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The Whole Dog Journal™

A monthly guide to natural dog care and training

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FEATURES

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ALSO IN THIS ISSUE

All Right, Already

A product almost everyone seems to endorse.

BY NANCY KERNS

Our publishing headquarters is located in Connecticut. I work from a home-based office in the San Francisco Bay Area. As a result, I've met some of my "co-workers" only once or twice in almost 10 years, but we communicate often via phone and e-mail. That's how I first heard about Brittany, a 10-year-old Beagle belonging to Jennifer Jimolka, an executive assistant on the headquarters' staff.

Jennifer had taken a call from someone who was interested in sending literature and samples of an arthritis-relief product called "Dog-Gone Pain" (or "DGP") to the Whole Dog Journal. Jennifer gave the caller my address, but, as the owner of an older, arthritic dog, she asked if she could receive information about the product, too! The caller turned out to be from American BioSciences, the sole U.S. distributor of DGP, and she offered to send a sample of the product to Jennifer for her dog.

I received a sample and some product literature, and filed it away. Then I started getting calls and e-mail messages from Jennifer about Brit's near-miraculous response to the DGP. "You *have* to do a story about this!" Jennifer would tell me. "Brit is doing much better now that she's getting DGP. She's not so sore after a good run, and she can jump on the bed again!"

Later, I heard that Jennifer was telling all of her friends about DGP. She wrote me a note about one of her friends, an owner of Cavalier King Charles Spaniels, who are now receiving DGP with great results. Most recently, Jennifer told me, "This is one pill I feel very strongly about and make sure Brit gets every day."

The next person to start pushing me for an article about DGP was our Training Editor, Pat Miller. Pat heard about DGP through an e-mailed request for participants in a study of the herbal pain reliever. Pat has an arthritic Kelpie who needed Rimadyl in order to get up easily, so she contacted the coordinator to see if the dog could be included in the study. Soon I started receiving e-mails from Pat, too, about how well Katie was responding to DGP.

So when I received an e-mail from the study coordinator, Jan Skadberg, asking if WDJ would be interested in being the first publication to receive the study results, I was like, "All right, all right already! I'll publish an article about DGP!"

Seriously, I was honored to have been given the opportunity to publish the study's findings. But when I received them, I found myself having questions about the study's coordinator. I called Jan, and quizzed her very closely about her connections to American BioSciences (she has none) and her motivation for putting such an enormous amount of time and energy into a study that would clearly benefit the distributor of the product if DGP performed well.

As is often the case, there was a dog in the answer. Jan felt a deep debt of gratitude for the relief her beloved canine companion, James, received from DGP in his final years. She chose to pay back that debt by testing the product further and by publicizing the results. At my request, her story, and James, became part of the article I asked her to write. It appears on the facing page.

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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Safe Pain Relief

Check out this incredibly promising herbal arthritis pain-relief product.

BY JAN SKADBERG

As the sole practitioner of a small animal practice encompassing massage, acupressure, homeopathy, and custom-blended flower essences, I'm always looking for products that may be effective for my clients' animals. The most obvious, positive, long-lasting results I have seen have come from the use of acupressure, massage, and homeopathy. Yet when I heard from a *third* client about a product called "DGP" (short for "Dog Gone Pain"), I decided it was time to investigate – especially after witnessing how the client's dogs who received the supplement enjoyed an increase in flexibility, decrease in joint pain, and obvious elevation in spirits.

I researched the ingredients in the DGP product and felt comfortable with them (see the ingredients list in "What Is DGP?" on page 4). I decided to try DGP on James, my 110-pound Greater Swiss Mountain Dog. If anyone needed relief from arthritis, it was James.

James came to me as a rescue at 3½ years of age. Having lived in a crate his entire life prior to his rescue, his back, rump, and thighs were terribly atrophied. I arranged for him to receive treatments by a chiropractor (which relieved much of his back pain and muscle spasms) and an acupuncturist, and placed him on a raw diet with supplements. Within a year, with a lot of physical therapy, James was easily able to take long hikes in the mountains with me.

But at about 5½ years of age, he began having an increasingly difficult time sitting down and standing up, and wasn't as mobile, flexible, or as happy as he had been at his peak. I knew that giant breeds can exhibit health problems at what most dog owners would regard as an early age, and that they don't always live very long, so I chalked up James' problems to getting older.

Since I was unwilling to use the commonly prescribed pharmaceuticals, I began the process of investigating a more holistic brand of anti-inflammatory, one without the risk of the NSAIDs (non-steroidal anti-inflammatory drugs) or corticosteroids. I tried two different nutraceutical products, without seeing any noticeable improvement in James' pain and mobility.

That was about the time I heard about my clients' success with DGP. I ordered some and started giving the supplement to James the moment I received it.

The results were remarkable and obvious. Within five days he was an obviously *much* happier dog; he was running around the backyard like a puppy! What was most amazing, though, was the change in his spirit. He was back to the old James, with no obvious sign or symptom of pain.

I kept giving DGP to James for the rest of his life. We enjoyed another two and a half years together before he succumbed to bone cancer at age 8. I credit the DGP with helping him feel good – perhaps even pain-free – throughout his illness.

Author Jan Skadberg and James, the dog that sparked her interest in DGP.

Responsibility

There is a lot to be said for a positive anecdotal experience. My three acupressure clients were sold on DGP, based on their dogs' experiences, and I was certain the tablets did wonders for James throughout the two-plus years he received them.

But I am also a practicing RN with 30 years of hospital experience. I understand that just because one dog – or four dogs – benefit from a therapy does not mean it will work for all or even most dogs. I appreciate and rely on data-driven, scientifically based protocols and studies to inform the decisions I make for myself and my animals – and so it gradually occurred to me that I should conduct a study involving more dogs and DGP. In fact, I felt I had a responsibility to do so.

Amazingly, I was taken seriously when I called American BioSciences (the company that holds the sole rights to distribute DGP in the U.S.) and offered to facilitate a study of DGP. Stephanie Johnson, product

The Whole Dog Journal™

WHAT YOU CAN DO . . .

- **Consider trying DGP if your dog has been diagnosed with arthritis.**
- **DGP can affect the absorption rate of drugs that your dog may already be receiving. If your dog gets prescription medications, discuss the supplement with your veterinarian, so she can adjust your dog's meds if needed.**
- **Chart your dog's mobility and attitude before and during supplementation, to gauge its effectiveness. Improvements may be gradual but steady.**

manager for American BioSciences, readily agreed that a formal (if small) study would help the company legitimize the terrific anecdotal accounts so frequently recounted by their grateful customers. Johnson didn't hesitate even when I told her my goal was to write an article about the study results, regardless of the outcome. Over successive conversations, Johnson secured her company's interest in and commitment to the project.

