circuit board unit (which is encased



ANIMAL ORALELECTRICS' ZUMBY

in an even tougher material). Zumby is motion-activated and an LED light blinks when it is on; non-toxic conductive material delivers the micro-current treatment when activated by your dog's saliva. Combating oral bacteria helps to prevent gum and dental disease and thereby contributes to overall health. See oralectrics.com for more information.

■ Three-dimensional printing is revolutionizing the field of custom products, including those for dogs with special needs. Derby, a mixed-breed dog born without fully formed front legs, was recently transformed by **3-D printed prosthetics** designed by his foster owner Tara Anderson. (To watch a video of this amazing transformation, see tinyurl.com/3DDerbylegs.) Anderson, along with her team at 3D Systems, developed a looping prosthetic that suited the high-energy dog; he took off running the first time they were put on him.



■ Because guide-dog harnesses can cause discomfort for dogs working long hours, James Langdon redesigned the guide-dog harness using a 3-D printer. The **Gentle Guider** is contoured to a dog's body using a 3-D scanner and then fabricated with a 3-D printer; it is currently in development in collaboration with the Guide Dogs for the Blind Association in the United Kingdom. The great benefit of 3-D printing is that highly customizable items can be created and produced for individual needs quickly and at affordable costs.

ACADEMIA AND EDUCATION

The emerging discipline of animals and technology has inspired the creation of the Animal-Computer Interaction (ACI) Lab at the Centre for Research in Computing of the Open University, in



Buckinghamshire, UK. Like the CIIGAR Lab, ACI was established to expand the boundaries of interaction design beyond the human species by exploring the interaction between animals and technology, designing technology to support animals in different contexts, and developing user-centered approaches to the design of technology intended for animals.

ACI's collaborative canine projects with partners from academia, industry, and other organizations include smart kennels to improve the welfare of kenneled dogs, biosensing harnesses to monitor welfare of working and companion dogs, wearable systems to support medical-alert dogs, and canine interfaces to support expression of discrimination by cancer-detection dogs.

Impressively, ACI acknowledges the importance of user-centered (from the perspective of the animal) design for animals and strives to ensure that the design of animal-related technology is appropriately informed by the animals' characteristics and requirements. Ideally, dogs will benefit significantly from the support of technology designed from a canine-centered perspective.

LOOKING FORWARD

When I was teaching dog-training classes, I would emphasize to my students that we owed it to our dogs to learn their language in addition to teaching them ours. Much of this new technology can aid us in learning more about our companions, in becoming better communicators with our dogs, and ultimately, creating stronger relationships with them.

In an upcoming issue, I'll discuss the wealth of new high-tech products that can help track and locate dogs (whether they go missing, or have been sent on a mission of some kind for their human companions), as well as products that can monitor their biometrics (including pulse, respiration, and temperature) – exciting stuff. 🐾

Barbara Dobbins, a former dog trainer, writes about dogs and studies canine ethology. She lives in the San Francisco Bay area with her Border Collie, Duncan.

Emergency? Or Not?

Should you race to take your dog to the emergency vet clinic? Knowing the answer can save you a lot of time, money, and heartache.

BY DENISE FLAIM

If you live with and love dogs, chances are at some point you've found yourself at a familiar – and often excruciating – tipping point. “I just noticed (fill-in-the-blank),” you say to yourself. “Should I panic?”

The standard response that everyone gives – and for good reason – is this: When in doubt, see your vet. And of course, you should, if you suspect something is truly amiss. But you can't go running to a medical professional every time you notice something weird, especially if it's more an issue of benign bemusement rather than an out-and-out emergency. Problem is, you don't know what you don't know: Something that may seem really strange could be absolutely nothing, and a seemingly subtle symptom could be a harbinger of something truly disastrous. If only dogs came with an owners' manual – or a customer-care line!

Actually, some sort of do, if you acquire your dog from a reputable breeder or rescue group. Folks who have been “in dogs” for a good length of time often amass a tremendous storehouse of practically gained knowledge, and that can come in *very* handy. And often, “dog people” are willing to share advice with novices, if only to help them sift out the trivialities from the true alarm bells.

