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The Whole



Dog Journal™

A monthly guide to natural dog care and training

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Gut Check

Every sort of digestive problem solved in this issue.

BY NANCY KERNS

There's another foster puppy in my house, but the impulse to foster again is being sorely tested by this one – through no fault of her own. This puppy needed an emergency placement in a foster home because she failed the temperament test required to make it onto the adoption row of a very crowded local shelter. The problem was that she's very undersocialized and shy.

Okay, no problem. My family and even my neighbors are helping me implement a thorough remedial socialization program. And she's responding fantastically, gaining confidence and poise by the hour.

The factor testing my resolve to foster any additional dogs is a health issue. And one that is, I'm told, very common, although I've never had a dog with a case this severe: WORMS.

The last puppy I fostered was given a conventional deworming medication, and passed a hefty amount (it seemed to me) of dead worms in her feces the next day. I repeated the deworming medication three days later, as per the directions, but I didn't see any other worms. The process was gross, but quick.

This (about) five-month-old pup, another mixed-breed, black female, had the telltale signs of worms when she got here a week ago: bits of what looked like white rice stuck to the hair under her tail. Yikes! Into the bath she went. Down her throat went the dewormer.

The next day, though, I didn't see any dead worms in her feces. Nor the next day. On day three, when I was supposed to give her another dose of the dewormer, I saw lots of LIVE, wiggling white things in her stool. This discovery had me squealing and doing a tap-dance of disgust and anxiety as I picked up the infested

poop in a plastic bag. And then washed my already clean hands five times. And then gave the poor pup her second dose of dewormer.

The next evening, I looked down to smile at the puppy's cute pose as she napped, on her back and with all four feet in the air, on the carpet next to my office chair – and I saw more LIVE wriggling worm eggs crawling around her anus. Shriek!

The horror the day after that came when I picked up her water bowl to pour it out and replace it with fresh, and saw several of the rice-grains floating in the bowl.

Writing about this, even a few days later, gives me chills. I'm one of those suggestible people who hears the word "flea" and starts imagining I feel something crawling in my socks or biting in my hair. Having this poor worm-plagued baby around is making me feel infested myself. I swear my stomach is upset – although nothing like her tummy must be!

Well, she's going to the vet tomorrow to be spayed. I'll let him know about her tribulations and ask for something extra-strength. Then I'll go home and shampoo my office carpet (where the pup spends most of her time) and wash her bedding. I've been assiduous about picking up all of her feces, but I still feel like taking a flamethrower to my backyard.

I'm sure I'll get over my imaginary case of worms, as I'm sure the puppy will get over her very real one. But it certainly didn't help that, coincidentally, much of this issue has to do with normal and abnormal digestion. Ugh.

The good news: If owners take our holistic health advisors' advice, their dogs won't have problems like the ones described here or anywhere in this issue. *NK*

MISSION STATEMENT: WDJ's mission is to provide dog guardians with in-depth information on effective holistic healthcare methods and successful nonviolent training. The methods we discuss will endeavor to do no harm to dogs; we do not advocate perpetrating even minor transgressions in the name of "greater good." We intend our articles to enable readers to immediately apply training and healthcare techniques to their own dogs with visible and enjoyable success. All topics should contribute to improving the dog's health and vitality, and deepening the canine/human bond. Above all, we wish to contribute information that will enable consumers to make kind, healthy, and informed decisions about caring for their own dogs.

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Gas Attack!

How to deal with your dog's flatulence – without banishing him for life.

BY GREGORY TILFORD

Borborygmus is not a sun-drenched isle in the Mediterranean. Nor is it an exotic species of houseplant. Borborygmus is the term given to the rumbling-gurgling sound one hears as precursor to flatulence, the expulsion of intestinal gas. Every dog lover is bound to experience their canine pal's flatulence from time to time – some more than others.

This brings us to the latest case in my life. Just minutes ago, Cedar, my Australian Cattle Dog, scored a mouth-watering bite of my bean and cheese burrito. Cedar loves food – any food – and contrary to my better judgment sometimes I will slip him a treat that doesn't quite fit into the scheme of natural canine nutrition.

And someone always pays the price.

Sure enough, a cry of disgust resonates from the other room, "Oh Cedar! What on earth died inside of you!?"

The truth is quite the opposite; nothing has actually died inside of Cedar. In fact, millions of *Clostridia* and other intestinal flora are very much alive and are working overtime to metabolize his treat. The problem is, they are doing a poor job.

Why? Because dogs, being carnivores, do not digest carbohydrates very well. Their bodies are deficient in the digestive enzymes needed to break down the indigestible fiber, oligosaccharides, and other carbohydrates that are contained in my burrito. So, rather than being properly digested, the flour, beans, and cheese of my burrito are fermenting in his intestine, causing the production of hydrogen, methane, carbon dioxide, ammonia, hydrogen sulfide, and other gasses that lead to . . .

Well, you know what.

Fortunately, Cedar's flatulence will be short-lived. He has a cast iron stomach, and

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WHAT YOU CAN DO . . .

- **If your dog seems to *always* have gas, make an appointment for a veterinary examination to rule out serious problems. Chronic flatulence may be a symptom of pancreatic disease, intestinal disease, parasites, or irritable bowel syndrome.**
- **If you haven't already, switch from that bargain-basement food to a high-quality food rich in animal proteins.**
- **Keep track of the ingredients – at least, the major sources of carbohydrates, proteins, and fats – in each food you give your dog, and whether his gas improves or worsens with each. It may be that his problem is with one type of grain.**



Some unfortunate dogs are banished to the outdoors because they produce such volumes of noxious gas – and it's not their fault! Some of these dogs also produce giant volumes of sloppy feces. These are two huge indications that their food is a low-quality, indigestible product. Improving the diet will reduce all malodorous emissions.

he seldom has bad gas. And of course, this bout could have been avoided altogether – but Cedar just loves his occasional bite of a bean and cheese burrito, and who am I to deprive him of a little decadence once in awhile?

Unfortunately, many other dogs seem to always have gas. And sadly, many people accept this as simply the way their dogs are. In fact, some dog owners even punish their companions for having chronic gas – by forcing them to live outside, never go on car rides, or prohibiting them from socializing with human house guests.

This does not have to be. Even the most severe cases of chronic flatulence can usually be corrected.

The bigger picture

It is normal for dogs to have an occasional bout of gas. But it is not normal for flatulence to occur all the time.

Flatulence can be relieved quickly in dogs by use of simethicone, the same anti-foaming drug that is marketed for humans in a variety of over-the-counter preparations. Simethicone is generally accepted as safe for dogs, even in human-sized doses. However, there may be some drawbacks to the use of Gaviscon, Gas-X, or any other simethicone product in your dog.

First, it is important to realize that these remedies can only suppress the symptoms of your dog's digestive problems; they do not represent any real cure, especially for chronic problems.

Also, many of these products also contain antacids drugs, some of which have the ability to alter pH levels in the canine gut. Although generally not a problem in short-term applications, long-term use might lead to some real problems. Dogs must maintain high acid levels in their digestive tracts to efficiently break down foods and to protect their bodies from food-borne pathogens. Remember, all dogs are scavengers at heart, with a nose and palate geared to some very unsavory things. Therefore, their digestive systems are set up to digest food *and* to protect the body from what might be living on that food. In other words, if digestive acid levels are continually reduced by frequent use of antacids, your dog may be at higher risk of bacterial infection – especially if he eats raw meat.

Another reason to reconsider the quick fix of anti-gas drugs is that chronic flatulence may be a symptom of more serious illness, like pancreatic disease, intestinal disease, parasites, or irritable bowel syndrome. To a holistic thinker like myself, symptoms such as flatulence represent the body's effort to correct itself. Symptoms also tell us where to look next for a curative solution, and when they are suppressed, the care provider is deprived of valuable clues that are needed to render effective treatment.

That said, most cases of flatulence are not very serious, and can be effectively treated with changes in diet, adjustments in feeding behavior, and proper exercise. But if your dog's gas is associated with vomiting or chronic diarrhea, or if he exhibits symptoms of pain, a hunched posture, restlessness, or adopts an unusual "praying" position when he lays down, get him to a veterinarian right away, since these symp-



Dogs who bolt their food, gulping in air as they ravenously swallow without chewing, can suffer gas pains, followed by burping or flatulence. Slow down their mealtimes by putting their ration in food-dispensing toys, such as a Kong toy or Premier Pet Products' Twist 'n Treat, shown here. Both are available in pet supply stores.

toms may be signs of bloat or other serious conditions.

Fermentation of poorly digested food material in the intestine is the most common cause of canine flatulence, but other factors may also come into play. Other possible contributors or causes include air gulping during fast or competitive eating, overeating, improper feeding frequency, and lack of exercise or too much rigorous exercise in close proximity to a meal.

Assess and improve the diet

The first thing to consider is the composition and quality of your companion's food.

Dogs do not metabolize carbohydrates as efficiently as we do. This is unfortunate, because many commercial dogs foods are chock full of them, especially the bargain-basement brands that contain mostly low-quality grains and grain by-products. These contribute more to canine gas and indigestion than to canine nutrition.

Take a close look at the labels of the products you are feeding. If corn, soy, grain hulls, several grain meals, or any kind of sugar are listed in the first few ingredients, then you may have already found an answer to your dog's gas problems; switch to a better-quality food!

Poor quality meat ingredients can also contribute to the issue. Be wary of any meat by-products or generic meat meals – those

not listed as being sourced from a specific species (i.e., chicken meal, beef meal, etc.).

If you already feed good quality commercial food or a home-prepared diet, make it as digestible as possible by **adding a digestive enzyme supplement** to each meal. This will aid the breakdown of food and optimize waste elimination. Be sure that the supplement you purchase contains a variety of enzymes that serve in the digestion of various starches, fiber, and carbohydrates (examples include cellulase, hemicellulase, alpha amylase, beta amylase, and bromelain). Of course, your dog also needs enzymes for protein digestion (e.g. protease) and fat digestion (e.g., lipase; pancreatin). All of these are components of a good digestive enzyme product.

Probiotics (beneficial bacteria), such as bifidus and acidophilus, can be beneficial too, as these little beasts will further aid with digestion and reduction of fermentation. Follow the manufacturers directions for feeding.

Assess your feeding schedule

When dealing with a chronic farter, do not free feed. Whether you choose to feed your companion once, twice, or several times daily, it is best not to leave food on the floor all of the time. Allow at least a few hours between feeding to allow complete digestion of each meal. This by itself has "cured"

many cases of chronic canine flatulence!

Moderate your dog's exercise immediately before and after he eats. Too much panting, jumping, running, and playing with a full tummy can lead to bloating and flatulence.

Also, if your **dog tends to compete with other dogs for his food** he may be eating too fast. Cedar has this problem. If Willow (or even the cat) is nearby, he practically inhales his food without chewing it. This often leads to bloating, indigestion, and you guessed it! GAS.

If your dog is prone to such behavior, put her into a "safe," noncompetitive environment when she eats. Or load her food into some Kong toys or other safe chew toy – the kind that requires the dog to lick and chew for an extended period to extract the food.

Exercise and love

Healthy exercise and lots of lovin' are integral components of your dog's health and happiness, and of good digestion.

Regular exercise serves to stimulate metabolism and promote elimination of stool. It also helps to expel gas. Just remember – take it easy immediately before and after meals.

Play and other quality time with your dog are also very important. High-spirited, hyperactive individuals, jumpy-nervous types, fear-aggressive dogs, or those who have suffered emotional trauma are often prone to eating disorders and digestive problems. Just like many humans, dogs will sometimes manifest their nervousness and emotional distress in the form of digestive upset.

Above all else, these dogs need extra love and attention, and added levels of understanding from their guardians. I encourage you to find some extra time to better understand his troubled world. There are several excellent books out there on the subject of dog behavior; read them, and learn to look into his world to better understand "why he is" and where he is coming from. You might find that a lot more comes out of your efforts than simple relief from flatulence!

Herbs to the rescue

Several safe and accessible herbs come to mind for effective relief of flatulence and indigestion. But before I mention any of them I want you to remember this: All these herbs do is relieve symptoms. They do not represent a silver-bullet solution.

Think holistically. Even if herbs do an amazing job at relieving your pup's gas symptoms, you should always be looking deeper into the issue, especially if his problem is a recurrent one.

With that golden rule of holistic herbal medicine in mind, here are my favorite carminative herbs for use in gassy dogs:

At the top of my list is **fennel seed** (*Foeniculum vulgare*). Fennel has been used for hundreds of years as a reliable anti-gas and colic remedy in humans and animals alike. The seed contains an assortment of volatile oil constituents that combine to provide antispasmodic and antifoaming activities to the gut, and it does this without compromising normal acid concentrations or flora populations in the digestive tract.

Fennel seed is safe enough to give to dogs of any size. Grind the seeds with a coffee grinder or a mortar and pestle and serve 1 level teaspoon with as little food or broth as possible. Better yet, make a tea, by covering 1 tablespoon of the ground seeds with 8 oz of boiling water. Allow to steep until completely cooled, then squirt or spoon 1/2 to 1 teaspoon of the infusion directly into the dog's mouth. If that is not possible, add the tea to a very small amount of food.