Then I had to find out exactly how one goes about constructing a research study!

Johnson had some ideas, I had some ideas (as an avid reader of medical studies for humans and animals), and I also asked a number of people I knew and respected about the most useful protocols for my proposed project. My friends and professional mentors, the well-known acupressure instructors and book authors Amy Snow and Nancy Zidonis, helped me a great deal, as I strived to design a trial that would demonstrate whether or not DGP really helped dogs with arthritis – and if so, how much. I wanted the dogs to be observed in their homes, throughout the course of their regular activities, by the people who knew them best – their full-time guardians. I wanted the owners to administer the supplement regularly, and then reliably report on any changes they observed in the dogs.

We agreed that the dogs in the study should have really noticeable gait, posture, and/or behavior problems that were verifiably attributable (with a veterinarian's diagnosis) to arthritis. They should be of different breeds, sizes, ages, and activity levels, and if possible, be from different parts of the country.

What Is DGP?

Dog-Gone Pain, or DGP, is a nutraceutical that contains naturally occurring substances with medicinal benefit. It is manufactured in Australia, in an approved TGA facility (the Australian equivalent to the US FDA). The manufacturer claims that the herbs used in DGP are raised using standardized growing techniques, thereby ensuring efficacy from year to year, and that each ingredient is "human grade" and grown without pesticides or herbicides.

DGP offers a banquet of anti-inflammatory herbs useful in aiding multiple systems – respiratory, circulatory, digestive, thermoregulation, liver, and gall bladder – which have a tendency to be compromised as the dog ages. This may be the reason why animal guardians witness a revitalizing effect when their dogs are given DGP.

Each DGP tablet contains a proprietary blend of native Australian edible herbs along with compounds used in European (and other) medical traditions, including:

- Feverfew, an anti-inflammatory and pain reliever;
- Celery seed, an all-around calmative and anti-inflammatory;
- Boswellia, a strong anti-inflammatory and analgesic;
- Bromelain and papain, digestive aids;
- Corydalis, a tonic for the circulatory system;
- Cayenne, for gastrointestinal health;
- Wheatgrass, rich in nutrients and minerals; and
- Turmeric, a potent anti-inflammatory and digestive aid.

In addition, DGP contains calcium, magnesium, phosphorus, zinc, and other bone-building minerals. DGP also contains shark cartilage that is produced without the use of toxic solvents. Shark cartilage is an excellent dietary source of chondroitin sulfate and other glycoaminoglycans that rebuild cartilage.

The manufacturer of DGP warns, "If your dog is already on medication, discuss DGP with your veterinarian before using. The enzymes it contains have the potential for altering the rate of absorption of medications such as antibiotics, anticoagulants, and NSAIDs. Also, several of the ingredients have anti-inflammatory properties that could possibly enhance the blood thinning properties of anticoagulant drugs."

We decided that the dogs' owners would have to agree to take the dogs off all other supplements and pain medications for a week prior to and the entire duration of the study. They also had to take their dogs to a veterinarian for pre-study lab work (Lyme disease, CBC, and "super chemistry panel") and post-study lab work (CBC and super chemistry panel).

American Biosciences agreed to pick up the tab for all this veterinary work, and to provide the owners with DGP for the study dogs at no cost.

Once I had the study architecture planned, I began to solicit dog owners and veterinarians for participation. Vets referred some clients. Friends and fellow acupressure practitioners put out the word on various canine listserves and bulletin boards. I talked to or exchanged e-mail with hundreds of people who were interested in the study, and finally selected 14 from a list of 87 people who expressed a strong desire to participate. I had to disqualify two dogs (a Beagle and a Lab) whom I had originally accepted for the study after pre-study testing demonstrated they were positive for Lyme disease.

Enthusiasm ran particularly high among owners of Golden Retrievers and Labradors – dogs with a high incidence of certain types of arthritis in their elder years. Because I wanted to include a range of dog breeds, sizes, activity levels, and primary diagnoses, I accepted only three Goldens, one Labrador, and one Lab-mix. I also included a Sheltie, a Pembroke Corgi, an Australian Kelpie, a terrier-mix, two Beagles, a 45-pound mixed breed, a Jack Russell Terrier, and an English Setter. The youngest dog in the study was 5 years old and the oldest was 13, with a mean age of 9 years of age.

I supplied each of dogs' guardians with a packet of paperwork to fill out. The bulk of the work came in the beginning, as I asked them to describe their dogs' health status in as much detail as possible, including information about age, weight, medical history, exercise/activity level, pack status, diet, appetite, elimination habits and characteristics, and much more.

I also asked the owners to rate, on a scale of 0 (defined as clinically normal) to 4 (defined as nearly incapacitated), their dogs' lameness/ability to bear weight, joint mobility, pain on palpation of joints, and willingness to bear weight on their "good" limbs. I provided them with instructions on how to examine and handle the dog to assess these criteria.

With the pre-treatment paperwork out of the way, the weekly assignment for the owners was much less involved. At the end of each week I asked the owners to methodically assess the overall condition of the dogs: where the pain seemed to be located, what the dogs' movement and gaits were like, how much flexibility they had, and how their behavior, attitude, or mood seemed. I also asked them to note any adverse reactions the dogs displayed – lack of appetite, vomiting, diarrhea, behavior change, dermatitis, or anything else.

At the end of the study, the owners again rated (on a scale of 0 to 4) the dogs' physical abilities.

The recommended dosage for DGP is one tablet per 30 pounds of the dog's body weight. Due to the severity of arthritis, all dogs in this study were started on a double-dose regimen for the first two weeks, then given the normal dosage for the remainder of the six-week trial.

Study findings

I need to say, first off, that *all* the dogs in the study showed improvement while taking DGP. The first and most obvious sign of improvement in 100 percent of the participants was an elevation of spirit – the dogs seemed happier. This occurred within the first week for all the dogs. Was this due to decreased pain or a balancing effect of the herbs on all of the body systems? I don't know. Three participating owners queried me as to whether there are any mood elevators in the ingredients of DGP; there aren't.

All of the dogs' owners reported seeing noticeable improvement in the dogs' mobility, soundness, and activity levels while on the DGP. The mean onset of musculoskeletal improvement was one to three weeks, with only one dog waiting to see a peak cumulative effect in the sixth week. The composite scores reported by all of the dog owners improved by at least one notch on the 0 to 4 scale; 70 percent improved by two or more notches.

The Reports: "Improvement Seen in 100 Percent of Study Dogs"

Jessie is an 8-year-old, 85-pound Golden Retriever who participates in low-impact agility and loves to chase lizards in the yard. At nine months of age, Jessie had a triple pelvic osteotomy only on one side, as the other side was already too arthritic to benefit from the surgery. Prior to the study, she received Glycoflex III and aspirin as needed for pain relief. Her pre-test discomfort included having a difficult time getting up on the bed and limping on walks of one-half to one mile in duration. She had little flexibility in her hips and favored her right hind leg.