I've been on the receiving end of those kinds of phone calls for a number of years, and on occasion I still make them, too. Here are some of the “emergencies”

I've encountered over the years that turned out, happily, to be nothing to worry about. Again, reading about my personal experiences is no substitute for veterinary care, but at the very least you can add it to your storehouse of knowledge. Somewhere down the road, you might just need it.

■ **HERE'S LOOKING AT YOU – OR NOT.** Most people don't know the technical name for the dog's third eyelid (that

would be “nictitating membrane,” in case you're taking notes), much less what it is. But whatever you want to call it, it can be unsettling when you glimpse this milky membrane glide across your dog's eye – usually while she is sleeping, her muscles twitching as she partakes in some somnambulant rabbit-chase. The resulting all-white eyeball can look like a close approximation of demonic possession. No matter what it *seems* like to you, it's usually perfectly normal.

The third eyelid, sometimes colloquially called the “haw,” is a translucent membrane that usually is not visible in dogs. Sometimes an eye injury, such as a scratched cornea, will cause the third eyelid to cover and protect the eye; some ophthalmological conditions, such as cherry eye, can also cause the haw to be visible and prominent. In those situations, a veterinary consult is needed and necessary (though not a middle-of-the-night emergency).

More typically, owners notice the third eyelid when their dog is dreaming, in that middle ground between sound asleep and awake, when her eyes are darting around in dream mode and her eyelids are partially open. It looks a little freaky, but once she stops her slumber, the membrane will slip back where it belongs – out of sight. Here's a video where one dog owner helpfully caught the third eyelid in action while his dog slept: tinyurl.com/thirdeyelid

PHOTO BY MEGAN BROPHY-MCCLEAN



Has your dog been zombified?! No! If his eyes look all white while he's sleeping, it's just that his third eyelid has closed to protect the eye.

■ **RAW EMOTION.** If you've opted to feed your dog a raw-food diet, it's important to remember that a lot of the so-called "norms" for dogs are based on data on kibble-fed dogs. As a result, your mileage can and often will vary.

For example, a 2003 study done by veterinarians W. Jean Dodds and Susan Wynn found that dogs fed raw meat had higher red blood cell and blood urea nitrogen (BUN) levels than dogs fed cereal-based food. If you have a routine blood panel run at a wellness exam, or if your vet has your dog's blood tested as a diagnostic tool, a raw-fed dog's high BUN levels will usually set off the alarm bells, because they can signal compromised kidney function.

Don't assume that your vet knows that higher BUN levels are normal in raw-fed dogs. Several years ago, a friend who bought one of my raw-fed puppies took the dog to be spayed; when Dakota's pre-surgical bloodwork showed an elevated BUN level, a newbie veterinarian at the practice admitted Dakota and put her on fluids. The worried owner called me, and I in turn called the vet, who then pulled the plug on the unnecessary treatment.

■ **HOW DRY I AM.** Another area of undue concern with raw-fed dogs is water consumption. If you are accustomed to living with kibble-fed dogs, a raw-feeder will appear to be a camel by comparison. That's because unlike kibble, which has its moisture content extracted in order to increase its shelf life, raw meat is very well hydrated; raw-fed dogs aren't constantly slurping up water because it hasn't been removed from their food to begin with. I can't tell you how many puppy people have called me over the years, seriously concerned because their new puppy has only taken a cursory sip of water. If the puppy is behaving and playing normally, I tell them, don't worry.

Of course, there are diseases that can cause a dog to reduce her water intake, and any significant change in water consumption should be cause for concern. Fresh water should always be available to your dog.

■ **THE BIRDS AND THE BEES.** I promise I am not making this up: I had one puppy person, a very nice lady, email me in a panic about the severe flea bites on her puppy's belly. A picture is worth a thousand words, and once I reviewed the one she sent me, I responded and told her

she could relax: Those weren't flea bites. They were nipples.