An alcohol-free, glycerin-based tincture of fennel can very effective, too, and adds the advantage of easy administration; glycerin is very sweet. Squirt 1/2 to 1 ml (about 1/4 to 1/2 of a pipette dropper) directly into the mouth, whenever needed.

Don't have any fennel seed? Then search the spice cabinet for any one of the following alternate choices: **dill seed, anise seed, caraway seed, chamomile, catnip, or peppermint.** All of these herbs have carminative (gas-relieving) properties, and can be used by the same methods and formulas.

Well, Cedar won't need any herbal remedies today. His gas has passed, and the grumbling has stopped – whew!

"Come on boy, let's go play ball. Then, after a rest, I'll share part of my dinner with you! We're having your favorite vegetable tonight!"

Yum! Cedar just loves broccoli! 🐾

Greg Tilford is a well-known expert in the field of veterinary herbalism. An international lecturer and teacher of veterinarians and pet owners alike, Greg has written four books on herbs, including All You Ever Wanted to Know About Herbs for Pets (Bowie Press, 1999), which he coauthored with his wife, Mary.

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When a Voice Is a Vice

How to prevent (or at least manage) your dog's nuisance barking.

BY PAT MILLER

Quiet reigns in my house – for the moment, anyway. I look at young Lucy sleeping on her bed on the floor next to my desk and appreciate the rare moment of tranquility. Like so many herding dogs, the year-old Cardigan Welsh Corgi lying at my feet is vocal. She barks when she's excited. She barks when she's playing. She barks when she wants something. She barks to alert us to visitors. She barks out of frustration. She barks when she hears a dog bark on TV. Not just any bark, mind you, but a shrill, high-pitched bark that grates on your nerves.

When we were in the final stages of completing her adoption from the local Humane Society, the animal care supervisor approached me with an expression of concern on her face. "That little dog you're adopting . . . she's, um, pretty vocal," she warned.

I shrugged. Dogs bark. What's the big deal? I could train her to be quiet, I thought to myself confidently. Little did I know what

a challenge it would be in this case.

Dogs do bark – some more than others. Like Lucy, they bark for a wide variety of reasons. Fortunately, like Lucy, most dogs can learn to control their barking – at least enough that we can live with them in relative peace and harmony. Some, however, are easier to teach than others

Why bark?

While dogs are primarily body language communicators, they also use their voices to share information with other members of their social group. Compared to their wild brethren, however, our domesticated dogs use their voices far more – a tendency we have genetically encouraged. We've created herding breeds, including Shelties, Border Collies, Welsh Corgis, and others, who use their voices when necessary to control their flocks. We've bred scent hounds to give voice when they are on the trail of prey.

We've also created a lot of breeds whose predilection for barking is a side effect of their main purpose. For example, we created many terrier breeds for hunting small rodents. These dogs are often notoriously barky, perhaps from generations of excited pursuit of their prey. Likewise, many of the toy breeds are known to be "yappy," serving double duty as door alarms as well as lap warmers.

For what it's worth, we've also produced breeds that have a reputation for quiet. Many of the guarding breeds tend not to announce their presence, but instead carry out their duties with a quiet intensity. Chows, Akitas, and Mastiffs are more likely to escort you off the property with a low growl or a short warning bark rather than a canine chorus. And of course, Basenjis don't bark at all; they scream when they are displeased.

Hush their mouths

We'd probably all be pleased if our dogs limited their barking to those situations for which they were bred to give voice, but of course they don't. Those who have inher-



Cross an active breed with a long, solitary day in the yard, and you will probably end up with a problem barker.

ited a propensity for using their voices freely in one situation are highly likely to use them freely in others as well. And so, we end up with "nuisance" and "problem" barking.

Problem barking comes in a variety of flavors, each with its own unique triggers and solutions. Your dog might bark in several different situations, requiring a multipronged behavior modification program. We've outlined the most common triggers and solutions below.

Whatever the cause of your dog's barking, don't make the mistake of yelling "Quiet!" (or worse) at your dog. This is likely to increase his excitement and arousal, adding to the chaos rather than achieving the desired effect of peace in the kingdom. Even if you *do* succeed in intimidating him into silence, you risk damaging your relationship with him, as he learns to be quiet through fear.

Instead, use your human brain to figure out how to manage and modify your dog's penchant for pandemonium. Fortunately, with a commitment of time, effort, training,

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WHAT YOU CAN DO . . .

- **Before adding a new dog to your family, take into consideration your tolerance for barking, and select a type of dog whose genetic propensity for vocalizing matches your tolerance level.**
- **Appreciate your dog's voice as a useful communication tool and teach her how to control and use it appropriately.**
- **Don't reward – purposely or accidentally – any type of barking that you wouldn't want to live with indefinitely.**

and management, most barking can be controlled. Start out by identifying the type of barking your dog practices most frequently and applying the appropriate solution.

■ **Boredom barking**

The largest category of nuisance barking is caused by boredom. Boredom barkers are the dogs who are left out in their yards all day, and sometimes all night, with nothing to do but patrol their territory and announce the presence of anything and everything. Sometimes it seems they bark just to hear themselves bark; perhaps they do.

Boredom barking often has a monotonous tone, and can go on for hours. The greatest numbers of barking complaints received by animal agencies are generated by boredom barkers.

THE FIX: Fortunately, there's an easy fix for outdoor boredom barking. Most of these dogs, if left *inside*, are happily quiet in their human's den. The complicating factor is the length of time a dog can be safely left alone in the house. Crates and exercise pens are good management solutions for dogs who haven't yet learned good house manners, and dogwalkers can be enlisted to provide midday potty breaks if owners work long hours. (Dogwalkers need not be professionals; you can often enlist the help of a friend, family member, or a neighbor.)

Boredom barking can also be reduced by enriching your dog's life, by increasing his physical exercise and mind-engaging activities. A good, tongue-dragging, off-leash run or fetch and some interactive games and toys such as stuffed Kongs,

Iqubes, and Egg Baby Turtles, *daily*, can minimize the tedium of a lonely dog's day. (See "King Kong," WDJ October 2000, and "Toys to Keep 'em Busy," May 2004.)

■ **Play barking**

These are the dogs who can't handle too much fun. They are the canine equivalent of cheerleaders, running around the edges of the game giving voice to their arousal while others play. Herding dogs are often members of this group. Bred to keep livestock under tight control, they often experience an inherited compulsion to control anyone or anything that moves.

THE FIX: This is such a hardwired behavior that it's difficult to modify. You do have several options:

An Incredibly Useful Training Tool: The Positive Interrupt

The positive interrupt is a well-programmed, highly reinforced behavior that allows you to redirect your dog's attention back to you when she's doing something inappropriate, like barking. Ideally, you want your dog's response to the "Over here!" cue to be *so* automatic – classically conditioned – that he doesn't stop to wonder whether what he's doing is more rewarding or interesting than turning his attention toward you and running to you for a treat. He doesn't think – he just does it, the way your foot automatically hits the brake of your car when you see tail-lights flash on front of you on the highway.

Here's how to program a positive interrupt:

1) Install the cue in a low-distraction environment. Use a phrase such as "Over here!" or "Quiet please!" as your interrupt cue. Say the phrase in a cheerful tone of voice when your dog is paying attention to you, then immediately feed him a morsel of *very* high value treat, such as a small shred of canned chicken or sardines. Repeat until you see his eyes light up and his ears perk when you say the phrase.

2) Practice with the cue in a low-distraction environment. Wait until your dog is engaged in a low-value activity, such as wandering around the room, sniffing something mildly interesting. Then say your interrupt phrase in the same cheerful tone of voice. You should see an immediate interrupt in his low-value activity, and he should dash to you for his treat. If he doesn't, return to Step 1, perhaps with an even higher-value treat.

3) Practice with the cue in a low-distraction environment with *minor* distractions. Still in the low-distraction environment so you can control the distraction level, add moderate distractions

– one at a time – and practice the interrupt. For example, sit in your kitchen (low-distraction environment) with a helper such as one of your friends or family members. Give your helper a bag of chips. At your cue, ask your helper to help themselves to a chip or two; this should be a fairly minor distraction. Gradually increase the intensity of the distraction. Your helper can noisily crunch the chips, or get up and walk around – and eventually hop around while crunching chips.

Gradually move up to *major* distractions in your low-distraction environment while practicing the positive interrupt. If you lose your dog's automatic response at any step, return to the previous step.

4) Move your lessons to an environment with real-life distractions. Go for a walk around the block with your dog on leash. Use the interrupt when he becomes preoccupied with a mild to moderate real-life distraction, such as an interesting bush he would like to sniff or a fast-food bag on the sidewalk he'd like to check out. If a major distraction presents itself, including a stimulus that causes him to bark, give the interrupt a try! Don't get discouraged if it fails to work in a challenging situation; just keep practicing in less-difficult surroundings. And make sure the treat you use is irresistibly delicious.

5) Use the positive cue to interrupt barking. When your dog automatically turns his attention to you in response to your cue when confronted with major real-life distractions, you have a valuable tool for interrupting his barking. Be sure you practice occasionally with mild distractions as well, to keep the cue "tuned up," and remember to thank him and tell him what a wonderful dog he is when he stops barking on your request.



Gradually add low-level distractions while practicing your interrupt cue.

- **Accept and allow the behavior.** Determine a time and place where the barking is least objectionable, and let the dog do it.

- **Manage the behavior.** Remove the barker from the playing field when others want to engage in rough-and-tumble or chase-me games.

- **Use “negative punishment,”** a gentle, nonviolent form of punishment that can be effective *if applied consistently*. Negative punishment is the behavioral term for any situation in which the dog’s behavior makes a good thing go away. If your dog is playing (an activity he enjoys) and starts barking (the thing you don’t want), you remove his opportunity to play. Use a cheerful “Oops, time out!” and remove him from the game for a brief (perhaps one to five minutes) session in the penalty box (say, another room).

- **Teach a positive interrupt** (see sidebar below). Use it when he barks to invite him

to come to you and briefly stop the barking, then release him to go play again.

- **Encourage him to carry his favorite toy in his mouth** during play. As we discovered with Lucy, a mouth full of highly valued toy makes it difficult to bark. If she does, at least the sound is muffled. *Caution: This is not a good option to select if your barking dog also “resource guards” his toys from other dogs.*

■ Demand barking

This is less annoying to neighbors, but it can be very irritating to you. Your dog is saying, “Bow wow GIVE it to me NOW!” Demand barking may be encountered in the early stages of positive training, as your dog tries to figure out how to make treats, play, and attention happen. It often starts as a low grumble or soft “whuff,” and if not nipped in the bud can turn into a full-scale, insistent, persistent bark.

THE FIX: It’s easy to derail demand barking when it *first* starts by ignoring the dog. When your dog barks for treats, attention, or to get you to throw his ball, simply turn your back on him until he is quiet, then say “Yes!” and return your attention to him. His goal is to get you to give him good stuff. Your goal is to teach him that barking makes good stuff go away.

At first, you’ll need to say “Yes!” after just a few seconds of quiet, but fairly quickly extend the period of quiet so he doesn’t learn a behavior chain of “Bark, be quiet for a second, get attention.” At the same time, you’ll need to reinforce quiet when he *doesn’t* bark first, again, to prevent the behavior chain.

It’s more challenging to extinguish demand barking when your dog has had lots of reinforcement for it. Remember, any attention you give him reinforces demand barking. Eye contact, physical contact, verbal admonishment – all of these give him what he wants: attention!

The process for modifying the behavior

Preventing a Barking Habit in Bark-Happy Breeds

DAY ONE: Owners are in the backyard enjoying the company of their nine-week-old Toy Poodle pup, flown to California from a breeder across the country at age six weeks, stricken with pneumonia on arrival, finally recovered enough to play in the garden on a warm day.

The tiny white ball of fluff is totally engaged in discovering a brand new world. Everything that moves is cause for excitement, and with each new discovery, she lets out a cautious little “Woof!” and runs back to Owners’ laps, who chuckle, enchanted by their pup’s adorable antics.

DAY TWO: Similar scenario, *except* Owners are now frowning in consternation, as the cautious “Woofs” have advanced to shrill alarm barking at every sound: neighbors’ voices, the jingle of dog tags from another yard, the rustle of a squirrel dashing through a pile of leaves. Each new round of alarm barking elicits a frustrated and ineffective response: “Maggie! Stop! Maggie, SHUSH! Maggie, STOP!”

This has the classic signs of a nuisance barker in the making. Unless Maggie’s owner changes tactics, and promptly, she could be facing a lifetime of ineffective “Maggie, SHUSH!” commands, annoyed looks from neighbors, and perhaps even visits from Animal Services as nearby residents lose patience with the loss of tranquility in the neighborhood.