Jessie

Reported results of DGP: The first three weeks showed a dramatic increase in Jessie's activity level, and by week three she was able to hop on the bed. Her guardian writes, "The DGP certainly worked better than any of the several brands of glucosamine/MSM/chondroitin/vitamin C products we have tried."

Monty is an 8- or 9-year-old, 95-pound old blue Australian Cattle Dog/Lab mix. Monty is a free-range dog who has slowed considerably and often holds one leg up in pain, hopping on three legs. Prior to the study, he was being given a traditional Chinese herbal remedy, chondroitin, and occasional vitamins. He also received acupuncture as needed. His pre-study symptoms included back and hip pain. He often groaned and tried to find a position on his couch to relieve his back pain. His guardian also stated Monty slept for increasingly long periods.

Reported results of DGP: Monty exhibited an estimated 75 percent reduction in his back soreness and a better attitude. His guardian reported that Monty sleeps less and is getting along better with the other family dog. She also estimated that Monty had a 75 percent increase in his activity level and a 75 percent improvement in his gait, movement, and flexibility; he even uses his lame leg more often. Monty now spends about 95 percent of the day outside; prior to receiving DGP, he opted to spend about 60 percent of his time in the house.


Monty

Homer is a 12-year-old, 45-pound mixed breed. Homer has had ACL (anterior cruciate ligament) surgery on both hind legs. Prior to the study, his discomfort also encompassed his front legs; they were stiff and he limped.

Reported results of DGP: Post-treatment, his guardian observed, "Homer seems happier and more carefree." She now sees Homer run.

Interestingly, Homer's owner initially elected not to continue Homer's DGP regimen after the study. I learned later (from her veterinarian) that there was a sharp increase in Homer's limping and leg pain after the DGP was stopped. His owner restarted the supplement and still gives it to Homer today.

Chloe Rae is an 11-year-old, 13-pound Jack Russell Terrier with attitude! Prior to the study, Chloe exhibited moderate arthritis stiffness in her hind legs and mid- to rear-back.

Reported results of DGP: Post-DGP treatment finds Chloe "full of energy and active and wound up until bedtime." Her guardian reports that Chloe's hind/rump shows a marked increase in flexibility. Her gaits are loose, and she now stretches for longer periods of time. Chloe's attitude seems spunkier, bossier, and more demanding, which her owner believes reflects Chloe's good mood. "By week six, the pain in Chloe's hindquarters was pretty much gone and she is walking and using stairs with much greater ease."


Chloe Rae

Toto is a 35-pound, 12-year-old terrier-mix. She has generalized arthritis in the hips and front and back legs, and has difficulty is getting up and lying down.

Toto is the only dog that was taken off DGP, at week two. After five days on DGP, she vomited and had soft stools, and there was a marked increase in her well-documented environmental allergies (chewing of feet, accompanied by an increase in watery eyes). I instructed Toto's guardian to stop the DGP until Toto's symptoms subsided; two days later she resumed DGP.

Only one dog experienced adverse effects that could be related to the DGP; we removed the dog from the study in the second week due to reactions to the supplement, including vomiting, soft stools, and a marked increase in her environmental allergies (chewing of feet, accompanied by an increase in watery eyes). Her owner deeply regretted having to stop the DGP, as the dog's arthritis symptoms markedly lessened while receiving the DGP, but of course, the adverse reactions warranted our actions.

It was also notable that there was no change in any of the participants' pre- and post-study lab values. Granted, this was only a six-week trial, but it was important to document whether DGP caused any of the possible side effects caused by NSAIDs, namely liver, kidney, and hematologic abnormalities. None were seen.

In addition to the striking improvements in the dogs' movement, several other findings in this study also bear mentioning. One is the fact that almost all of the participants assumed their dogs' infirmities were just the natural progression of aging and that little could be done to offset the symptoms – just like I had, with James. It was not until we had seen our dogs' improvement on DGP that we realized how crippled our dogs actually were prior to starting the supplement.

In fact, *three* of the participants elected to discontinue the DGP after the study was over – and then quickly started their dogs back on the supplement when the dogs' arthritis signs dramatically resurfaced. Each expressed that they hadn't realized how powerful the effect of DGP was until they stopped the supplement. Fortunately, the dogs were judged by their owners to be restored to a peak level of soundness and comfort within two days of being given DGP again. With the exception of the (possibly allergic) dog with the adverse response, all of the dogs are still receiving DGP today.

Last, what was glaringly obvious in this study is the effect of pain on a dog's behavior. Qualified by their severe arthritis, the dogs were all described by their owners before the study as sleeping a lot, depressed, withdrawn from socializing with their people and pack, irritable, grouchy, and less mobile. But every single dog in this trial demonstrated an improvement in mood,

(THE REPORTS, CONTINUED FROM PREVIOUS PAGE)

Three days later Toto again began vomiting clear secretions and had soft stools. At this point I recommended discontinuing the study and Toto's guardian complied.

Reported results of DGP: Her guardian writes that in the eight days she took DGP, Toto experienced more spring in her step and became more puppy-like and playful. She regretted having to take Toto off the DGP, but we knew it was the right decision. There is always the potential for an allergic reaction from any drug, food, or nutraceutical that is ingested, and I suspect that Toto was allergic to one of the herbs in DGP.

Katie is a 13-year-old, 43-pound Australian Kelpie who, prior to the study, was on Rimadyl and glucosamine for overall stiffness and arthritis pain in her front paws. Prior to receiving Rimadyl, Katie had some difficulty in getting up. Her past medical history included, at age two, being hit by a car at age two and sustaining a broken hip, which was surgically pinned.


Katie

Reported results of DGP: The swelling in Katie's front paws decreased and seemed less painful while receiving DGP, but, interestingly, her owner noticed signs of more discomfort in Katie's hip.

The biggest change for Katie was her attitude. Her guardian wrote, "Whereas, pre-treatment, Katie was withdrawn and cranky with other dogs and touchy about handling, post-treatment Katie is cheerful, sometimes exuberantly so. She is much more social with us as well as our other dogs and less touchy overall."

Katie's owner has elected to keep giving DGP to Katie, but also saw fit to administer low doses of Rimadyl during the most bitterly cold and damp winter months, when Katie's arthritis is most painful. She hopes to reduce or eliminate Katie's Rimadyl dosage again as the weather gets warmer.

Einstein is an 11-year-old, 60-pound Golden Retriever with a diagnosis of moderate to severe arthritis of the right shoulder and elbow area. Prior to the study, Einstein was given Rimadyl and Glycoflex, which brought him relief. However, his guardians were concerned about potential adverse effects caused by NSAIDs.