You can laugh, but the reality is that with the prevalence of spaying and neutering, for good or bad we have lost touch with our sense of animals as sexual beings. Since the dogs don't use those "parts," many owners have no idea what is normal or not normal regarding them.

News flash: Male dogs have nipples, just like male humans do, though they not immediately visible, even on short-haired dogs. Unlike male humans, who have only two, boy dogs have multiple pairs. And theirs don't work, either.

Speaking of male dogs, you should know that neutering usually but doesn't always eliminate their ability to achieve what we'll delicately call a state of readiness. Owners who are distraught to see what they think is a penile infection might in fact be seeing the prelude to an erection: If you see a protruding something that resembles a pink lipstick cylinder, that's basically your signal that Buster is very, er, happy. (Or, sometimes, stressed. It depends on the context!)

Wait, there's more. Everybody knows that male dogs are neutered in order to prevent them from procreating, but a surprising number of people don't know that this process involves removing the testicles. After bringing their dog home after the procedure, some owners grow concerned that those dangly bits were never removed, since it appears that they've reappeared. The reality: Post-surgical blood pooling in the scrotum, which is not removed, can make it seem as if the dog still has testicles. Keep an eye out for infection or a break in the wound, and, of course, call your vet if you are concerned.

As to those dogs who were neutered long ago but who seem to have testicles *sometimes*, but not others? When a male dog (neutered or not) has an erection, his owner might notice a pair of hard, egg-shaped lumps under the skin toward the base of his penis. This is actually part of the anatomy of his penis called the "bulbus glandis." Most of the time, these "lumps" can't be seen, but when the penis becomes engorged during arousal (sexual or *any* sort of physiological arousal, including play and stress), the bulbus glandis also becomes swollen and hard, appearing as if somehow the dog regenerated some very firm testicles! Their appearance is normal, temporary, and nothing to worry about.

■ **ADOLESCENT OUCHIES.** Orthopedic problems are always a worry in young dogs, especially in larger breeds that can be prone to hip dysplasia. I've had more than one dog inexplicably come up lame between the ages of six to 12 months, visibly limping on one leg or unable to put weight on it. Often the limp "travels" from one limb to another, and always gets worse with exercise. It looks pretty dramatic, and it's easy to assume that it's something very serious.



Many large breeds dogs may suffer transient lameness in one limb (or several) when they are adolescents. Have your vet check him out, but if the diagnosis is "panosteitis," the odds are good that your dog's symptoms will resolve with time.

In all those cases, though, what I was dealing with was panosteitis – a fancy word for "growing pains." No one knows what causes it, though there are plenty of theories, from high-protein dog food to viral infection to genetics. What everyone agrees on is that while "pano" is painful, eventually the dog outgrows the condition, and returns to normal.

Panosteitis is common in a number of breeds, including Rottweilers, Great Danes, German Shepherds, and my breed, Rhodesian Ridgebacks. When a puppy owner reports that telltale "traveling" limp between six and 12 months of age, I usually suggest administering a baby aspirin (*never, ever* ibuprofen products like Advil, which is toxic to dogs). If it is pano, the aspirin will usually relieve the pain within an hour or so (though it will likely return once the drug wears off).

Since there is no treatment for pano other than tincture of time, this lets the owner know to keep the dog from being too active (good luck with an adolescent!) and to see her vet and ask for some pain-relief medication if the discomfort appears too great.

It's helpful if you know your dog's history, and whether pano "runs" in his family. Again, don't assume that your vet will suspect pano, even if your dog is the "right" age and breed for it. (Google "pano" and "Basset Hound," and you'll find plenty of links where veterinarians suspected – and in some cases, tested and even treated for – everything from elbow dysplasia to cancer.) Radiographs will reveal changes in the bone marrow that are indicative of panosteitis.

■ **NOT-SO-MELLOW YELLOW.** The first time your dog or puppy vomits up a viscous pile of bright-yellow bile, it's

understandably a bit of a shocker. And vomiting shouldn't ever be dismissed out of hand, as it can be a sign of a serious problem. But if your dog is acting otherwise perky and normal, what you're likely seeing is a dog relieving himself of a build up of bile in his empty stomach. When "grazing" outside, dogs sometimes nibble grass, which also promotes bilious vomiting if the dog hasn't had his meal yet.