It’s easy to understand Maggie’s behavior. She’s a toy breed – one of several known for their ability to be generous with high-pitched vocalizations. Her breeding may have bestowed a less-than-resilient temperament, causing her to find the world more alarming than necessary. She may have been born into an environment that provided little early socialization to temper a timid personality, separated from her litter earlier than ideal, and subjected to the sometimes traumatic experience of air travel.

When she took ill in her new home, she was quarantined indoors for three more weeks of her optimum early socialization period, forestalling remedial socialization. By the time she was introduced to the world, she had missed out on important life lessons, and the wash of stimuli bombarding her in the backyard was more than she could handle.

Time for Maggie’s human to play catch-up! Maggie’s owners need to expose their tiny dog to stimuli more gradually, for shorter periods of time, and associate new sights and sounds with good stuff (yummy treats) instead of harsh verbal corrections that add to the overstimulation and goad Maggie into further barking. They could walk with Maggie into the backyard briefly, feed a few treats, and walk back inside, gradually extending the length of backyard visits as the pup gains confidence. They could teach Maggie a positive interrupt indoors, in preparation for longer visits to the backyard. Then, if Maggie *does* become aroused and start to bark, a cheerful “Over here!” could end the eruption quickly, before community peace is shattered.

Dogs generally do better in training when told what *to do* (“Come over here to me for a goodie!”), instead of what *not to do* (“STOP barking!”). Redirecting the behavior in this manner occupies the dog’s brain with the new behavior, rather than leaving a behavior vacuum that is filled with the next burst of barking.

Last but not least, Maggie’s owners could enroll her in a well-run positive puppy class, to give her more opportunities for socialization before the optimum time for this task ends at 16 to 18 weeks. They’d better do something, and soon. The longer a dog practices a behavior, the harder it is to change. If they ignore their puppy’s barking much longer, they – and their neighbors – will likely be living with it for the next 15 to 20 years.

of a veteran demand barker is the same: remove all reinforcement. However, be prepared for an extinction burst – a period when the behavior gets worse rather than better. The behavior *used* to work, so the dog thinks if he just tries harder, surely it will work again. If you give in during an extinction burst, you reinforce the more intense barking behavior, and guess what happens next time? Right – your dog will offer the more intense behavior sooner, and it gets even *harder* to extinguish the barking. Oops!

■ Alarm barking

This is Lassie’s “Timmy’s in the well!” bark. It means something is seriously wrong – or at least your dog thinks so. The alarm bark usually has a tone of urgency or ferocity that’s absent in most other barks. Because your dog’s judgment as to what constitutes a serious threat may differ from yours, after many false alarms you may fall into the trap of asking him to stop barking without investigating the cause. Don’t! This may be the time a fire is smoldering in the kitchen.

THE FIX: Always investigate. It could just be the UPS driver leaving a package on the porch, but it might be something serious. Sometimes Timmy really is in the well! Investigate, use a positive interrupt to stop the barking, and then reinforce the quiet. I also like to thank my dogs for letting me know something important was happening.

■ Greeting barking

Dealing with inappropriate greeting behavior could be a whole article in its own right; in fact, I’ll discuss this in the April issue! Here’s a brief preview:

Your dog may be giving an alarm: “Danger! Intruder at the door!” Or he may be barking in excitement: “Huzzah! Dad’s home!” or “Hooray! Company’s here!” His tone – ferocious versus excited – will tell you the difference.

THE FIX: If you have guests arriving, the management/modification program is complicated by the fact that you have to answer the door! Ideally, a second person answers the door while you use the positive interrupt to halt the barking. If there is no second person available, use the interrupt, secure your dog in another room or tether him, then go greet your guests. (You may want to put a note on your door asking guests to be patient if it takes you a minute or two to come to the door!)

You can also help minimize greeting barking by remaining calm when the doorbell rings, because otherwise, your dog may get excited and bark at *your* excitement. In families with children, you may have to spend some time training the *kids* not to rush excitedly to the door, too!

Often, people unwittingly train their dogs to bark when they come home, by greeting the dog in a boisterous manner. It’s human nature to enjoy it when another being seems glad to see us! But it’s one thing to be greeted by a wagging, wiggling dog, and another to be greeted by a cacaphony of loud, maniacal barking. And with some dogs, one often leads to the other.

If your dog is barking as you approach your door, wait outside until he is quiet for at least a few seconds. Then enter the house, remaining very calm and quiet yourself. If your dog starts barking as you enter, ignore him until he is quiet, then greet him calmly. After you have been home a little while and he is calm, you can initiate a play or affection session.

■ Frustration barking

Frustration barking can be identified by its tone of shrill insistence. When Lucy first joined our family and we used tethers to manage her cat-chasing, for a time she became a master at frustration barking. She still gives shrill voice to her frustration when we confine our dogs to the tack room while we move horses in and out of the barn, but she settles quickly, having learned that it doesn’t get her released any sooner.

THE FIX: Frustration barking is a close relative of demand barking, but is more likely to occur when you are a distance from the dog, or when it is directed at something other than you. You handle it the same way. Ignore the behavior you don’t want (the barking) and reward the behavior you do want (quiet). A reward marker such as the click! of a clicker, or a verbal “Yes!” is very useful to mark the quiet, since you are often at a distance from the dog when the barking and the moment of quiet happen.

As with demand barking, the more your dog has been rewarded for frustration barking in the past, the more committed and



Older dogs may develop a barking habit as they lose their hearing; they’ll benefit from being indoors.

consistent you’ll need to be to make it go away, and the more likely you’ll have to work through a significant extinction burst.

■ Anxiety barking

Hysterical vocalization is just one of several manifestations of separation anxiety (SA), often accompanied by destructive behavior, extraordinary efforts to escape confinement, and/or inappropriate urination and defecation. Separation

anxiety is a complex behavior – a full-blown panic attack (see “Learning to Be Alone, July 2001, and “Relieving Anxiety,” August 2001). To modify SA barking, howling, or screaming, you must modify the entire anxiety complex.

THE FIX: While it *can* be modified through a program of counter-conditioning and desensitization, SA barking usually requires the intervention of a professional trainer/behavior consultant, sometimes with the assistance of behavior modification drugs. If your dog’s barking is related to anxiety, we suggest you contact a good, positive trainer/behaviorist to help you with the complex and difficult anxiety behavior.

Not all barking is bad

A dog’s voice can be a useful thing, especially the bark that lets us know a dog needs to go outside, or is ready to come back in. Some service dogs are trained to bark to alert their owners. Dogs warn us of intruders and tell us of pending emergencies. I can think of numerous times when the Miller dogs’ barking served a valuable purpose. There was the time they let me know that our horses had escaped and were trooping down our driveway toward the road. I smile whenever I remember Dusty, our eight-pound Pomeranian, standing his ground, ferociously barking, preventing our 1,000-pound Thoroughbred mare from walking through a gate accidentally left open.

When Lucy’s shrill voice causes me to grit my teeth, I remind myself that there will be times when she, too, will use that same voice to tell me something important, and I’ll be glad she has a voice to use. 🐾

Pat Miller, CPDT, is WDJ’s Training Editor. She is also author of The Power of Positive Dog Training, and Positive Perspectives: Love Your Dog, Train Your Dog. For book purchase or contact information, see “Resources,” page 24.

What a Wolf Eats

Research on wild canids can help inform dietary planning for dogs.

BY CJ PUOTINEN

Few topics excite the passions of dog lovers as much as food. Should dogs eat meat? Bones? Fruits? Vegetables? Grains? Dairy? Should their food be commercially prepared? Home-prepared? Raw? Cooked? Fresh? Frozen? Should dogs eat what people eat? What dogs in the wild eat? Whatever the choice, is it safe? Is it dangerous?

For thousands of years, domesticated dogs ate whatever their humans fed them plus whatever they could find on their own. No one worried about fat/protein ratios, the role of carbohydrates, or how much calcium is too much.

For help in planning the ideal canine menu, some turn to canine species in the wild, especially wolves. But even here there is confusion and misinformation. What exactly do wolves eat?

To find out, Melinda Miller, who con-



From left to right, “ambassador wolves” Lukas, Apache, and Atka, who live at the Wolf Conservation Center in South Salem, New York. The WCC promotes wolf conservation by teaching about wolves and the human role in protecting their future.

PHOTO BY J. HENRY FAIR, COURTESY OF WOLF CONSERVATION CENTER, NEW YORK.

The Whole  Dog Journal™

WHAT YOU CAN DO . . .

- **For the best source of accurate information about wild wolves, see *Wolves: Behavior, Ecology, and Conservation*, edited by David Mech and Luigi Boitani.**
- **Consider the diet of wild gray wolves as a starting place for thinking about the “ideal” canine diet – not necessarily a blueprint that should be reproduced as closely as possible.**
- **Use the examples of wolves’ feats of survival to gain confidence in the ability of your dog to benefit from a “natural” diet.**

sults to veterinarians, pet supply stores, pet food companies, and the Wolf Conservation Center of South Salem, New York, invited one of the world’s most respected experts on the wolf, David Mech, Ph.D., to present a seminar about what wolves eat.

Since 1958, Dr. Mech (pronounced *Meech*) has studied wolves, first on Isle Royale in Lake Superior in Minnesota, then in Canada, Italy, Alaska, and Yellowstone National Park. A founding board member of the International Wolf Center in Ely, Minnesota, he is an internationally recognized expert on wolf ecology and behavior, predator-prey relations, and wolf population regulation. Mech’s latest book, coedited with Luigi Boitani and published in November 2003, is the encyclopedic and definitive *Wolves: Behavior, Ecology, and Conservation*.

Dr. Mech has been a senior research scientist for the U.S. Department of the Interior since 1970 and is an adjunct professor at

the University of Minnesota. His research in Denali National Park in Alaska measured the interactions between wolves, caribou, moose, and Dall sheep. On Ellesmere Island in Canada’s Northwest Territories, which is so remote that its wolves are unusually tame, he documents the interactions of pack members and their pups around their den, plus wolf interactions with musk-oxen and Arctic hares. His research in Yellowstone National Park involves the interactions of wolves with their prey.

All of Dr. Mech’s research involves the gray wolf, *Canis lupus*. Gray wolves live throughout Europe, Asia, and North America, and it was from this species of wolf that the dog was domesticated.

On September 25, 2004, Dr. Mech presented a “what wolves eat” seminar in New York. It was attended by about 100 people, some of whom had traveled from New Zealand, Denmark, Quebec, Ontario, Texas, California, and the Midwest.

No consensus yet

Dr. Mech began his seminar by asking the audience which animal on the planet has been most researched with regard to health and diet. The answer? Human beings. But despite decades of intense study, scientists have yet to prove that any one diet is ideal.

"If science doesn't have definite answers regarding human health," said Dr. Mech, "it certainly doesn't have them regarding dogs and wolves. There is simply too much that we don't know. In addition, dogs were domesticated from wolves somewhere between 13,000 and 100,000 years ago, so their diets should not necessarily be the same."

What scientists *do* know about wolves, he said, is that they are opportunistic omnivores. Left to their own devices, they will eat whatever they can whenever they can.

"This varies by location, season, and conditions," he explained, "so wolves in one place may have a radically different diet from wolves in another. Their preference is freshly killed meat, but when that's not available, they'll eat anything that could remotely be considered edible."

"For example, there are few prey animals in Italy or Israel. Most people don't even know that wolves live in those countries, but they do, and they eat whatever humans throw away. In Italy, there are about 500 wolves and around 500,000 feral dogs, and they have the same basic diet – whatever they can scrounge from garbage cans and local dumps, as well as whatever livestock they can kill."

In the wild, says Dr. Mech, wolves hunt live prey. In British Columbia, where game is abundant, that includes moose, bison, wild hare, two types of deer, goats, mountain sheep, elk, caribou, and assorted small animals. In other locations, there may be only a single prey species.

"Any variety is provided by circumstances, not by conscious effort, and some wolves have thrived for decades or even hundreds of years on a monotonous diet of one or two prey animals," said Dr. Mech. "Yellowstone's wolves are at the high end of the wolf prosperity scale, for elk are so abundant in the park that wolves eat whenever they're hungry. Wolves in other areas go through periods of feast and famine."

The wolves' work day begins in the early evening, and they will typically hunt all night, then sleep from mid-morning to late afternoon. If fully fed, they may sleep for 12 hours or more. If hungry, wolves hunt all day, often traveling 15 to 30 miles or more in search of prey. Although they usually hunt in packs, single wolves acting alone have been recorded killing all of the wolf's large prey, including moose, bison, and musk-oxen.

What's for dinner?

What does the average adult wolf eat? That's hard to say because wolves are difficult to observe. When fitted with radio transmitter collars and tracked by aircraft, at least a few wolves can be monitored. "We have a good idea of what those wolves eat during winter months because they're easy

to find when there's snow on the ground," Dr. Mech explained. "Assuming there is sufficient game, they eat an average of two to ten pounds of meat per wolf per day. In summer, no one knows, but I expect the totals are similar."

Those figures are averages, said Dr. Mech, because wolves eat as much as possible at every opportunity. An 80-pound wolf can eat 22 pounds of meat in one sitting. When game is scarce, wolves can go for weeks, even months without eating. If sufficiently fat at the outset, a wolf can fast for up to six months.