Einstein

Reported results of DGP: His guardians reported that, while on DGP, Einstein experienced less limping and was just as active as he was when he was being given Rimadyl and Glycoflex. However, Einstein was the second dog in the study to have his guardians discontinue the DGP after the study; they suggested that the supplement was not as effective as they hoped it would be. Within a day and a half, however, his discomfort and stiffness greatly increased, and they elected to restart his DGP. His symptoms subsided within two days, and he remains on DGP today.


Tess

Tess is a 12-year-old Pembroke Corgi weighing 24 pounds. She has severe spondylosis (spinal osteoarthritis) throughout her entire spine, and her mobility and exercise have dramatically reduced over several years.

Prior to the study, Tess was being given Metacam (an NSAID), but still exhibited constant pain and limped after small amounts of exercise. Her guardian wrote, "From time to time, Tess has difficulty getting up and down stairs. Her front legs move stiffly, she drags her right foot, and her rear legs are weak. She hates to be petted and is increasingly aloof, spending more time away from the family. She is tense and moves around as little as possible. Tess is high-strung and exhibits violent barking."

Reported results of DGP: Tess' post-treatment observations were quite remarkable. Her guardian describes her as spunkier, more pleasant, and more relaxed. "Tess moves more easily, and she is able to hold her head up more. She smiles now! Her eyes are brighter, she startles less, and spends more time close to family members. Her activity level has increased, and she just seems more up for play."

Tess is still suffering from severe spondylosis, so her movement will always be less than optimal, but her guardian describes her as "clearly in less general discomfort."

demeanor, and/or attitude within the first two weeks of taking DGP.

Hopes for future

This study validated my findings with James. It showed me that DGP enhanced the lives of severely arthritic dogs on many levels. In the majority of the dogs sampled (93 percent), DGP was judged by the dog owners to be as or more effective as the NSAIDs and pain medications the dogs had been given prior to the study. At this point, I feel confident in suggesting it to the guardian of any dog with arthritis. (Note: See the manufacturer's warning, in "What Is DGP?," page 4.)

The main caution I relate to dog owners who are considering DGP for their dogs is to make sure to initially limit the dog's physical activity once he has been on DGP for a few days, until he gets used to feeling good. I have often seen arthritic dogs feel so much better, that they (and, unwittingly, their owners) overexercise and end up in real pain, with muscle soreness and stiffness for days. This can be avoided if the dog's activity is moderated.

My hope now is that someone will see fit to conduct a large-scale study of the supplement. A number of holistic veterinarians I know have expressed an interest in participating.

No single product can be considered a cure-all for every canine musculoskeletal ailment. That said, I think that DGP is a great product to try as a *first* resort for those dogs with mobility/arthritis issues, and whose guardians do not want to assume the risk of the side effects of corticosteroids or NSAIDs.

For more information about DGP, see doggonepain.com or call (800) 714-9698. To receive a special discount that American BioSciences has offered to WDJ subscribers, place your order via phone with The Harmony Company, at (800) 714-9698 and mention WDJ.

Jan Skadberg is a registered nurse and a certified legal nurse consultant. She also offers acupressure and massage for canines from "4 Paws," her practice in Charles Town, West Virginia.

Sparki is 12-year-old, 40-pound Sheltie who has exhibited generalized arthritis pain in all extremities. She has difficulty climbing up and down stairs. Prior to the study, she was often found hiding in the closet, sleeping most of the day, and disliking any touch. She also has left shoulder and hip dysplasia.

Reported results of DGP: Her guardian noticed Sparki's mood change during the first week of treatment with DGP. "She is starting to be friendly with everyone and has stopped hiding in the closet," she wrote. "She went into the exercise pen with the other two dogs and even shared a couch with them. Sparki has started to follow me around the house and even goes up and down the stairs to the basement. She barks for attention and wags her tail, where she used to be quiet and hide." Sparki's joint pain and muscle tightness appears to have decreased greatly while on DGP.

Jackie Beagle is a 40-pound, 5-year-old Beagle. He was hit by a car at one year of age and suffered a broken neck and partial paralysis of the left side of his face. He has severe arthritis in his neck and shoulders. Pre-study radiographs revealed that he also had severe bilateral hip dysplasia. His owner reported that Jackie did not display enthusiasm for life, was irritable, had withdrawn from most social contact, and was mostly inactive.

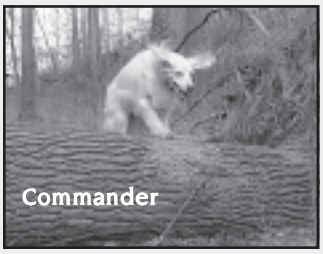
Reported results from DGP: Jackie Beagle was the only dog in the study whose owner did not report positive results within the first two weeks. At three weeks, she noted that Jackie seemed to be moving a bit faster, had slightly greater range of motion in the front legs, was participating more with the other dogs, even initiating a game of tug and chasing another dog in the backyard. In week 6 she observed, "Jackie is very social, upbeat, and initiating play with other dogs."


Jackie Beagle

The post-study comments from Jackie's owner were strikingly different from her pre-study observations. "He is more tolerant of other dogs, more cheerful, and actually asks for play and attention. He has spurts of high activity – running, tugging, and zooming around the yard." However, she notes, "He still sleeps a lot."

Commander is a 12-year-old English Setter who lives for grouse and woodcock hunting every fall and winter. Prior to the study, he had slightly stiff and weak hips and moved with a strange gait, leading strongly with his front legs and shuffling his back legs in a splay-footed manner. Commander needed help in jumping onto the bed and into the car, walked around fallen logs rather than jumping over them, and had noticeable muscle atrophy in his hips and rear legs. His owner reported that Commander tired easily when hunting, his stamina had decreased, he was grouchy with his younger pack mates, and he groaned when lying down.

Reported results from DGP: In week four of the study, Commander's guardian reported that the dog "is more lively now, energetically hunting and jumping over logs and lasting longer on his turn for hunting. He gets in and out of the car and onto the bed with greater ease. He hunts a little longer between rests and with more energy. Commander's ability to jump and climb uphill has improved." In week five, she wrote, "Wow! Best day hunting in a long time. Ran around like a younger dog. He still gets tired and out of breath, but Commander is definitely stronger and more enthusiastic."


Commander

Ben is an 80-pound, 6-year-old Golden Retriever who has had multiple surgeries – for bilateral hip dysplasia, both shoulders, and both knees (bilateral ACL). As a result of his multiple surgeries, he lived in a crate for his first year of life to facilitate his healing. He plays with his sibling Golden, mostly lying down. Prior to the study, Ben had difficulty getting up, and never stood using his back legs. His guardian wrote, "Ben is a happy dog, but many days you could tell he was not feeling well."