Since the vomiting is caused by an empty stomach, you can often eliminate it with a simple diet change: Change your dog's feeding schedule, or offer two meals instead of one during the day.

■ **POOP PATROL.** It sounds gross, but making sure your dog's stools are consistent and normal is an important part of monitoring his health.

Quinoa has become popular with owners who feed a home-prepared diet. It appears on my "Don't panic!" list, due to the curled appearance of the cooked germ, which can sometimes pass through a dog intact and easily be mistaken for roundworms in the stool. At least I find out who is really paying attention to their dogs' stool, though! 🐾

Denise Flaim, of Revodana Ridgebacks, lives in Long Island, New York.

TRUE EMERGENCIES

Dogs can be real stoics, and it can be hard to tell if they are in pain or feeling poorly. Your best bet is to pay close attention to your dog when she is healthy – note subtle things, like how she holds her body, the quality of her coat, the vibrancy in her eyes – so you can notice when she's not feeling her best.

Here are some red flags that, depending on the situation, might prompt you to seek out veterinary intervention.

✓ **VOMITING AND DIARRHEA.** Just like the rest of us, dogs can pick up viruses, or eat something that upsets their stomach. Chances are that yours will eventually experience some intestinal disturbance down the line that will clear up just as quickly as it appeared.

That said, vomiting and/or diarrhea can be symptoms of a number of serious conditions, from an infectious disease like parvovirus to an intestinal blockage. Pay close attention to how often your dog is getting sick, and what the vomit or diarrhea looks like – for instance, do you see blood? When in doubt, head to the vet.

✓ **LACK OF APPETITE.** I live with a pack of unrepentant chow hounds. They will countersurf, pre-lick the dishwasher contents, basically sell their souls for even a morsel of something edible. When one of them turns down food, I know something is wrong. Very wrong.

If one of my dogs becomes "inappetent," I watch very closely. Sometimes she truly has eaten something that doesn't agree with her, but if that's the case, within a few hours she'll usually regain her taste for food. If she doesn't within a reasonable period of time – maximum 24 hours, usually half that, depending on her overall appearance and behavior – it's off to the vet we go.

Your dog may be more finicky than mine, and so going off food for a day or two might be less of a red flag for you. As

always, it's about knowing your dog, and what's normal for her.

✓ **HIGH FEVER.** The only way to confirm that your dog has a fever is to take her temperature. Since thermometer chomps make an oral reading way too impractical, you'll have to do this rectally. For obvious reasons, designate a particular thermometer for this purpose. (I write the word "DOGS" in big black-marker letters on the clear plastic housing.)

Normal body temperature for a dog is higher than that of a human – between 101 and 102.5 F. One concern if the temperature begins to creep up beyond that is an infection of some kind. A veterinary exam, very likely followed by bloodwork, is a must.

✓ **PALE GUMS.** We don't often think of it, but a dog's gums are an excellent barometer of his health. They should be a nice shade of pink – think bubble gum.

Look at them now, when your dog is feeling fine, to get a sense of what they should look like. When you press your finger on your dog's gum, it should turn white and then back to pink as the blood refills the tissue. (I'm assuming that your dog is comfortable with this type of handling. If he isn't, don't stress either of you out, but do seek out a trainer to work on getting him to accept simple handling and grooming.)

Gums that look white, gray or purple are a sign that something is wrong.

✓ **LOOKING "OFF."** This is probably the "squishiest" assessment of all, but arguably one of the most important. You live with your dog day in and out, and you know when he's "not acting like himself." It might be something very subtle, like a little mopey-ness in his attitude, or a barely visible hitch in his gait. Don't undersell your instinct: If you think something is wrong, it probably is.

Hump Days

What you can do to stop your dog's annoying humping behavior.