According to Dr. Mech, wolves that live in areas populated by large prey (such as elk or caribou) kill mostly old, maimed, sick, or very young animals, such as newborn calves. "I wouldn't say that a wolf could never kill a healthy adult. But it's more likely that an adult animal that appears healthy and is brought down by a wolf is not as healthy as other animals in the herd. It may have been deaf, for example, or had a malnourished grandmother. Starvation is a hazard that all animals face, and malnutrition affects two or more generations."

Wolves that hunt large prey have to be careful because they risk their lives every time they attack. "Elk, moose, and other large animals can and do kill wolves," he said. "All it takes is a well-placed kick. One of the most interesting findings of our research was the very low percentage of successful wolf attacks. You think of wolves as killing machines, and they are, but wolves may chase a hundred or more prey animals

Should the Diet of Wild Wolves Inform Our Dogs' Diets?

Dog owners who feed their dogs home-prepared diets made up the majority of the audience for Dr. David Mech's September 2004 seminar. Most were interested in learning about the wild wolf's diet so this knowledge could be used as a basis for a "natural" diet for domestic dogs.

However, for his part, Dr. Mech was careful not to be drawn into any speculation about the appropriateness of using the wolf diet as a model for the dog's diet. He studies wolves, not dogs, he said. When pressed (in an e-mail exchange after the event), Dr. Mech would say only that if one uses a wolf as any kind of model for the dog, the only one it makes sense to use is the gray wolf, from which the modern dog was domesticated.

In contrast, there are plenty of others who happily extrapolate data from one canid to the other, citing the fact that dogs and gray wolves are closely related; the two can even interbreed and produce fertile offspring. The problem is, when it comes to inference, people do it differently!

Some proponents of "species appropriate" or "natural" diets

try to replicate wolf diets as exactly as possible, feeding their dogs raw foods in the same proportions as seen in Dr. Mech's research – so much muscle meat, so much organ meat, so much bone, so much variety of protein sources, and so on. Others regard the wolf diet as a good starting place – a base that can be improved upon with a wide variety of meats, poultry, eggs, vegetables, and even vitamin/mineral supplements.

The one thing that most fans of the "natural" diet agree on is that diets that contain a high percentage of carbohydrates in the form of grains and grain by-products are not appropriate for canines of any kind.

In our view, if dog owners are going to make decisions about their dog's diet based on the diet of wild wolves, they ought to at least have accurate information about what wild wolves eat. Prior to Dr. Mech's research, there were few reliable facts about wolf diets, and certainly no long-term, rigorous studies of the wolf in its natural habitats. We're pleased to be able to offer a condensed version of his fascinating work. – *Nancy Kerns*

before they succeed in bringing one down. That's why it makes sense for wolves to study the herds, watching for anything out of the ordinary – an elk that doesn't hold his head high, for example, or one with a limp."

These shopping expeditions were easy to see in the videos Dr. Mech showed of Yellowstone wolves trotting through elk herds. From time to time they would chase an elk, testing the animal's strength and resilience, and when they chose a target, the animal was easy to spot, for its posture and gait didn't match that of the rest of the herd.

Much has been made of wolves' tendency to kill more than they can consume, but this "surplus killing," as it is called, is not as wasteful as it first appears.

"Wolves can't eat more than their stomachs can hold," explained Dr. Mech, "but they store the excess by burying it in a cache, a hole in the ground, for later consumption. The contents of a cache can be half a calf, the leg or bones of an adult elk, or even regurgitated meat. The cache is usually some distance from the kill, up to a mile or more away. When game is scarce, cached food will keep a pack alive. I'm convinced that wolves remember where they cache their food because I've seen them come back as much as a year later and walk without hesitation to the exact location."

Wolves also regurgitate to feed their young and, in the case of breeding males, to feed their mates.

"Alpha" is out

Dr. Mech no longer uses the term "Alpha" to describe the dominant male and female; rather, he describes them as the breeding pair. "The family structure of wolves is much like our own," he explained. "The whole business of Alpha wolves came about because the first wolf researchers didn't understand wolf families, and they put unrelated wolves from different locations together. While the wolves sorted out who was in charge, the researchers concluded that every wolf pack had an ongoing fight for dominance, hence the so-called Alpha, Beta, and Omega wolves. That's just not how it works.

"In the wild, a pack is a family. A breeding pair has a litter of pups, and the following year, they have another. Now the pack consists of two parents, who are in charge of things, plus yearlings, who are one year old, and infant pups. The following year, the pack is older and larger, with two-year-olds, yearlings, and pups. By the time



Lukas, a six-year-old at the Wolf Conservation Center in New York, tears at the carcass of a road-killed deer. The wolves at the Center are fed dry dog food and fresh roadkill as it becomes available. PHOTO BY J. HENRY FAIR, COURTESY OF WOLF CONSERVATION CENTER.

they are three or four years old, most young wolves have dispersed, gone out to start their own families."

Dr. Mech added that in a wolf pack, all of the parents' energy and resources are focused on reproduction. "The male helps feed his mate through the winter to keep her in good reproductive health," he said. "Both parents feed the infants, and if prey is abundant, older offspring may do so as well. Pups typically nurse for one to four minutes every three hours, and they're weaned at seven to nine weeks."

The first solid food that wolf pups eat is regurgitated meat, which is introduced at about three weeks. As they get older, this is supplemented by fresh meat and bones that the other family members carry to the den. At eight weeks, the pups are moved from the den to a rendezvous site, where they wait while the older wolves hunt. Eventually, at around four to five months, they begin following the adults from the rendezvous site and feed on prey where it is killed.

Preferred cuts

What parts of their prey do wolves typically consume, and in what order?

"That depends," said Dr. Mech. "They'll eat almost anything, but their preference is for fresh rather than frozen meat and for internal organs before anything else. The first choice goes to the wolf in charge of

the kill, which is almost always the breeding male or his mate. They are the largest and most experienced hunters. They will typically rip the abdomen open to reach the liver and other organs."

Despite what many "raw feeders" claim, Dr. Mech said the wolves he has observed do *not* eat the digestive tract contents of their prey. "They will remove the guts and shake them a few times to get rid of whatever they contain, and they'll eat the rumen from around the contents. This isn't to say that they won't swallow some of it. They're not washing it out; they're just trying to remove as much of the predigested greens and other stomach contents as possible."

In contrast, the organs themselves – the liver, heart, and guts – these are prized, said Dr. Mech. So is fat, which is hard to come by in the wild. "Wolves usually catch the weakest, least healthy animals. We have measured the fat content of Yellowstone elk killed by wolves, and it's low. My best guess for wolves in general is that less than five percent of their diet is fat," said Dr. Mech.

"If they're really hungry, the wolves will eat everything – organs, bones, skin, fur, whatever's there – as quickly as possible. If they're generally well fed, they'll eat the internal organs and choice meats first, then rest and come back later for more. They won't eat antlers, very large bones, or the tooth rows of adult prey."

As far as bones are concerned, Dr. Mech said, “Wolves eat all of the other bones, everything they can crack open. Some wolves succeed in breaking the skull to eat the brains. Skull bones are hard, though, and this is where many wolves injure their teeth. If the prey is small, like a mouse or bird, the wolf may swallow it whole.”

A pack of 10 to 15 wolves makes short work of its prey, even animals as large as moose, said Dr. Mech. “They work from the inside out, then after sating themselves rest a few hours and eat again. The next day, they eat the remaining meat, which in winter is frozen, as well as the hide, and there is always recreational bone chewing. By the third day, they pull the skeleton apart. They may leave the lower legs and hooves or cache them. If they leave the leftovers, they may return for them, or a scavenging lone wolf may find them.”

In spring and fall, other animals such as beaver may be available, or the wolves may find birds’ eggs. “Wolves would eat eggs year round if they could find them,” said Dr. Mech. “but they’re a seasonal item, like berries. Wolves do eat fruits and nuts and grass on occasion, but meat is their primary food. Their diet is almost all protein with some fat. I estimate that vegetation makes up less than one percent of the food of wolves worldwide. They simply didn’t evolve to eat vegetables.

“A lot of people assume that wolves eat large quantities of hair and fur,” he continued. “Well, they do, but if you’re judging by a wolf’s fecal matter, the percentage of hair, hide, and fur seems larger than it really is. That’s because wolves digest meat

first, and they do an excellent job of it. The small amount of fecal matter produced by meat shoots out of them as a liquid. It’s not technically diarrhea, but it’s a very loose stool, and that’s healthy and normal. Then there are longer-lasting stools that are solid and that contain hair, hide, teeth, and bone residue that looks white and chalky.”

Different life-stage diets?

When pregnant and nursing, the female wolf eats the same foods as usual, just more of them. “In most cases, she’s out hunting and traveling with the pack until a couple of days before whelping,” said Dr. Mech. “Most have litters of five to six pups, with larger litters in more temperate climates where game is more abundant, and smaller litters in extreme conditions or when game is scarce.”

Dr. Mech said that wolf pups get their permanent teeth at around six months, which is when they stop receiving preferential treatment. Physically mature at 12 to 14 months, most wolves begin reproducing at age two to four years.

In Minnesota, where Dr. Mech has kept population statistics since 1968, about one wolf in every 500 lives to be 10 years old. “Once a wolf reaches age six or seven, it’s a little past its prime,” he said. “That would be comparable to a 40-year-old human. An elderly wolf is 10, 11, or 12 years old. Most wolves in the wild live around five years, but captive wolves can live to be 17.”

It’s not their diet that shortens the lives of most wild wolves; there are many causes of wolf mortality, says Dr. Mech. Wolves kill each other in territorial disputes. If

there’s too much snow on the ground, prey animals can’t find the food they need, so their population goes down, and when there isn’t sufficient prey, the wolves starve. As mentioned earlier, wolves are also killed or injured by their prey, and an injured wolf is at a serious disadvantage. By far the greatest risk to wolves, though, is human exploitation.

When asked about tooth and gum health, Dr. Mech said that wolves, despite the tooth wear that comes with a lifetime of bone chewing, have strong, healthy teeth with no decay, abscesses, or gum disease that he has seen, and no other problems except for occasional injuries that break teeth. Most older wolves have a broken tooth, but it doesn’t slow them down.

According to Dr. Mech, wolves may carry internal parasites, but those parasites seldom have a detrimental effect until the wolf becomes elderly or is weakened by malnutrition. “The presence of internal parasites is not an accurate health indicator,” he said.

The key to a healthy wolf population, Dr. Mech concluded, is abundant prey. When there’s enough food, wolves reproduce, raise healthy pups, maintain a strong pack, and enjoy the social benefits of a large, active family. In return, they strengthen herds of animals by culling the weak, injured, or diseased, and play an important role in our wilderness ecology.

Some describe wild wolves as sickly creatures, infested with parasites and leading a miserable existence. Because of starvation or the stresses of human intervention, some wolves may fit that description, but to imply that all wolves in the wild are frail and diseased is the grossest misrepresentation. When wolves live in the conditions in which they evolved, on large tracts of land with large prey to hunt, these ancestors of the modern dog are among the earth’s fittest, most powerful, most intelligent, vital, healthy animals. Their strong social bonds and rich family life have fascinated humans for millennia. Their howls speak to us, though in a language few can fully understand.

Dr. David Mech’s lifetime of wolf research offers an extraordinary glimpse into the lives of these elusive, misunderstood, and very special animals. 🐾

CJ Puotinen is author of *The Encyclopedia of Natural Pet Care* (Keats/McGraw-Hill) and *Natural Remedies for Dogs and Cats* (Gramercy/Random House).

Wolf Conservation Resources

The Wolf Conservation Center (WCC) in South Salem, New York, houses a pack of four “ambassador wolves,” including Atka, an arctic wolf who made a guest appearance at Dr. Mech’s seminar, and three British Columbian wolves. The WCC promotes wolf conservation through education and participates in the American Zoological and Aquarium Association’s Species Survival Plan, as well as the U.S. Fish and Wildlife Service’s Recovery Plan for the critically endangered Mexican gray wolf and the red wolf. Ten Mexican gray wolves and two red wolves now live in private, secluded enclosures at the Center, being prepared for reintroduction to the wild. Wolf Conservation Center, South Salem, NY. Barry Braden, managing director. (914) 763-2373; nywolf.org

The bible of texts on wolves is *Wolves: Behavior, Ecology, and Conservation*, edited by David Mech and Luigi Boitani. University of Chicago Press, 2003. Available from wolf.org and all booksellers.

International Wolf Center, Ely, MN. (218) 365-4695; wolf.org

Gut Feelings

The gastrointestinal system is truly where robust health originates.

BY RANDY KIDD, DVM, PHD

Digestion involves the balanced interaction of several biodynamic systems. A healthy animal ingests raw materials (food), changes these raw materials into usable nutrients, extracts from these nutrients the essentials for life and vitality, and excretes (in the form of feces) those substances that have not been digested or that weren't utilized.

The entire process of digestion is the result of many organs and systems, but for this article we will concentrate on the digestive tract, beginning with the mouth and esophagus, proceeding downward through the stomach, then through the intestines, and finally passing out through the rectum.