Reported results of DGP: Ben's results were dramatic. His guardian wrote, "Ben feels much better, gets up with ease, and puts weight on his back legs. He is even happier now and even runs; he swoops around the backyard and gallops up the steps." Ben's improvement peaked at weeks three and four, when his guardian wrote, "Ben is much more playful, is smiling and *happy!*"

Bully for You!

Why (and how) you should intervene if your dog picks on others.

BY PAT MILLER

You can find them everywhere – at dog parks and doggie daycare centers, in dog training classes, in your neighbor's yards . . . perhaps even in your own home. "They" are canine bullies – dogs who overwhelm their potential playmates with overly assertive and inappropriate behaviors, like the out-of-control human bully on the school playground.

Jasper is a nine-month-old Labradoodle from a puppy mill, currently enrolled in one of my Peaceable Paws Good Manners classes. He was kept in a wire cage on a Pennsylvania farm until he was four months old, when his new owners purchased him. Katy Malcolm, the class instructor, asked me to sit in on the first end-of-class play session with Jasper because she was concerned that his lack of early socialization could present a challenge. She was right.

Four shots of the same playground bully, taken over a 20-minute period at a dog park. In the first photo, the Boxer-mix bully has blindsided a dog who just entered the park. In the next three, she focuses her attention on the same victim, a young Lab-mix. She clearly enjoys holding him down as a variety of other dogs come over to investigate.

Sam was a 10-week-old Golden Retriever puppy, well bred, purchased from a responsible breeder by knowledgeable dog owners who immediately enrolled him in one of my Peaceable Paws Puppy Good Manners classes to get him started on the right paw. Sam unexpectedly also turned out to be a challenge at his first end-of-class puppy play session.

These two dogs had considerably different backgrounds, but when it came time to play, both dogs exhibited bullying behaviors: Jasper because he never had a chance to learn how to interact appropriately with other dogs; Sam because – well – who knows? Genetics, maybe? Early experiences in his litter, maybe? Regardless of the reasons, both dogs required special handling if they were ever to have a normal canine social life.

Bullying defined

In her excellent book, *Fight!,* dog trainer and author Jean Donaldson defines bullying dogs (not to be confused with "Pitbull-type dogs") as those dogs for whom "roughness and harassment of non-consenting dogs is quite obviously reinforcing." Like the human playground bully, the bully dog seems to get a kick out of tormenting less-assertive members of his playgroup. Donaldson says, "They engage at it full tilt, with escalating frequency, and almost always direct it at designated target dogs."

When released with permission to "go play," the poorly socialized Labradoodle, Jasper, immediately pounced on the back of Mesa, an easy-going and confident Rottweiler who was playing nicely with Bo, a submissive but exuberant Golden Retriever. Jasper barked insistently, nipping at Mesa's back as she tried to ignore his social ineptness. Finally, fed up with his boorish

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WHAT YOU CAN DO . . .

- **Watch your dog when he plays with other dogs. Intervene promptly if he's being a bully – harassing a "non-consenting" dog.**
- **Watch your dog's playmates, too. Intervene promptly if someone is bullying *your* dog – if he isn't having a good time with the intensity level of play.**
- **Allow your dog to play roughly with others as long as everyone's having a good time and no one's getting hurt.**
- **Educate other dog owners about the importance of allowing appropriate play and intervening when a dog is being a bully.**

behavior, she flashed her teeth at him one time, at which point he decided Bo was a better target for his attentions. Indeed, Bo found him overwhelming, a response that emboldened Jasper to pursue him even more energetically.

We intervened in his play with Mesa several times by picking up Jasper's dragging leash and giving him a time-out when his behavior was completely unacceptable, then releasing him to "Go play!" when he settled a bit. Each time we released him he promptly re-escalated to an unacceptable level of bullying, until Mesa herself told him to "Back off, Bud!" with a quick flash of her teeth.

Human-controlled time-outs, however, made no impression on Jasper. The canine corrections were more effective, but didn't stop the behavior; they only redirected it to a less-capable victim. Because Bo wasn't assertive enough to back Jasper off, we ended the play as soon as Jasper turned his attentions to the softer dog.

Bully #2

Like Jasper's preferred victim, Sam's favorite bullying target was *also* a Rottweiler – not a breed you'd expect to find wearing an invisible "bite me!" sign. Max was a pup about Sam's own age, who outweighed Sam considerably but was no match for the smaller pup's intensity.

Sam had given us no indication during class that he had a play problem. In fact, he was a star performer for his clicks and treats. However, when playtime arrived his demeanor changed from an attentive "What can I do to get you to click the clicker?" pupil to an "I'm tough and you just try to stop me!" bully.

Several seconds after the two pups began frolicking together, Sam suddenly pinned Max to the ground with a ferocious snarl, then released him briefly, just to pin him again in short order. Needless to say, we also intervened quickly in *that* relationship!

Appropriate play

Owners often have difficulty distinguishing between appropriate and inappropriate play. Some may think that perfectly acceptable play behavior is bullying because it involves growling, biting, and apparently pinning the playmate to the ground. Appropriate play can, in fact, look and sound quite ferocious.

The difference is in the response of the playmate. If *both* dogs appear to be having a good time and no one's getting hurt, it's usually fine to allow the play to continue. Thwarting your dog's need to play by stopping him every time he engages another dog, even if it's rough play, can lead to *other* behavior problems.

With a bully, the playmate clearly does *not* enjoy the interaction. The softer dog may offer multiple appeasement and deference signals that are largely or totally ignored by the canine bully. The harassment continues, or escalates.

Any time one play partner is obviously not having a good time, it's wise to intervene. A traumatic play experience can damage the softer dog's confidence and potentially induce a life-long fear-aggression or "Reactive Rover" response – definitely not a good thing!

Some bullies seem to spring from the box full-blown. While Sam had, no doubt, already been reinforced for his bullying by the response of his softer littermates, he must have been born with a strong, assertive personality in order for the behavior to be as pronounced as it was by the tender age of 10 weeks. Jasper, on the other hand, may have been a perfectly normal puppy, but months of social deprivation combined with a strong desire to be social turned him into an inadvertent bully.

There can certainly be a learned component of any bullying behavior. As Jean Donaldson reminds us, the act of harassing a "non-consenting dog" is in and of itself reinforcing for bullies.

By definition, a behavior that's reinforced continues or increases – hence the importance of intervening with a bully at the earliest possible moment, rather than letting the behavior become more and more ingrained through reinforcement. As with most behavior modification, prognosis is brightest if the dog is young, if he hasn't had much chance to practice the unwanted behavior, and if he has not been repeatedly successful at it.

Oops!