BY PAT MILLER, CBCC-KA, CPDT-KA

Our 13-year-old Pomeranian, Scooter, loves to hump his purple stuffed bear. We find it harmless, so we don't try to stop him, though, honestly, he doesn't get that many opportunities to practice the behavior. His intimate bear-time is limited because our Corgi, Lucy, shreds stuffed animals in the blink of an eye, so Scooter only gets his bear in my training center office when Lucy isn't around, which isn't all that often. But there are many dogs whose mounting behavior is more disturbing – because it embarrasses their humans, offends observers, or worse, distresses the person or other animal who is the unfortunate humpee of the moment.

Scooter's purple bear could care less. Other dogs, and humans who are the target of the behavior, may be intimidated, antagonized, or even injured by the overbearing attentions of a dog dedicated to mounting. I was once on the receiving end of a Boxer's persistent mounting while conducting a behavior assessment at a shelter. This dog was so big and strong that he actually was able to pull me to the floor of the kennel – a frightening and potentially very dangerous situation, had there not been other staff there to rescue me. And I don't get taken down by a dog easily!

NOT ALWAYS ABOUT SEX

Mounting behavior is most commonly *not* about sex. Oh sure, if you have a female in season and an unsterilized male dog mounting her, then yes, it is clearly about reproduction. But in today's polite society, many dogs are spayed and neutered, and unsplayed females in season are usually kept safely at home by her responsible owners.

You may see more mounting at the dog park than anywhere else; many dogs mount other dogs when they are stressed or anxious, and busy dog parks are highly stressful to many dogs.

Still, it's not uncommon to see dogs mounting other dogs, humans, toys, other objects, and even "air-humping" – seemingly having their way with some invisible, imaginary subject. And it's not limited to male dogs; females are also known to engage in mounting behavior.

Like many canine behaviors that we humans find annoying, inconvenient, or embarrassing, mounting is a perfectly normal dog behavior. And like other such annoying, inconvenient, and embarrassing behaviors, it's perfectly reasonable for us to be able to ask our dogs to stop, or

to at least reserve the behavior for times or places that are considered more appropriate by the human family members.

Reproduction aside, the most common cause of mounting behavior is **a response to stress, anxiety, and/or excitement**. A trainer friend of mine tells of a friend coming to visit – a friend who lives far away, visits rarely, and who is well-loved by my trainer friend's dog, a pit bull-mix. Roscoe was so deliriously happy about the friend's visit that he made a full air-humping circuit of the living room before he could settle down enough to greet the guest politely. Our first Pomeranian, Dusty, would mount the sofa cushions if I took the other dogs out and left him inside. The stress of being left behind triggered the cushion-humping.

The stress and excitement of meeting other dogs is a classic cause of mounting, and one of the reasons you are highly likely to see the behavior on display in dog parks. Brief bouts that involve mounting of other dogs in canine social interactions – as long as they don't lead to bloodletting or oppression of the mountee – are acceptable. Mounting of human body parts is not acceptable, nor is mounting that leads to dog fights.

There can also be **underlying medical causes** of canine mounting and masturbation. These can include urinary tract infections, urinary incontinence, and allergies that cause itching of sensitive body parts. In these cases, the dog is merely trying to relieve the discomfort caused by the medical issue.



“Dude, this is just embarrassing . . . and annoying!” Dogs who have practiced this behavior a lot may fixate on a dog of the opposite or the same sex; which part of the dog’s body they hump often doesn’t seem to matter either.

We had an allergy-prone Scottish Terrier who, in the middle of allergy flare-ups, would do push-ups on the living room carpet to scratch his itchy private parts.

Attention-seeking can be yet another reason for mounting. Some dogs have learned that a really good way to get their humans to engage with them is to climb on for a little ride. Remember that for many attention-starved dogs, negative attention (“Bad dog, stop that!”) is still better than no attention at all. And if some humans find the behavior amusing, positively reinforcing it with laughter and encouragement, the behavior is all the more likely to continue.

RX FOR MOUNTING BEHAVIOR

So what do you do if you’d like to stop this behavior? The first step is a trip to your veterinarian to rule out – or treat – any medical conditions that may be causing or exacerbating the behavior.