Notable components of the digestive system that will not be covered in this article but will be discussed in later articles include the liver and pancreas. On the other hand, we will discuss three "organ systems" that are essential components of the digestive system (but that are not typically thought of as such by conventional Western medicine): 1) the immune system, 2) the nervous system, and 3) the dynamic population of "bugs" that live in the gut.

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WHAT YOU CAN DO . . .

- Use safe, gentle herbal teas to help soothe and protect the GI tract.
- Under the direction of your holistic veterinarian, occasionally fast your dog.
- Several times a week, increase and enhance your dog's GI microflora by feeding him organic, unsweetened yogurt containing live, active cultures.

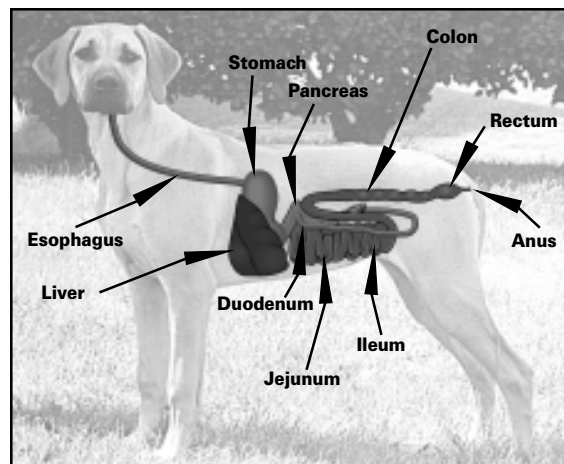
GI anatomy

The **mouth** and its related structures (see "From the Mouths of Dogs," WDJ December 2004) form the beginning of the "tube" where digestion occurs. The dog has several **salivary glands** located around the jaw and mouth. In humans, saliva plays an important part in digestion by providing the enzyme amylase, which converts starch to the simple sugar, maltose. Saliva of the dog (and cat), however, has no enzymatic activity of note. Its functions include lubricating the passage of food to the stomach and moistening the oral mucous membrane. In addition, saliva aids in heat loss; salivation increases dramatically as the ambient temperature rises.

The **esophagus** is a muscular tube that propels the food bolus, after swallowing, from the mouth into the stomach. The act of swallowing begins when the animal uses its tongue to push the food to the back part of the mouth, where the upper esophageal sphincter relaxes to allow passage. At the same time, the epiglottis closes over the opening to the trachea, halting respiration for a moment and preventing food from being passed into the lungs.

Once in the esophagus, the food is moved to the stomach by automatic peristaltic activity. **Peristalsis** is a wave of muscular activity that passes through tubular organs – including the esophagus and the intestines – in a wormlike fashion, forcing substances within the tube to move steadily from the beginning of the tube to its terminus. As the food reaches the stomach, the lower esophageal sphincter relaxes to allow passage into the stomach. After food passage, this sphincter is closed to prevent reflux of the stomach contents.

Digestion begins in the **stomach**, a thick-walled, muscular organ where food can be stored long enough to be mixed with



The dog's GI system converts food to energy and nutrients that power the body. It also acts as an immune sentinel, on alert for foreign substances.

gastric juices. These juices are mucoid, highly acidic, and contain pepsin (a protein-digesting enzyme) and gastrin (a hormone that controls the digestive process via feedback mechanisms).

The canine stomach is adapted to accept huge quantities of food in any single session. It can create extra space by relaxing the muscular fibers in its walls and "unfolding" into a large reservoir where the food is churned and mixed before it is passed through the terminal part of the stomach (the pylorus) into the small intestine. The partially digested food, combined with gastric juices, is termed chyme (from the Greek *chymos*, juice), and is creamy and gruel-like.

The dog's digestive tract is quite different from ours. In the dog, partially digested foods spend a far greater amount of time in the stomach (some four to eight hours, compared to a half hour or so in humans). Then, the dog's relatively short intestinal tract usually allows foods to pass through in much shorter times, although transit times vary widely in both species depending on the composition of the food.

The digestive activity of the stomach is also controlled by the composition of the meal and neural and hormonal controls. In

the healthy animal all these work in harmony to produce an ideal inner environment conducive to complete digestion. Commercially prepared, highly processed food hinders normal digestion, since it does not resemble the diet the dog's digestive system has, over eons, been adapted to use. Many drugs also alter the digestive process. Stress, too, can change digestive patterns, sometimes producing diarrhea and/or vomiting.

Chyme enters the **small intestine** where further digestion takes place and where most of the absorption of nutrients occurs. The small intestine is comprised of three segments (duodenum, ileum, jejunum). Each has a slightly different structure and function, but their overall function is to complete digestion so that absorption can occur.

A duct from the **liver** and one from the **pancreas** terminate near each other in the beginning area of the duodenum. The duct from the liver supplies **bile** (also called gall), which alkalizes the intestinal contents and plays a major role in fat absorption by dissolving the products of fat digestion.

The pancreas has two major functions, divided into the exocrine and endocrine portions. Pancreatic exocrine function secretes acid-neutralizing bicarbonate and several digestive enzymes. The endocrine pancreas supplies hormones that circulate throughout the body and help control metabolism. Glucose is the endproduct of the nutrients that are destined to produce energy, and its metabolism and distribution to various body parts is under control of the pancreatic hormones. A lack of (or inadequate usage of) one of these hormones, insulin, results in diabetes mellitus.

After the nutrients have reached the small intestine, they are absorbed through numerous fingerlike folds called villi, which are in turn covered with millions of tiny microvilli. The microvilli perform multiple functions, including producing digestive enzymes, absorbing nutrients, and blocking absorption of waste products.

Protein digestion cleaves long chains of amino acids into individual amino acids, which are absorbed into the intestinal veins and then transported to the liver where they are further processed for use by the body.

Chyle, a milky fluid consisting of lymph and droplets of triglyceride fat (chylomicrons), is taken up by the intestinal lymphatic system during digestion. Chyle passes into veins (via the thoracic duct) where it is mixed with blood.

Together, the **large intestine (colon)** and **rectum** comprise a much shorter segment

of the digestive tract than the overall length of the small intestines. There are no villi for absorption in the colon; its surface is lined with mucous-secreting cells.

The main function of the colon is to act as a reservoir for storage; there is almost no active digestion in the large intestine except that done by the intestinal bugs. Absorption there is limited to fluids, electrolytes, fatty acids (produced as the bacteria ferment dietary fiber), and vitamins A, B, and K. To allow for storage time so there will be complete absorption of fluids and electrolytes, peristaltic movement through this portion of the intestine is slowed by segmental gut wall contractions.

The principal stimulus for motility in the large intestine is distention by its contents, the undigested material entering the colon. Colon contents stimulate both the segmental contractions that limit the speed of transit and the propulsive peristaltic activity that speeds transit time. Thus, paradoxically, adding bulk (fiber) to the diet is beneficial for treating both diarrhea and constipation. (With diarrhea, adding bulk to stimulate segmental contractions slows transit time and allows more complete absorption. With constipation, increasing bulk will stimulate mass propulsive activity necessary for fecal evacuation.)

Common diseases of the digestive tract

I'll discuss the most prevalent diseases of the GI tract by the site of disturbance.

■ Salivary glands

These glands are not a common site for disease, but they can be affected by inflammation that is either primary or that occurs as a consequence of other diseases such as distemper or other viruses. Trauma may produce swelling, which typically goes away on its own. Sometimes, after trauma or foreign body penetration, one of the dog's glands fills with mucous and saliva, producing a dramatic swelling that needs to be drained surgically. Tumors of salivary glands do occur, but they are rare.

■ Esophagus

There are several rather uncommon abnormalities of the esophagus, including esophageal dilatation, idiopathic megaesophagus, and esophageal stenosis/stricture. Symptoms of these diseases may vary, making accurate diagnosis difficult; surgery may be indicated for severe conditions. Some cases may respond to diet

changes and/or alternative treatments.

Inflammation of the esophagus is frequently due to gastric reflux (often from persistent vomiting), but it may also be instigated by anesthesia or other drugs. Conventional Western medicine will treat severe cases with antibiotics, steroids, and drugs to stop the vomiting. Alternative practitioners might use herbs and acupuncture to soothe the tissues and for their antibiotic and immune-enhancing activities.

Foreign bodies – bones, needles, fishhooks, wood splinters, etc. – are a relatively common occurrence in the esophagus; radiographs may be needed to diagnose their presence. They may cause salivation, vomiting, gagging, and reluctance to eat. Whenever possible, esophageal foreign bodies should be removed (by your veterinarian) through the mouth via an endoscope or speculum. If this is not possible, surgery may be necessary. Whatever the method of removal, consider using herbal remedies to help combat inflammation.

■ Stomach and intestines

Gastritis (inflammation of stomach) and enteritis (inflammation of the intestines) offer a panoply of diseases, caused by the usual culprits: bacterial, viral, fungal, protozoal, traumatic, and neoplastic diseases. For the holistic practitioner, almost all these can be lumped under the general term “dysbiosis” (from two Greek terms “dys,” meaning bad, abnormal, or difficult; and “bios,” meaning life or living organisms). The term seems to fit almost all the digestive problems seen in dogs; treatment protocols for dysbiosis are discussed below.

Of special interest are viral disease complexes that affect the intestines, including parvovirus, distemper, and coronaviral gastroenteritis – highly contagious diseases that can be severe, especially in puppies. Symptoms vary with the disease and its severity, but typically include diarrhea (possibly severe) and perhaps vomiting. Vaccines are available for the viral diseases mentioned above; their safety and efficacy are topics for discussion another day.

The **large intestines** can also be infected, although rarely, with a myriad of microorganisms, parasites, and mechanical disorders. The most common symptom is diarrhea. Conventional Western medicine uses a variety of drugs to control the diarrhea; holistic treatment concentrates on returning the bowel microflora to normal.

• **Inflammatory bowel disease (IBD)** and

“leaky gut” have received recent notoriety, perhaps because we see so many cases today. Most of my holistic practitioner friends believe this is a direct result of changing our dog’s diets so drastically over the past 50 years. Both of these disease complexes involve a compromised immune system that in turn creates a chronic dysbiosis in the gut.

In healthy digestion, proteins are broken down into amino acids that can be absorbed into the bloodstream; large particles of protein are held in the lumen of the gut until they can be fully digested. With the leaky gut syndrome, the cells of the gut wall loosen their normally tight attachments, and food proteins are absorbed before they are fully broken down. The body’s immune

system regards these proteins suspiciously, and classifies them as foreign invaders, inciting the immune system to react to fend off the “invaders.”

Leaky gut syndrome can be instigated by a number of factors: food allergies, *Candida* overgrowth (most often from excessive antibiotic or steroid use), or stress. Symptoms can be highly variable; many chronic diseases such as arthritis, skin and other allergic disorders, and fatigue and malaise have been attributed to a leaky gut.

Inflammatory bowel disease is also due to an immune system gone awry. IBD has many of the same symptoms as leaky gut, with perhaps a more profound immune system response. Either of these diseases may predispose the patient to the other disease,

and both can become chronic.

Conventional treatments for leaky gut and IBD include antibiotics, and interestingly, steroids or other drugs that shut down the immune system. Holistic practitioners, in contrast, will try to balance the immune function of the digestive system by encouraging a normal flora and by providing immune-enhancing treatments such as herbs and acupuncture.

Specific treatment protocols for either of these diseases will, of course, vary for the individual case, and treatments are too complex to be discussed in depth here. In my clinical experience, I’ve relied on the general protocol for dysbiosis below, adapting it for each individual.

A common misconception when treat-

Three Extra “Organ Systems” Associated with the Digestive Tract

■ Intestinal microflora

Inside the intestines, mostly in the large intestine, resides a living mix of dozens of bacterial, viral, protozoal, and fungal species – billions of beneficial “bugs” in each gram of undigested material. Since the totality of this microflora engage in activities that enhance health and healing, these bugs are best thought of as a functional unit, or organ system, absolutely necessary for the well-being of the animal.

The most common bacteria in the large intestine include several species of *Bacteroides* and *Bifidobacterium*, along with high numbers of *Streptococcal* and *Clostridial* species and several types of *Lactobacilli*. The total numbers of these helpful bacteria and the ratio of one species to another depend on the overall health of the intestines, and on other factors such as diet, local immune responses, levels of stress, and the use of drugs – particularly antibiotics and glucocorticoids.