Successful modification of bullying behavior requires attention to several elements:

- Skilled application of intervention tools and techniques: Leashes and long lines, no-reward markers (NRMs), and time-outs.
- Excellent timing of intervention: Application of NRMs and time-outs.
- Reinforcement for appropriate behavior: Play continues or resumes when dog is calm or playing nicely.
- Selection of appropriate play partners: Dogs who are not intimidated or traumatized by bullying behavior.

While working to decrease or extinguish your dog's bullying, you might have to let him drag a short leash, or keep him on a long line while playing. This enables you to stop his bullying the moment it starts. Keep him on a "time out" until he is calm.

The most appropriate human intervention is the use of "negative punishment," in which the dog's behavior makes a good thing go away. In this case, the most appropriate negative punishment is a time-out. Used in conjunction with a "no-reward marker" (NRM) or "punishment" marker, this works best for bullying behavior.

The opposite of the clicker (or other reward marker, such as the word, "Yes!"), the NRM says, "*That* behavior made the good stuff go away." With bullying, the good stuff is the opportunity to play with other dogs. Just as the clicker *always* means a treat is coming, the NRM *always*

means the behavior stops immediately or good stuff goes away; it's *not* to be used repeatedly as a threat or warning.

My preferred NRM, the one I teach and use if/when necessary, is the word "Oops!" rather than the word "No!" which is deliberately used to shut down behavior – and as such is usually delivered firmly or harshly and unfortunately often followed by physical punishment. "Oops!" simply means, "Make another behavior choice or there will be an immediate loss of good stuff." An NRM is to be delivered in a non-punitive tone of voice; it's almost impossible to say "Oops!" harshly.

Timing is just as important with your NRM as it is with your reward marker. It says, "Whatever you were doing the exact instant you heard the 'Oops!' is what earned your time-out." You'll use it the *instant* your dog's bully behavior appears, and if the bullying continues for more than a second or two more, grasp his leash or drag-line (a long, light line attached to his collar) and remove him from play. Don't repeat the NRM. Give him at least 20 seconds to calm down, more if he needs it, then release him to go play again. If several time-outs don't dampen the behavior even slightly, make them longer and make sure he's calm prior to returning to play.

If a half-dozen time-outs have absolutely no effect, end the play session for the day. If the NRM *does* stop the bullying, thank your dog for responding, and allow him to continue playing under direct supervision as his reward.

Another sometimes-effective approach to bully modification requires access to an appropriate "neutral dog" – a dog like Mesa who is confident enough to withstand the bully's assault without being traumatized or responding with inappropriate aggression in return. A flash of the pearly whites as a warning is fine. A full-out dogfight is not.

It's important to watch closely during interactions with the bully. Any sign the neutral dog is becoming unduly stressed by the encounters should bring the session to an immediate halt. A neutral dog may be able to modify your bully's behavior, and have it transfer to other dogs – or not. If not, you may be able to find one or two sturdy, neutral dogs who can be your dog's play companions, and leave the softer dogs to gentler playpals. Not all dogs get along with all other dogs.

Outcomes

Sam's owners were exceptionally committed to helping their pup overcome his inappropriate play behaviors. We continued to allow him to play with one or two other sturdy, resilient puppies, using an NRM and his leash to calmly but firmly remove him every time his play intensity increased. We moved him away from the other pups until he was calm, then allowed him to resume his play. By the end of his first six-week class he was playing appropriately most of the time with one or two other pups, under direct supervision. After two more six-week sessions he played well with a stable group of four other dogs, under general supervision, without needing NRMs or time-outs.

The last time I saw Sam was an incidental encounter, at Hagerstown's Pooch Pool Plunge event. Every year when the city closes its community pool for the winter, they open it up on one Saturday for people to bring their dogs for a pooch pool party. Sam, now a full-grown adult dog, attended the Plunge at the end of Summer 2005, with more than 100 dogs in attendance. His behavior was flawless.

Jasper may have a longer road, but I'm optimistic that he'll come around as well. We plan to continue having him play with Mesa, as long as she's handling him as well as she did in last week's class. Between Mesa's canine corrections and our time-outs, we're hopeful that he'll learn appropriate social skills and be able to expand his social circle to other appropriate dogs. Is there a Pool Plunge in Jasper's future? We'll just have to wait and see.

Pat Miller, CPDT, is WDJ's Training Editor. Miller lives in Hagerstown, Maryland, site of her Peaceable Paws training center. For book purchasing or contact information, see "Resources," page 24.

Say No to Saying "No!"

Dog owners are often puzzled when we suggest they not use the word "No!" with their dogs. "How else," they wonder, "will my dog know what he's *not* supposed to do?"

A dog's goal in life is to get good stuff, and his mission is to do whatever makes good stuff happen. You can teach your dog what *not* to do by controlling the consequences of his actions. If inappropriate behaviors consistently make good stuff go away, your dog will stop those behaviors. His goal is to make good stuff *happen,* not make it go away.

If you're good at managing your dog's environment, then he'll learn to do appropriate things to get good things, without your use of the word "No!" If you're poor at management, he'll be reinforced for his inappropriate behaviors, like jumping up on counters or tipping over garbage cans to look for food, and those behaviors will persist. That said, there are plenty of trainers who *do* use the "No" word, in various ways.

Smart, proactive management is always more effective than punitive or corrective measures.

I use it on rare occasions, for extreme emergencies, and when I do it comes out as a loud roar, indeed intended to stop all behavior. When I'm compelled to use it, I always try to pause afterwards, analyze the situation, and figure out where I need to shore up my management and/or training to avoid having to use it in that situation again.

In contrast, trainer and behaviorist Patricia McConnell uses "No!" as a positive interrupt. She teaches her dogs that "No!" means "Come over here for a treat" – no matter what tone of voice is used. When her dogs hear "No!" they happily run to her to see what she has for them, necessarily interrupting whatever inappropriate behavior they may have been engaged in.

If you *do* still use "No!" as an aversive in your training program, be sure to avoid coupling your dog's name with the loud, harsh "No!" It takes only a few repetitions of "Fido, NO!!!!" for your dog to start having a negative association with his *name* – and you absolutely want to preserve the sanctity of your dog's positive association with his name. "Fido!" should always mean very, very good stuff!

A Water-Lover's Worry

Giardia is more prevalent in dogs than previously thought.