Meanwhile, do your best to manage your dog’s environment to prevent, or at least minimize, the behavior. If he aggravates other dogs at the dog park, limit his social engagements until the behavior is under control. If he persists in annoying your guests, keep him leashed, crated, behind a baby gate, or in another room when company visits, so he can’t practice the unwanted behavior.

The longer your dog has practiced his mounting behavior, the harder it will be to change. It’s logical that the sooner you intervene in your dog’s unacceptable mounting, the better your chances for behavior modification success.

Neutering is another obvious first step. A 1990 study found a 50 percent improvement in mounting behavior in 60 percent of dogs, and a 90 percent improvement in as many as 40 percent of dogs following castration. (While both male and female dogs may engage in mounting, it is more often a male dog behavior problem than a female one.) A 1976 study determined that within 72 hours of surgery, the bulk of hormones have left the dog’s system. Since mounting is partially a learned behavior as well



as hormone-driven, the extent to which neutering will help will be determined at least in part by how long the dog has been allowed to practice the behavior.

DOG-DOG MOUNTING

You will need to work harder to convince your adult, well-practiced dog than a young, inexperienced pup to quit climbing on other dogs. Additionally, there’s more potential for aggression with a mature dog if the recipient of unwanted attentions objects to being mounted. With both young and mature dogs, you can use time-outs to let your dog know that mounting behavior makes all fun stop. A tab (a short, 4- to 6-inch piece of leash) or a drag-line (a 4- to 6-foot light nylon cord) attached to your dog’s collar can make enforcement of time-outs faster and more effective (and safer) when you have to separate dogs.

Set up your dog for a play date with an understanding friend who has a tolerant dog. Try to find a safely fenced but neutral play yard, so that home team advantage doesn’t play a role. If a neutral yard isn’t available, the friend’s yard is better than your own, and outdoors is definitely preferable to indoors.

When you turn the dogs out together, watch yours closely. It’s a good idea to have some tools on hand to break up a fight, should one occur (see “Break It Up!” December 2002). If there’s no sign

of mounting, let them play. Be ready to intervene if you see the beginning signs of mounting behavior in your dog. This usually occurs as play escalates and arousal increases.

When you see the first glimmerings of mounting behavior, try subtle body-blocking. Every time your dog approaches the other with obvious mounting body postures, step calmly in front of your dog to block him. If you’re particularly coordinated, you may be able to simply lean your body forward or thrust out a hip or knee to send him the message that the fun’s about to stop. This is more likely to work with the younger dog, who is less intense about his intent to mount. Be sure not to intervene if your dog appears to be initiating *appropriate* canine play.

If body blocking doesn’t work, as gently and unobtrusively as possible, grasp the dog’s tab or light line, give a cheerful “Oops!”, then happily announce, “Time out!” and lead your dog to a quiet corner of the play yard. (The “Oops!” is what’s called a “no reward marker – sort of like the opposite of a reward marker such as the click of a clicker. It lets your dog know that the thing he is doing at that moment is *not* going to be rewarded.) Sit with him there until you can tell that his arousal level has diminished, and then release him to return to his playmate. If necessary, have your friend restrain her dog at the same time so he doesn’t come

pestering yours during the time-out.

Keep in mind that the earlier you intervene in the mounting behavior sequence, the more effective the intervention will be, since your dog hasn't had time to get fully engaged in the behavior. It's vitally important that you stay calm and cheerful about the modification program. Yelling at or physically correcting your dog increases the stress level in the environment, making more mounting behavior – and a fight, or aggression toward you – more likely to occur.

With enough time-out repetitions, most dogs will give up the mounting, at least for the time being. With an older dog for whom the habit is well ingrained, you may need to repeat your time-outs with each new play session, and you may need to restrict his playmates to those who won't take offense to his persistently rude behavior.

With a pup or juvenile, the behavior should extinguish fairly easily with repeated time-outs, especially if he is neutered. Just keep an eye out for “spontaneous recovery,” when a behavior you think has been extinguished returns unexpectedly. Quick re-intervention with body blocks or time-outs should put the mounting to rest again.