The beneficial activities of the normal flora of the intestines are almost endless, but here’s a short list of the most important:

- ◆ Improve nutrient absorption
- ◆ Produce and enhance the absorption of several vitamins including vitamins A, B, and K
- ◆ Maintain the integrity of the intestinal tract and help protect against “leaky gut” syndrome
- ◆ Prevent and treat antibiotic-associated diarrhea
- ◆ Prevent the growth of disease causing microbes such as *Candida spp.*, *E. coli*, *H. pylori*, and *Salmonella*
- ◆ Enhance the functional ability of the immune system
- ◆ Help acidify the intestinal tract, providing a hostile environment for pathogens and yeasts
- ◆ Help bind and either eliminate or prevent the absorption of a variety of food-borne toxins
- ◆ Evidence indicates that intestinal microflora may be protective against several types of cancer

In contrast, while your dog’s gut bugs naturally promote health, changes in the intestinal environment (with the use of antibiotics, for example, which indiscriminately kill most bac-

teria, including the helpful ones) may cause the helpful bacteria to mutate into pathogenic (disease-causing) species. And, changes in the natural interrelationships – again, with drugs that upset the normal balance between bacterial species – may let other pathogenic bacteria gain a foothold in the gut.

Further, it should be noted that this “organ system” of helpful bacteria is in constant flux; the total numbers, activities, and the ratio of species varies constantly, depending on the dog’s diet, level of toxins and/or synthetic antibiotics presented to the gut, and levels of stress (or the levels of “synthetic/artificial” stress from glucocorticoid use).

Finally, it’s important to note that much of the experimental work on gut microflora has been done in the human species. It may not be appropriate to transpose *all* these data to our dogs, who are unfortunately undergoing a rapid transformation from their ancient, primarily carnivorous diets to today’s commercial diets, which are excessively high in carbohydrates.

■ Intestinal immune system

Current (human) research indicates that about 70 percent of the immune system is located in or around the digestive system. Called gut-associated lymphatic tissue (GALT), it is located in the lining of the digestive tract, especially in lymphoid-rich structures called Peyer’s patches. The system acts as a sentinel, on constant alert for foreign substances. It’s likely this is why so many of the chronic diseases we see in dogs can be traced back to the gut, back to something in the ingested foods that has overly-activated or otherwise interfered with natural immune functions.

■ Nervous system

The digestive system has its own nervous system, which can function on its own without the brain’s help. In this second nervous system, we can find every neurotransmitter that is found in the brain. “Gut feelings” can thus be very real, and when a dog is stressed, those feelings can profoundly upset the normal digestive processes. Calm dog; calm gut. Calm gut, normal and healthy digestion.

ing either IBD or leaky gut is that you can effect a cure simply by changing the diet – from beef to an exotic protein source, such as kangaroo or ostrich. While diet changes may be effective for the short term, an unhealthy digestive tract will eventually react to (and may become allergic to) whatever protein it is exposed to most. Long-term healing will always rely on returning the gut to health. Re-establishing a healthy, more natural gut microflora is the *one* necessary step common to *all* cases of dysbiosis.

- There are hordes of **gastrointestinal parasites** that infest the digestive tract, from the mouth to the anus. While some of these can cause severe problems, for the most part they are easily controlled with commercially available drugs. Holistic practitioners tend to look at internal parasites as another cause of intestinal dysbiosis; our challenge is to keep the parasite load to a minimum (it is not always in the best interests of the animal to eliminate *all* parasites) *without* using medications that may be toxic. We will discuss non-toxic parasite control in a later article.

- **Ulcers** are not a common problem in dogs, but to me, they represent much of what is wrong with current-day, Western medical thinking. There's been a big push lately to put the blame for ulcers on one bacterium, *Helicobacter pylori*, thus making it easy to effect a "cure" with antibiotics.

There are several problems with this approach. First, while *H. pylori* can be isolated from most (human) patients who have ulcers, there are a percentage of patients (30 percent or more) who have ulcers without the presence of the bacteria. Second, *H. pylori* can be isolated from many perfectly healthy individuals. Third, animal studies (dating back to my early days as a pathologist) indicated that it is almost impossible to infect an animal with *H. pylori* and produce ulcers, unless the animal is concurrently stressed. Stress, of course, almost certainly plays a role in producing ulcers, if it is not the primary cause.

Despite all this scientific evidence, apparently it is far easier to sell a magic bullet treatment (antibiotics that kill *H. pylori*) than it is to get folks to look for long-term, holistic ulcer preventatives, or to lower the

stress levels in their dogs' lives.

A cynical view would suspect that the antibiotic-producing drug companies have spun the scientific findings to enhance their bottom line. Of far more concern than all this, however, is the fact that *H. pylori* is a bacteria that mutates rapidly when it is exposed to antibiotic pressures, much more rapidly even than most other bacteria. So, we have a very rapidly mutating bacterium, to which Western medicine responds with newer and better antibiotics, to try to keep up with the mutations. Who knows what evil ogre of a Frankenstein bacterium we will ultimately produce with our inappropriate overuse of antibiotics?

- While **neoplasia** (tumors) are relatively rare, they may occur anywhere throughout the GI tract. Symptoms will depend on the severity and location of the tumor; X-rays and/or biopsy may be required for proper diagnoses. Lymphosarcoma may create an infiltration of lymph cells throughout most of the length of the gut wall, thereby making nutrient absorption nearly impossible.

Some neoplasias, notably lymphosarcoma and mast cell

tumor, may respond to chemotherapy. Surgery may be indicated for nodular or well-circumscribed tumors. Holistic practitioners use a variety of methods to treat neoplasia, including homeopathy, acupuncture, and herbal remedies.

- **Anal sacs** are two structures located slightly below and lateral to the anus. Their function is unknown, although many veterinarians believe that some evil entity created the pox of anal sacs as a way to aggravate veterinarians and to befoul their exam rooms with what I consider the most noxious and fetid odor on this earth – and I am a pathologist, accustomed to all sorts of obnoxious aromas.

Anal sac disease is the most common disease entity of the dog's anal region. Small breeds are predisposed. Large or giant breeds, and in my experience, "country" dogs that are able to roam over some range are rarely affected. The disease can result in impaction, infection, or abscesses.

Conventional medicine treats anal sac problems with the usual antibiotics and glu-

cocorticoids or surgery if severe. The conventional recommendation is also to manually express the sacs periodically, supposedly to keep them cleaned out. However, I am convinced that proper exercise and a more natural diet will virtually eliminate most, if not all, anal sac problems.

Dysbiosis and treatments

The term *dysbiosis* seems to fit almost all the digestive problems seen in dogs. From the holistic perspective, nearly all problems that arise in the digestive tract are best treated, long term, by remembering that symptoms are a signal that something bad has happened to the living organism (and especially to the trillions of living organisms, the helpful flora of the gut); something abnormal has made their lives difficult or impossible.

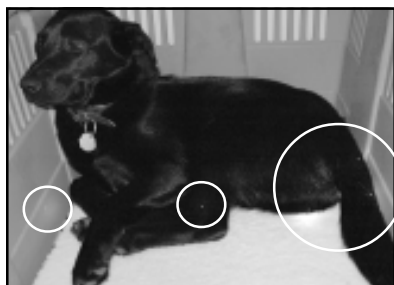
Also, keep in mind that all animals, but particularly the dog, have an amazing inner ability to maintain their own system in eubiosis ("eu," from Greek meaning well or good; the opposite of "dys"). Dogs seem especially well adapted for coping with all sorts of intestinal insults. Think here of the ancient dog whose diet often consisted of decaying meats, and the more recently domesticated dog whose diet has been (until 50 to 100 years ago) whatever was left over from the human table – fish heads, animal guts, and scraps of meat, fat, and bone.

Our modern dog evolved a tremendous capacity for dealing with meats, fats, and decaying matter; its digestive system is set up to allow for natural detoxification.

As we have seen, compared to the human digestive tract, the dog's is much shorter and transit time is thus shorter, which gives toxins much less time for exposure to the gut. In addition, the dog appears to have the ability to decrease intestinal transit time rapidly, allowing for some often dramatic bouts of transitory diarrhea. Dogs also seem to have the ability to vomit quite easily. (You and your rugs probably already know this.)

The bottom line is: Don't get too excited if your dog pukes a few times, has a few bouts of diarrhea, or refuses to eat for a day or two. These are his natural methods of detoxification. The time to become concerned is when vomiting or diarrhea is severe, when either the vomitus or the stools are bloody, when he has a concurrent fever, or when either the diarrhea or vomiting has persisted for more than eight hours or so.

The basic steps I take when treating dysbiosis are as follows, and I'll discuss each in turn below:



Tapeworm eggs look like bits of rice on the pup's nether end.

- Detoxification
- Soothing the intestinal tract
- Alternative therapies, including acupuncture, homeopathy, and herbal remedies
- Returning the gut to its normal microflora
- Maintaining a diet that is natural for the canine

Detoxifying the dog

Our world has become laden with toxins, many of which are carcinogens. Our dogs are exposed to an even higher toxic load than we are; their noses are constantly sniffing the ground, where toxins accumulate. We throw even more toxins into the mix every time we use pesticides or medications to kill internal parasites, and when we feed them foods heavy with artificial preservatives, colors, and flavors.

By the time they are a few years old, our pets have been so exposed to the plethora of toxins that exist in their (and our) world, I think every holistic, long-term health maintenance protocol needs to include an entry period of detoxification. Then, I believe all of us and our pets should undergo a mild detoxifying program several times a year, perhaps coinciding with the four changes of the seasons.

Detoxification programs vary somewhat, depending on the specific needs of the animal and the seasons. They should be used periodically, not daily. Following are some basic principles:

- **Fasting:** Give the body a chance to get rid of some of the junk that is swimming around in the gut and bloodstream. Remember that over thousands of years the canine digestive tract has become well-suited for the predatory lifestyle of long periods of “food famine,” followed by a kill, which provides a short-term glut of nutrients.

A periodic day or two of fasting is good for all of us, and it is especially beneficial for our canine companions. (Some of my holistic veterinary colleagues recommend a three- to five-day fast, several times a year.) You may want to include a mild herbal laxative before the fast, and be sure to make sure your dog drinks plenty of water during and afterward. Discuss the exact protocol with your holistic veterinarian.

- **Detoxifying supplements and foods:** Fiber and/or mild herbal laxatives stimulate peristalsis and encourage stools to pass quickly and easily. Bulk fibers such as psyl-

lium husks, more potent herbal laxatives, and/or diuretics (to help detoxify via the kidney) may be recommended.

- **Enhance healthy flora:** The most important step. See below for more detail.

Soothing the intestinal tract

Demulcent herbs soothe and protect the digestive tract membranes. Demulcent herbs include marshmallow root (*Althea officinalis*), oats (*Avena sativa*), and slippery elm bark (*Ulmus fulva*).

Antispasmodic herbs relax any nervous tension that may cause digestive colic. These include chamomile (*Anthemus nobile* or *Matricaria chamomilla*), hops (*Humulus lupulus*), and valerian (*Valeriana officinalis*).

Nonconventional therapies

It’s been my experience that alternative and complementary medicines are extremely effective for alleviating almost all functional problems of the digestive system, and they cause far fewer long-term problems. The primary therapies I use for acute cases include herbs, homeopathy, and acupuncture (Traditional Chinese Medicine).

- I first look to **herbal remedies** for treating intestinal problems because they have such a wide range of specific activities. Also, they offer a mild and safe therapeutic input that will help harmonize a system temporarily out of whack. There are many categories of herbs that can be helpful; some of my favorites are listed below.

Carminative herbs contain volatile oils that affect the digestive system by relaxing the stomach muscles, increasing the peristalsis of the intestine, and reducing the production of gas in the system. Herbs in this category include cayenne (red pepper, *Capsicum spp.*); chamomile (*Anthemus nobile* or *Matricaria chamomilla*), fennel (*Foeniculum vulgare*), ginger (*Zingiber officinale*), peppermint (*Mentha piperita*), and thyme (*Thymus vulgaris*).

For antispasmodic and demulcent herbs, see my comments above (under “Soothing the intestinal tract”).

There are several **hepatic** herbs that enhance the liver’s activity. Dandelion root (*Taraxacum officinale*), goldenseal (*Hy-*

drastis canadensis), wild yam (*Dioscorea villosa*), and yellow dock (*Rumex crispus*) strengthen and tone the liver. **Cholegogues** are herbs that increase the production of bile by the liver. These include artichoke leaves (*Cynara scolymu*), dandelion root, rosemary (*Rosmarinus officinalis*), and turmeric (*Curcuma domestica*).

Laxative herbs include mild-acting herbs that enhance digestion, such as dandelion root, licorice (*Glycyrrhiza glabra*), and yellow dock. More potent laxatives include cascara sagrada (*Rhamnus purshiana*) and senna (*Cassia spp.*). **Antimicrobial** herbs may be used when the cause of the upset is microbial, either bacterial or viral. Many herbs have broad-spectrum antimicrobial activity; some of my favorites for intestinal conditions include chamomile, echinacea (*Echinacea spp.*), Oregon grape root (*Berberis aquifolium*), and thyme.

Check with your holistic veterinarian or herbalist for dosages; these will vary according to the size of the animal, the type of delivery system used, and whether your dog needs a therapeutic or maintenance dose.

- Acupuncture/Traditional Chinese Medicine (TCM) fully appreciates the complexity of the GI system, and the TCM treatment for GI problems helps balance the interaction of several biodynamic systems.

According to TCM theory, the body’s energy or *chi* flows through meridians that pass thru the body, connecting specific acupuncture locations. To treat an animal’s disease, an acupuncturist will place needles along the meridians to balance the flow of *chi* and thus produce health.