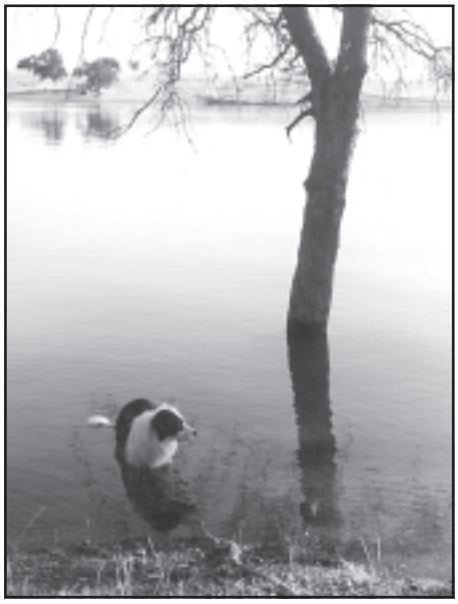
BY SUSAN WEINSTEIN

Caleb had been doing really well for a Bouvier about to turn 10, when his health took a mysterious dive last summer. We would learn that he was infected with an intestinal parasite called *Giardia.* But until he was correctly diagnosed and effectively treated, he suffered and his condition deteriorated.

A problematic *Giardia* infection is often overlooked or mistaken for other illnesses. Until only two or three years ago it was believed to be uncommon in dogs, says Dr. Andrew Peregrine, Associate Professor of Clinical Parasitology at the Ontario Veterinary College, University of Guelph.

However, recent studies have found that between 6 percent and 7 percent of dogs are infected with *Giardia* at any given time. And 8 out of 10 of these show no clinical signs of disease! Young dogs (up to one year old) may contract *Giardia* as much as six times more often than adults.

These findings suggest *Giardia* is a more significant issue for dogs than previously realized. It appears that dog people and practitioners have some catching up to do!



Suspect a *Giardia* infection in any dog who has recurrent diarrhea and who has swims, wades, or drinks water from streams, lakes, ponds, or puddles.

Elusive pattern of symptoms

Caleb's tale illustrates how humans can go astray when viewing *Giardia* through an outdated lens.

In early summer, Caleb had diarrhea for a day or two, but then it cleared up. He vomited once, and again a few weeks later. The diarrhea came and went again, but even his better-formed stools smelled bad. Our local clinic did a "float" test of a stool sample, telling my friend Janice and I that this could detect both worms and *Giardia.* When they found neither, we figured parasites weren't Caleb's problem.

The elusive pattern continued for weeks, then months. At times, Caleb went off his food. He'd wake up at night panting and clearly distressed, and sometimes couldn't fall back to sleep for hours. His gut gurgled loudly and he released stinky gas – unusual, for him. I suspected intestinal cramps.

Then, almost overnight, his normally sweet breath became so foul that we had to open a car window for relief when he rode with us. It sometimes smelled like feces. Our vets insisted that Caleb probably had an oral problem, but like other dogs on a raw food diet, Caleb has healthy teeth and gums. Oddly, his chronically itchy skin and achy joints also seemed much worse, which logic said was unrelated to digestive issues; yet all this happened in tandem.

Caleb's chiropractic vet noticed he had muscle-wasting. His weight had plummeted from 90 to 81 pounds; he was thin-skinned and ribby, although he ate well enough. She asked if he'd been checked for *Giardia;* we reported his negative results. Alarmed now that he might have cancer, she wanted to biopsy an irritated wart on his knee.

I just didn't *feel* he had cancer. Afraid that surgery would add to his stress, we decided to hold off on it while continuing to search for other explanations.

Caleb's homeopathic vet matched a remedy to his issues, and put him on probiotics and enzymes to help his digestion. When he did not improve, she tried to warn us that we should expect a 10-year-old dog to start having problems. "This isn't aging," I insisted. "Caleb is *sick."*

Finally, Toronto holistic veterinarian Paul McCutcheon astutely asked what *kind* of *Giardia* test we'd had done. "Oh, no," he said, by long-distance phone. "I don't test in-clinic for *Giardia* anymore; it's not reliable. Have an antigen test done right away. You'll have to have it sent to a lab, but it's the only way you're really going to know whether he has it or not."

So we did – and it came back positive. *Giardia* did *not* explain why Caleb's itchy skin and achy joints seemed so much worse;

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WHAT YOU CAN DO . . .

- **Consider *Giardia* first rather than last as a possible cause of your dog's diarrhea.**
- **Request that your veterinarian send a sample away for an antigen test, or, if they're doing a "float," ask for a technician who's been specifically trained to find *Giardia* that way.**
- **Don't let your dog drink from the toilet! They can become infected by an infected person this way. Remember, an infected person (or dog) may not exhibit symptoms.**
- **Ask your vet to make *Giardia* part of your dog's annual parasite test.**

we'd try to figure that out later. But thankfully, the parasite is treatable, and he's now back to his old self.

What is Giardia?

Giardia is a microscopic, single-celled parasite that infects the guts of fish, birds, or mammals. It's a major cause of diarrhea, and thereby a major cause of death of children under five in tropical and developing countries when there is poor hygiene and lack of water filtration. The Centers for Disease Control describes it as one of the most common causes of waterborne disease in the United States.

Giardia has two basic life-stages. As a "trophozoite," it attaches itself to the lining of its host's intestines with its sucker. There, it feeds, reproduces, and dies while actively colonizing its new dwelling-place.

Like any parasite, *Giardia* must seek new worlds to exploit. In its trophozoite form it can't survive long outside a host's digestive tract, so it transforms itself into individual "cysts" enclosed in resilient protective casings. In this form, the cysts exit an infected animal in the host's excrement, chancing to end up somewhere they can remain viable until another host comes along.

The primary way to acquire *Giardia* is through oral contact with *Giardia* cysts. It happens mostly by drinking infected water, but, as you'll see, it's possible through other means, too. According to Dr. Peregrine, the ingestion of as few as 10 cysts can start an infection in dogs (and people). And the cycle continues.

To remain viable, *Giardia* cysts need a damp or wet environment in the right temperature range. They do best in woodland pools, ponds, streams, and lakes, but will also survive on a bedding of moist, organic matter such as a shaded forest floor. Dryness quickly destroys cysts, so they're less a problem in deserts than elsewhere. They do well in humid warm climates. A rapid temperature drop to below freezing will kill most cysts as long as they're actually caught in the ice, or in the part of the droppings or soil that becomes frozen.

But if they are protected, some cysts may survive for awhile even in extreme cold. For example, they might endure in fluid water *beneath* a layer of ice, or on soil insulated from frigid air by a good snow-cover. However, even in water cysts don't live indefinitely; probably only for months, but not years, says Dr. Peregrine.

He adds, "Cysts that pass into water don't multiply. They only multiply in the guts of animals." In other words, in water, their numbers build up only through fecal matter that infected animals deposit in or near it.