DOG-HUMAN MOUNTING

This embarrassing behavior is handled much the same way as dog-dog mounting. One difference is that you must educate your guests as to how they should respond if your dog attempts his inappropriate behavior. Another is that some dogs will become aggressive if you physically try to remove them from a human leg or other body part. It works best to set up initial training sessions with dog-savvy friends who agree to be human mounting posts for training purposes, rather than relying on “real” guests to respond promptly and appropriately, at least until your dog starts to get the idea.

For your average, run-of-the-mill human mounting, ask your guests to immediately stand up and walk away if your dog attempts to get too cozy. Explain that it is not sexual behavior, but rather

This spayed female Miniature Schnauzer-mix will hump a stuffed animal if she has an opportunity to do so; she's never done this with people or other dogs.

attention-seeking, and anything they try to do to talk the dog out of it or physically restrain him will only reinforce the behavior and make it worse. You can also use a light line here, to help extricate your friends from your dog's embrace, and to give him that oh-so-useful time out.

If the behavior is too disruptive, you can tether your dog in the room where you are all socializing, so he still gets to be part of the social experience without repeatedly mugging your guests.

If your dog becomes aggressive when thwarted, he should be shut safely away in his crate when company comes. Social hour is not an appropriate time to work on any aggressive behavior; it puts your guests at risk, and prevents all of you from being able to relax and enjoy the occasion.

If your dog becomes growly, snappy, or otherwise dangerous when you try to remove him from a human, you are dealing with serious behavior challenge. You would be wise to work with a qualified, positive reinforcement-based behavior consultant who can help you stay safe while you modify this behavior. The program remains essentially the same – using time-outs to take away the fun every time the behavior happens, but may also involve the use of muzzles, and perhaps pharmaceutical intervention with your veterinarian's assistance, if necessary.

DOG-OBJECT MOUNTING

Dog owners are often surprised to discover that some dogs will masturbate. Our diminutive Dusty, pillager of the

sofa pillows, discovered early in life that if he approaches someone who was sitting with their legs crossed, the person's foot was just the right height for him to stand over a raised human foot and engage in a little self-pleasuring. As soon as we realized what he was doing, we squelched that behavior by removing his opportunity; we'd put both feet on the floor and that was that.

There's really no harm in canine masturbation, as long as the objects used are reasonably appropriate (i.e., dog toys, as opposed to your bed pillows!), and it doesn't become obsessive. Removing an inappropriate object or resorting to cheerful time-outs can redirect the behavior to objects that are more acceptable, such as a stuffed dog toy.

If your dog practices the behavior to the degree that it appears obsessive – a not uncommon problem in zoo animals, but rare in dogs – then you may need some behavior modification help. A behavior is generally considered obsessive when it causes harm to the organism or interferes with his ability to lead a normal life. For example, if your dog is rubbing himself raw on the Berber carpet, or spends 20 hours a day having fun in the bedroom, you're looking at obsessive behavior.

There are behavior modification programs that can help with canine obsessive-compulsive disorders, and they often require pharmaceutical intervention, especially if the obsession is well-developed. (See “Really Obsessed,” September 2010, and “Help for OCD Dogs,” October 2008.)



SAY PLEASE

In addition to specific behavior modification programs for mounting behavior, a “Say Please” program can be an important key to your ultimate success. No, we’re not suggesting you allow your dog to do inappropriate mounting if he says “please” first; a Say Please program requires that he perform a polite behavior, such as “sit,” before he gets any good stuff (like dinner, treats, or petting, or going outside). This helps create structure in his world and reminds him that you are in control of the good stuff. Since a fair amount of mounting has to do with stress, and structure helps reduce stress, “Say Please” is right on target.

SPEAKING OF STRESS...

Because stress is a significant part of mounting behavior, the more stressors you can remove from your dog’s world, the better. See “Stress Signals,” June 2006, for more about recognizing signs of stress in your dog and reducing the stressors in his life.