There are also easy-to-find points that anyone can activate (with a light-touch, circular massage directly on the point) to help create a balance in the digestive process. You can learn more about do-it-yourself acupressure in texts such as *Four Paws, Five Directions*, by Dr. Cheryl Schwartz; *Veterinary Acupuncture*, by Dr. Allen Schoen; and *The Well Connected Dog: A Guide to Canine Acupressure*, by Nancy Zidonis and Amy Snow.

Finally, if you want good healthy *chi* for your dog (or for yourself), you need to provide *food* that contains good healthy *chi*. Healthy food for dogs has vitality (is not overprocessed), is close to the canine’s natural diet, is fresh, and does not contain artificial additives.



The Honest Kitchen offers a soothing herbal supplement: call (858) 483-5995.

• There are dozens of **homeopathic** remedies that are indicated for treating a variety of intestinal problems. Treating acute intestinal conditions is one example where I might use the acute approach to a homeopathic therapy. (See sidebar below.)

Perhaps the king of all remedies for vomiting is *Nux v.* Other remedies for intestinal upset include *Arsen. alb.* (for simultaneous vomiting and diarrhea); *Ipec.* (vomiting); *Merc. sol.* (pasty, non urgent diarrhea); *Merc. cor.* (straining with a forceful spurt of diarrhea); *Rhus tox.* (straining with bloody, mucoid, watery or frothy stools); *Phos.* (loose, yellow stool).

For acute cases (where the animal is otherwise healthy) a high potency is indicated (200c to 1X or higher, perhaps several doses, repeated every four to five hours during the first 24 hours). I have found the homeopathic remedies, when used in classical fashion (again, see sidebar) to be very helpful for long-term therapy, especially when they are used in combination with other methods for re-establishing and maintaining a normal gut flora.

Returning the gut to its normal microflora

I hope that by now I've convinced you that a normal gut microflora is essential for maintaining your dog's healthy gut and its active digestive system. And I hope you understand that antibiotics, glucocorticoids, inappropriate foods, an overload of toxins, and high levels of stress are all detrimental to the good-guy microflora.

In a perfect world, a dog's intestines would naturally create an ideal environment for the growth of healthy microflora. Unfortunately, our dog's world is not nearly perfect, and today's realistic world creates a plethora of negative influences that adversely affect the gut's microflora. With all these negative outside influences, it makes sense for us to try to recreate a healthy microflora by resupplying some or all of the healthy bugs a dog's belly needs.

Unfortunately, there is no simple, single way to accomplish this. Since the gut flora constantly changes, depending on many factors including dietary intake, it is almost impossible to predict what kinds of bugs are needed. Plus, the microflora of the dog is likely very different from that of the healthy human, but most of the experimental work has been done on humans.

Many of the healthy bugs are destroyed in a highly acidic medium (that is, in the stomach), so, in theory, using the oral route

to supply the bugs might not work, although surely in nature, ingestion of healthy microflora is the way animals obtained their healthy bugs.

Given these problems, here are some suggestions for supplying healthy microflora for your dog:

- Add small amounts of healthy microflora on a periodic basis, at least four or five times a week.
- Use a product that contains several different genera and species of bacteria; give the gut the most options possible.
- Use products that contain live and active cultures.
- Keep the product refrigerated, and make sure it has been refrigerated in the store. The bugs die quickly when not refrigerated.
- Don't use sweetened products; the sugar only enhances the possibility for yeast overgrowth.

In order to simplify all this, I usually recommend using a good organic and unsweetened yogurt product, one that lists the bacteria on the label and one that claims

their cultures to be "live" and "active." It's been my experience that, even though the bugs aren't supposed to survive in the acid media of the stomach, dogs seem to have healthier guts when they are fed a dollop of yogurt every day or so.

Feed a natural diet

After you've helped your dog create a healthy gut environment, you can help maintain it with a good-sense diet. Consider that the canine's intestinal tract has evolved to eat meats, fats, and rotting and decaying matter. The dog's GI system is not prepared to process the refined carbohydrates most people feed their dogs, and it is certainly not functionally capable of utilizing or detoxifying the many synthetic substances it is exposed to today.

As the final step you can take to help insure intestinal health for your dog, consider a home-prepared diet. 🌿

Dr. Randy Kidd earned his DVM degree from Ohio State University and his PhD in Pathology/Clinical Pathology from Kansas State University. A past president of the American Holistic Veterinary Medical Association, he's author of Dr. Kidd's Guide to Herbal Dog Care and Dr. Kidd's Guide to Herbal Cat Care (see page 24).

"Acute" or "Classical" Homeopathy?

In acute homeopathy (as opposed to "classical homeopathy"), remedies are chosen to match the disease symptoms occurring at the time. Acute use implies that you are expecting to palliate (ease the symptoms) rather than to cure (treat and eliminate the deeper causes of the disease).

Conventional Western medicine's drugs and methods typically palliate symptoms; seldom is any thought given to curing the deeper causes. Classical homeopathy, in contrast, selects a deeper remedy that matches the totality of the animal's symptoms, which include the short- and long-term physical, mental, and emotional components of the dog, *as well as* the ongoing physical symptoms of the current disease crisis. Classical homeopathy requires taking an extensive history of the animal's totality of symptoms, past and present. This in-depth intake alone may take an hour or more.

Interestingly, I have noticed that many of the patients I have the opportunity to treat classically (say, following up after an acute health crisis) seem to have a totality of symptoms that matches the remedy I had chosen to use acutely. In these cases, it is a simple matter to continue with the classical approach to remedy selection, after the initial acute dosing.

An example of this might be a vomiting dog that responds favorably to *Nux v.*, and later is found by the diligent veterinarian who provides maintenance care to have many of the characteristics of a "Nux personality" – nervous, irritable, cannot bear noises or odors, sullen, does not want to be touched, has an "irritable" bladder, feels worse in the mornings, and may have periodic bouts of constipation and/or asthmatic-type coughing.



Going Gluten-Free

A veterinarian with celiac disease tries his gluten-free diet on dogs with certain health problems, with amazing results.

BY SHANNON WILKINSON

Does your dog suffer from allergies, joint pain, epilepsy, recurrent ear infections, or other chronic health problems? Have you tried lots of treatments – alternative and conventional – but you just can't seem to help your dog get well and stay that way? You might want to look a little closer at the diet recommendations of John Symes, DVM.

For the last four years, he has advocated (in his clinic and on his Web site) a feeding regime for dogs that eliminates gluten grains (including wheat, barley, and rye), all dairy products, soy, and corn. "The response was so dramatic that I was afraid at first that I'd cure myself out of practice," he jokes.

Dr. Symes, who calls himself "Dogtor J," himself suffered for more than 40 years from a variety of health problems. He had allergies, heartburn, depression, chronic fatigue, intestinal problems, memory difficulties, joint pain, balance issues, and

fibromyalgia. He took a small pharmacopoeia of drugs to ease his symptoms, but didn't feel well.

Then his brother was diagnosed with celiac disease. "My brother gave me a list of 20 symptoms of celiac disease; I had every one of them," explains Dr. Symes. He went to his doctor and was tested. His self-diagnosis was confirmed; like his brother, he had celiac disease.

Celiac disease, also known as gluten intolerance, is a condition in which glutes – proteins found in some cereal grains – cause destruction of the villi in the small intestine. The damaged villi are unable to function properly, resulting in poor absorption of nutrients.

Eliminating the offending foods will usually bring about a reduction or even elimination of symptoms, sometimes in just a matter of days. After adopting a new, gluten-free diet, it wasn't long before Dr. Symes was off his drugs and feeling better than he had in a very long time.

"It was amazing how quickly I felt better," he says. In just four days, he had a noticeable improvement in his health and well-being. And he said the same quick results often happen with dogs, too.

Making the connection

As Dr. Symes researched his own ailment, he began to see similarities between problems suffered by gluten-intolerant people and the ailments of many of his four-legged patients. This made him start wondering whether the commercial canine diets, most of which are loaded with gluten-containing grains, were causing the problems he saw most frequently in his veterinary clinic.



At 13 years old, Max is a little overweight, but his owners are pleased to report this is his only problem. Three years ago, his lifelong allergies were so severe, he would scratch himself bloody. A gluten-free diet stopped his itching.

Dr. Symes dug deeper into the problem of why gluten caused so many health issues for people and pets. "In a nutshell, after all of my research, I decided that the center of our health universe lies in the duodenum, a 'J-shaped' stretch of intestine that I now call Pandora's box," he explains.

The duodenum is key to digestion in both dogs and people. A variety of digestive enzymes, such as protease and amylase are secreted there, as are hormones, bile acids, and other substances needed for efficient digestion. The duodenum is lined with the tiny, finger-like villi. As the enzymes and acids break up the food molecules into even smaller parts, such as amino acids, sugars, fatty acids, vitamins, and minerals, these nutrients are absorbed into the bloodstream by the capillaries within the villi.

With celiac disease, the body reacts to gluten by producing IgE antibodies. This onslaught of antibodies damages the villi, sometimes irreversibly. This may cause the appearance of allergy symptoms, such as itchiness and diarrhea. The internal damage, however, is even more insidious. Without

The Whole  Dog Journal™

WHAT YOU CAN DO . . .

- **Try giving your dog a low-gluten or gluten-free diet if he has chronic health issues.**
- **Keep your veterinarian apprised when making changes to your dog's diet and/or medication. In the best case scenario, your dog's improvement on a gluten-free diet teaches the veterinarian something!**
- **Read the labels of all foods and treats you give your dog. Don't forget the foods you share with your dog.**

adequately functioning villi, vitamins, minerals, and other nutrients are not properly assimilated, creating a kind of subclinical malnutrition. This process is sometimes referred to as malabsorption or “leaky gut syndrome.”

Gluten can act like glue in the intestine, clogging the villi. This in turn can result in villous atrophy in those who are susceptible. “It’s the nature of the starches to be sticky,” says Dr. Symes. “As it turns out, the foods that are the ‘stickiest’ are the ones that cause the most problems. Wheat and soy are the worst, while oats and rice seem to be the best – the least sticky. Corn is in the middle.”

Now he can see why lamb and rice foods have become so popular. “Rice is the least of the adhesives and thereby the least potentially allergenic,” he says.

Treating disease with diet

Of course, Dr. Symes recommends a gluten-free diet for all of his canine patients who suffer from apparent allergy symptoms or poor digestion. What you may not expect is that he also recommends a gluten-free diet for ALL dogs! Not all his clients are willing to switch foods, or see any need for a change in their dogs’ diet. However, the ones that do are often pleasantly surprised and wouldn’t change the food back.

But the most dramatic turnarounds Dr. Symes has seen in his patients has been with dogs suffering from one of two chronic conditions: allergies or idiopathic epilepsy. He’s had dogs who were scratching themselves

Why Dairy-Free, Too?

People whose villi have become damaged due to celiac disease (and other causes) often experience difficulty in digesting foods that contain lactose. This is because “lactase,” the enzyme needed to break down lactose, is produced in the microvilli. When the microvilli are inflamed and irritated – by celiac disease or other causes – they stop producing the amounts of lactase needed to properly digest lactose, and the person suddenly becomes lactose intolerant. Many doctors recommend that their patients with celiac disease go on a gluten-free *and* a dairy-free diet, to give the microvilli a chance to rest and recover. Often, after a period of a gluten- and dairy-free diet, the person can start eating dairy products again.

When Dr. Symes moved to a gluten-free diet, he also stopped eating any dairy products. He suggests that owners moving their dogs to a gluten-free diet also cease feeding their dogs any dairy products.

raw stop scratching just days after changing their diet to a gluten-free one. He’s also had canine epilepsy patients who stopped having seizures once their diets were switched.

Max, a Beagle belonging to Alabama residents Jan and Mark Davidson, is a perfect example. “He always had bad ears, and was constantly scratching. He never sat still, he was scratching, scratching, scratching. It was constant,” explains Jan Davidson. All of that scratching brought him to the point of bleeding again and again, despite having been on prednisone for years.

Allergy testing confirmed that Max was allergic to the ingredients of every food he’d ever been fed. On top of that, he had inhalant allergies to 35 of the 40 substances he was tested for. Dr. Symes recommended switching Max to a duck and potato food.

“I remember how amazing it was when

we switched his food,” says Davidson. “Immediately the situation reversed itself.” That was more than three years ago. Max, now 13, still occasionally needs an antihistamine tablet when his inhalant allergies flare up, or will need an extra thorough ear cleaning. The rest of his once ubiquitous allergy symptoms are gone.

“I often see the worst of the worst respond that quickly,” says Dr. Symes. “It’s amazing how quickly their immune systems get back to normal.”

Dr. Symes has noticed a similar effect with himself. After changing his diet to combat his celiac disease, he found that he no longer had the full-blown allergic response he had always had with cats.

These diet recommendations also have profoundly helped some of his patients with idiopathic epilepsy. “After switching their diets to a gluten-free diet, they stopped all seizures within days, now are off all medications and seizure-free,” says Dr. Symes.