“Good Manners” classes are also of benefit. The better you and your dog can communicate with each other, the less stressful life is for both of you. If he’s trained to respond promptly to cues, you can use the technique of “asking for an incompatible behavior” to minimize mounting. If you see your dog approaching a guest with a gleam in his eye, your cue to “Go to your place!”

or “Leave it!” will divert him. He can’t “Down” and mount a leg at the same time. Nor can he do pushups on the rug if he is responding to your request to “Sit.”

If you start early and are consistent about reducing your dog’s stress, removing reinforcement for your dog’s inappropriate mounting, and reinforcing alternative/incompatible behaviors, chances are you can succeed in making the embarrassing behavior go away. 🐾

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IN CONTRAST: IS YOUR DOG A FREQUENT VICTIM?

You may have noticed that occasionally a dog comes along who seems to have a “hump me” sign on his back. Particularly obvious at dog parks, where multiple dogs are free to engage unrestrained in assorted behaviors at will, this poor dog is approached time and again by various dogs who are intent on a round of mounting fun. You might also see it in dog training classes where supervised free-play is allowed, and at poorly run doggie daycare centers. What is it about these victim dogs that attracts other dogs to them? And if you happen to own one, what do you do to protect your dog from the unwelcome advances of other dogs?

There doesn’t seem to be much in the way of solid scientific information about why certain dogs are particularly selected as mountees, so we are left with a couple of theories. Perhaps there is something about a victim dog’s behavior that arouses other dogs and encourages mounting.

Is your victim dog particularly appeasing toward and docile in response to the social advances of other dogs? If so, you might try confidence-building exercises with your dog to teach him new body-language skills around other dogs. (See “Be Brave,” WDJ September 2011.) Teach your dog operant behaviors that mimic more assertive body language (lift your head up, stand tall) and cue those behaviors when a dog approaches him with mounting intent.

Is it possible that your dog gives off a scent that is arousing to other dogs? Next time he’s bathed, try a different kind of shampoo and see if that reduces the frequency of these

encounters. Or try giving him a bath before your next off-leash dog encounter and see if that makes a difference.

MANAGEMENT

Regardless of the cause, your job is to always protect your dog. If he stands calmly and stoically while other dogs are inappropriate with him, you might just let him handle it. If, however, you see any signs that he is disturbed by the other dogs’ attentions, you must take action. You can ask other dog owners to remove their dogs (and suggest they read the accompanying article!), but ultimately it’s incumbent upon you to remove your dog from harm’s way – and sooner rather than later, before your dog decides to aggressively protect himself or becomes traumatized by being singled out for this unwanted attention.

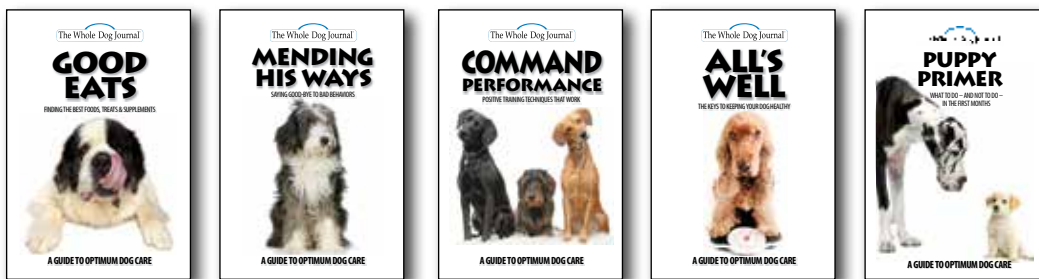
Remember, your dog doesn’t *have* to go to the dog park and he doesn’t *have* to participate in class play. If he *does* have to go to daycare, be sure he attends one that will look out for him and match him with appropriate playmates. You can also invite friends with compatible dogs (those who don’t mount other dogs) over to your own backyard for playdates.

This neutered Mastiff adolescent was singled out as a humping target by two neutered male dogs at the dog park. He didn’t get scared or upset, probably because he was too big to get knocked over or pinned down, but many other young dogs would have been intimidated or defensive.



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