“Buddy was having at least one grand mal seizure a week that we knew of, God knows how many he had during the day while we were gone,” says Brenda Strain. Buddy, a Standard Poodle-cross, started having seizures shortly after the Strains adopted him at five years old. He was also troubled by allergies and received antihistamines regularly to control his symptoms.

“His seizures were pretty dramatic. He would try to crawl over to us, and hit the floor and furniture,” says Strain.

Strain took Buddy to see Dr. Symes. His first suggestion was to change Buddy’s food. Strain switched Buddy to IVD’s rabbit and potato variety dry food, and then later to the duck and potato type.

“Buddy didn’t have another seizure for months, except once when I ran out of food,” says Strain. She didn’t make it to the clinic in time to pick up Buddy’s food, and

Dr. Symes’ Diet Recommendations

It is important to carefully read the labels of dog foods (whether they are dry, canned, frozen, or dehydrated) *and* the labels of treats. Some foods contain hidden sources of the following items.

Choose foods WITHOUT the following ingredients:

- ◆ Wheat, barley, and rye. Dr. Symes regards oats as the safest grain, as far as allergies are concerned. He says that oats do contain high levels of glutamate and can contribute to pain and epilepsy in some animals.
- ◆ Dairy. This includes milk, cheese, whey, casein, etc.
- ◆ Soy.
- ◆ Corn (including corn gluten meal), if allergies persist. Dr. Symes thinks this is especially important with asthma, pain, lower GI problems, and epilepsy.
- ◆ Rice, if allergies persist after removing the grains listed above. At this point an owner is down to dry foods that use potato or sweet potato for carbohydrates.
- ◆ Beef and fish, *only* if allergy systems are present and persist after eliminating the above ingredients. In Dr. Symes’ experience, some dogs have secondary allergies to these proteins, and improve on other protein sources.
- ◆ Artificial preservatives and colors.

purchased a bag of lamb and rice food to tide him over until she could get his special food. Within 24 hours, Buddy had a seizure. "We now buy two large bags of the duck and potato food at a time," says Strain. In addition to the seizures stopping, Buddy has had some relief from his allergies. "The diet seems to help a lot, he's not as itchy."

Every dog may not have the same dramatic results as some of Dr. Symes' patients. However, a change in diet may be a great place to start if you've hit dead-ends with other treatment options. As Dr. Symes says, "If dogs can be cured of epilepsy almost overnight with a change in diet, what else can a change in diet do?" 🐾

For contact information for Dr. Symes, see "Resources," page 24.

Shannon Wilkinson is a TTouch practitioner, life coach, and freelance writer who lives with a dog and cats in Portland, Oregon.

Another Holistic Vet Uses a Similar Diet

W. Jean Dodds, DVM, is renowned for her research on the canine immune system. Founder and president of Hemopet, a national canine blood bank, Dr. Dodds is also an expert on veterinary vaccines and dogs with thyroid problems.

In a presentation to the 2004 conference of the American Holistic Veterinary Medical Association, Dr. Dodds mentioned that her recommended home-prepared "liver-sparing" diet works very well for canine epilepsy patients. She added, "Dr. John Symes has a similar diet that he uses for epilepsy patients, but he came to it from another place altogether. Without knowing it, we've been doing the same thing."

We asked Dr. Dodds to comment on Dr. Symes' diet. She said, "I think his diet is excellent. We use something very similar for all of our inflammatory bowel patients and it turns out to be excellent. Some nutritionists who have read about the diet say, 'You can't feed that! It's unbalanced.' But I have people say, 'My dog was on death's door until we put him on that diet, and he is still alive four years later.'"

Dr. Dodds' basic liver cleansing diet:

Boiled white potato/sweet potato (1:1)

Cooked white fish

Mix 2/3 potato and 1/3 fish. Can be augmented with boiled carrots, garlic, mixed Italian herbs, and a liquid multivitamin/mineral supplement for dogs.

Case Underscores Importance of Total Avoidance of Glutens

Sonny Carter made a very difficult decision: He was going to end the suffering of his four-year-old German Shepherd, Shadow. The gorgeous dog had experienced seizures since he was about a year old. At first they were infrequent, but they had steadily increased in number and severity.

"I was feeling so bad for what the dog was going through," explains Carter. Shadow's seizures were getting worse, and he was experiencing many of the common side effects of seizure activity. "He didn't know who we were after a seizure and would growl at us when we tried to help him," Carter adds.

Carter's vet prescribed phenobarbital and Valium for Shadow's seizures. The drugs didn't cause a noticeable reduction in the number of seizures, although the Valium used during and after seizures did seem to help calm the dog. This didn't make his owner feel a lot better, however. "We were just doping him up and letting him go through them," explains Carter.

Since Carter's vet felt there were still medications to try in combating Shadow's epilepsy, he declined to euthanize the dog. Desperate, Carter took Shadow to another clinic, looking for someone who would support his decision. The vet was Dr. Symes.

Dr. Symes had already recommended diet changes for more than a dozen dogs with epilepsy, which resulted in a significant reduction or in many cases elimination of their seizures. He explained the concept to Carter and asked him to give a change in diet a try with Shadow.

Dr. Symes wasn't making the recommendation lightly, or discounting Carter's pain at suffering through the seizures with his beloved dog. In fact, the veterinarian had the opportunity to join Carter in his helplessness, as Shadow had a series of seizures while in Dr. Symes' clinic. Dr. Symes and Carter sat on the floor of the exam room, well past closing time, as Shadow went in and out of seizure for four hours. Still, the veterinarian thought the dog should be given a chance on a new diet.

Finally, Carter was able to take his dog home, along with a bag of IVD Duck and Potato food. He started feeding the new food immediately and the change was almost immediate. Shadow had a few small seizures the first few months, and then was seizure-free for nine months. Carter finally felt comfortable that he didn't have to watch Shadow so closely.

"Dr. John made a big difference in the way this dog was getting around," says Carter.

SAD ENDING

Unfortunately, Shadow's recovery wasn't as long-lived as Carter hoped. Shadow started having seizures again. One tragic day, Shadow had a seizure while out of Carter's sight and came out of it in a frantic state. Disoriented and agitated, he got out of the yard and was hit and killed by a car.

Carter wasn't sure what had caused the return of Shadow's seizures until a month after the accident. "My neighbor asked where Shadow was, since he hadn't seen him for awhile," says Carter. He told his neighbor about the dog's health issues and special diet, and what had happened to him. Horrified, the neighbor confessed that he'd been feeding Shadow toast each morning as a special treat.

This isn't the only time Dr. Symes has seen treats cause seizures. He's seen it happen with other patients, and had e-mails from people whose dogs had similar reactions. Sometimes just one meal of the wrong food, or treats with offending ingredients, and the seizures start again.



Shadow enjoyed nine months nearly seizure-free; forbidden treats caused his demise.

Good Timing

We like it when articles come along at just the right moment.

This is just a heartfelt, appreciative, giant, THANK YOU for an article in the January 2005 issue, “What Promotes Bloat?”

We have lived with Dobermans for more than 30 years. Most have been lucky enough to become champions (owner-handled) in the conformation or obedience ring. We thought we had experienced every sort of emergency in our many years with these wonderful spirits.

The January issue arrived, and for some reason, I quickly perused the article on bloat. As the fates would have it, not two days later, on a Saturday night during the holidays (of course) our youngest bitch (six years), Zen, was starting to exhibit a lot of restlessness. I completed several minor tasks that evening, keeping her in sight. A half hour had passed, and as I walked down the hall toward her, the “symptoms” box from the article flashed in my mind. I felt her abdomen and sides, reached for my purse and car keys, and informed my husband that we were all going to the emergency vet.

By 9 pm, Zen was in surgery for – you guessed it – torsion plus bloat. The surgeon “tacked” her stomach so that it wouldn’t happen again. I can tell you for a fact that we would not have acted as quickly as we did had I not read that article in WDJ. Zen was home in 48 hours, her staples were removed 10 days later, and she is back to being her mischievous self again.

Judith Segale
via e-mail

Timing is everything, isn't it? We're happy to have had such luck in publishing the article at the ideal time for your family.

DRY FOOD REVIEW

I just read the review of dry dog foods (“Why We Like Whole Foods,” February 2005). Only the newest additions to your “approved” list were described in detail. The past selections to your “approved list” were listed but not described.

Also, the top favorites were not ranked. Which foods are considered the best? In the past, I thought you listed the top five.

Teesh Rayner
via e-mail

We first reviewed dry foods in our second issue, published in April 1998. Every year since then, we've published our annual dry food review in the February issue. In 1999, we first used the phrase “Top 10 Dry Dog Foods.” We didn't rank those “top 10” foods; we presented them as equals in alphabetical order. We repeated the format in 2000.

By 2001, the “premium” dog food revolution was well underway; this segment of the pet food market had markedly expanded and the number of foods we knew that met our selection criteria had increased way past 10. That was the year we stopped using the phrase “top 10.” We did this for the same reason we have never rank-ordered our selections, and the reason we'll never say which food is “best.”

Our goal is to steer you into the right part of the pet supply store – to help you identify the hallmarks of the high-quality foods from among which you should select the “best” for your dog.

There is NO “best” for ALL dogs. We're just trying to get you in the right ballpark, where you can test the various top-quality options on your dog. We might have a long-standing affection for a certain beef and barley food, based on its apparent quality and its positive effect on our own dogs. But there's no way that food would be “best” for a dog who is allergic to beef!

Regarding detailed descriptions of all the foods on our new and past “approved” lists: There are almost 50 foods on our “approved” list, and we've described some of them several times. We hate to take up space repeating the same information to our long-term subscribers, but we appreciate the dilemma this poses for newer readers. In the future, we'll try to find a way to include descriptions of all past selections. 🐾

CORRECTIONS

There were several errors in “Matters of the Heart” (February 2005):

- The descriptions of the mitral and tricuspid valves were switched. The mitral valve separates the left atrium from the left ventricle; the tricuspid valve separates the right atrium from the right ventricle. Thanks to Berklee Robins, MD, for noting this error.
- The descriptions of certain Omega fatty acids were also switched. Linoleic and gamma-linolenic acid are Omega-6s. These are found in raw nuts, seeds, legumes, borage, grapeseed, primrose, and sesame. Alpha-linolenic acid and eicosapentaenoic acid (EPA) are Omega-3s. Soybeans contain both Omega-3 and Omega-6 EFAs. Thanks to Certified Tellington TTouch Practitioner Claudene E. Mc Auliffe, MS, for alerting us to these errors.
- Finally, an editing error led at least one reader to worry that the amino acids taurine and carnitine can cause heart conditions in dogs. It is actually a *lack* of taurine that can cause dilated cardiomyopathy in cats; similar problems have not been reported in dogs. A carnitine *deficiency* has been implicated in heart disease in humans, and there is evidence that it may also be involved in occasional canine heart problems. We regret the errors.



RESOURCES

BOOKS

WDJ Training Editor Pat Miller is author of two books: *The Power of Positive Dog Training* and the brand-new *Positive Perspectives: Love Your Dog, Train Your Dog*. Both books are available from DogWise, (800) 776-2665 or dogwise.com

Dr. Kidd's Guide to Herbal Dog Care and *Dr. Kidd's Guide to Herbal Cat Care* are published by Storey Books, (800) 441-5700 or storeybooks.com

TRAINING AND INSTRUCTION

The Association of Pet Dog Trainers (APDT) has references to member trainers in your area. Write to PO Box 1781, Hobbs, NM 88241, call (800) 738-3647, or view its database of trainers at apdt.com

Pat Miller, CPDT, Peaceable Paws Dog and Puppy Training, Hagerstown, Maryland. Train with modern, dog-friendly positive methods. Group and private training, Rally, behavior modification, workshops, intern and apprentice programs. Call her at (301) 582-9420 or see peaceablepaws.com

HOLISTIC VETERINARIANS

American Holistic Veterinary Medical Association (AHVMA), 2214 Old Emmorton Road, Bel Air, MD 21015. (410) 569-0795. Send a self-addressed, stamped envelope for a list of holistic veterinarians in your area, or search ahvma.org

GLUTEN-FREE DIET

For more information about Dr. John Symes' suggested diet, see his Web site at dogtorj.com. He can also be reached at Beltline Animal Hospital in Mobile, AL, at (251) 434-7110

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WHAT'S AHEAD

Hot Shots

Do you know which vaccinations your dog can (and should) skip, and which ones should not be missed? Experts say some "shots" do more harm than good. We'll tell you which are which.

High On Hydrosols

These "flower waters" are the latest rage in aromatherapy for humans and their animal companions.

Calm Greetings

How to teach your dog to greet your guests – or people you meet on the street – in a polite and friendly way.

The Collar of Money

It's truly amazing how much a dog owner can spend in the quest for a collar that offers perfect fashion and function. Allow us to save you some simoleans.

The Thyroid/Behavior Link

Abnormal thyroid levels can cause a variety of behavior problems in dogs, from aggression to depression. How to have your dog properly tested and diagnosed.