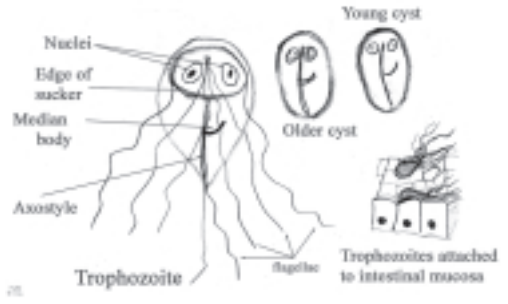
This happens several ways. Infected land animals, including canids but not excluding infected humans, poop nearby and rains or melting snows wash the cysts into lakes or streams. Or water animals, such as beavers, excrete cyst-ridden feces right into the water. (Disease from *Giardia* is sometimes called "Beaver Fever," but Dr. Peregrine thinks beavers may be unfairly blamed for the parasite's success.) *Giardia* may also contaminate streams or lakes via untreated human sewage.

How dogs get it

Dogs acquire *Giardia* primarily by drinking water that contains cysts. But chowing down infected feces will also do the trick!

However, not all types of *Giardia* affect dogs. Researchers now believe that it comes in different genotypes, and that most animals have at least one that's limited to their own species. For example, one genotype is known to only infect dogs; another, only humans; yet a third is "shared" by both dogs and humans.

"Until recently," says Dr. Peregrine, "we assumed that *Giardia* in dogs will always infect people, but it's quite clear now that's not the case. Some types of *Giardia* from dogs will infect people." And sometimes, the opposite happens. He tells of a student who came home from Greece with a confirmed *Giardia* infection. A week later, the student's dog became infected, too. "The dog almost certainly got *Giardia* as a result of drinking out of a toilet bowl," he concludes. "So infection will go both ways! But not all human infections will infect dogs, and not all dog infections will infect people."



Viewed under a scanning electron microscope, *Giardia* trophozoites are often described as looking like "they are looking right back at you." This is due to the presence of two distinctive nucleii, which resemble cartoonish eyeballs, and a dark transverse rod, a supportive structure called the axostyle, that looks sort of like a nose and mouth. *Illustration courtesy of the University of Pennsylvania Veterinary School.*

How might we catch it from our dogs? If an infected dog's anal area has traces of moisture, it could harbor cysts. As they dry up, the cysts lose viability. But in the meantime, if you brush against them and, yes, if they end up in your mouth, you may become infected. Being smooched by a dog dripping infected water from her muzzle might also expose you. However, there's probably no point in getting *too* paranoid, as none of us can avoid *Giardia* completely.

The number of cysts a dog (or person) takes in affects his likelihood of getting infected; the more he ingests, the greater the odds are that it will happen. Environmental conditions influence this. For example, active streams or lakes can distribute cysts widely, whereas they may collect at the edges of quieter waters. Hot, dry spells can shrink smaller pools and ponds, concentrating existing cysts even closer together.

The great mimic

Too often, vets and owners haven't even thought to suspect *Giardia* as the cause of a dog's diarrhea. Why not?

Dr. Peregrine suggests that vets have only just realized how common it is, thanks to the new data. "I think we didn't understand it before. Seven percent of dogs (testing positive) is a *very* high figure!"

Furthermore, since the disease has no distinctive clinical signs of its own, it can mimic "just about anything that produces diarrhea!" Dr. Peregrine laughs. "Except diarrhea with blood. It's extremely unusual to see blood with *Giardia."*

And veterinarians tend to test first for what they believe is most common. Morag McMurray, DVM, of Kingston, Ontario, gives examples.

"If a dog comes in with skin and digestive problems, you'd look for a generalized inflammatory reaction first. Or, if he had hypothyroid and diarrhea, you'd thoroughly examine the thyroid first. If he had diarrhea but no vomiting, you'd wonder about a foreign body," Dr. McMurray says.

These reasons may explain why vets have overlooked *Giardia* as a potential cause of disease. But it's time for a change in perspective.

When should you suspect that *Giardia* may have infected your dog?

Signs of infection

Over half of the approximately 80 percent of infected dogs *without* clinical signs may eventually clear it on their own. But the other 20 percent can become pretty unhappy campers. *Giardia* usually, but not always, affects dogs up to one year old, or unwell dogs with challenged immune systems, more harshly than it affects healthy dogs.

When a dog *has* signs, diarrhea may be the first and only one you'll see. He may also throw up. But the diarrhea may be intermittent and vomiting occasional, making it hard to know whether your dog is ill or simply ate something untoward. Stool, whether loose or formed, may stink and contain mucous. If the parasite interferes with nutrient absorption, you may see weight loss, weakness, and muscle-wasting.

Abdominal pain can be another feature of the disease. Two humans I know who have had it insist, "It's *terrible!* You have *spasmodic* intestinal cramps, like colic!" One reported a metallic taste in his mouth.

Giardia infections are not normally life-threatening. But the dangers of dehydration (from excessive diarrhea) or malabsorption are real. Ideally, we should look for the parasite well before things get to this point.

About tests

Giardia can be tough to identify in tests, and routine fecal examinations don't normally detect the parasite. But several tests, with varying levels of accuracy, can. Repeat a test up to three times to be sure of negative results, or switch to one that's more dependable. Many vets do in-clinic tests by default (they're less expensive); if you want a specific test done by a lab, request it.

■ The "ELISA" test. Considered the most reliable and becoming more popular. Looks for antigens. Goes to a lab. Most likely to get correct results the first time. Note that the ELISA test for *Giardia* will not detect other parasites or problems that your dog may have.

■ The "float" test. Done in-clinic. Designed to look for *worms.* May also find cysts, but much more reliable when performed by technicians who are specifically trained to find *Giardia* this way.

■ The "fecal smear." Performed in-clinic on fresh feces; looks primarily for trophozoites before they die off. A less effective way to find cysts. Dr. McMurray calls it more of a rough guide/initial screening test.

About "Dog Breath"

Although vets don't consider it a feature of the disease, the rise and fall of Caleb's outrageously bad breath coincided with the course of his infection. Also, while his chronically itchy skin and arthritis appeared *much* worse when his digestive system went off the rails, they, too, eased off afterward. I offer the following suggestions.

First, it's no wonder vets don't look to breath quality as an indicator of health (except for possible oral problems). So many dogs have chronic halitosis that lots of people believe they naturally have bad breath! However, owners who've switched to raw or natural foods frequently report their dogs having pleasant, inoffensive breath like Caleb's. We should not overlook our dogs' breath as an important meter of wellness, particularly of the digestive system.

Second, like many dogs with autoimmune issues, Caleb has been on nutriceuticals such as glucosamine, MSM, marine oils, vitamins, and medicinal herbs for years. If he goes off them for long, his itchy skin and achy joints bother him more. Since *Giardia* interferes with the absorption of nutrients, it may also interfere with absorption of nutritional supplements. If so, this could further confuse the diagnostic picture when dogs in similar situations have *Giardia* infections.

■ The "fluorescent antibody test" (FAb). Done at a lab. Generally more reliable than the fecal smear, but either can give false positives or negatives.

Testing for *Giardia* should not replace routine stool checks.

Treatment

To treat, or not to treat? Just because your dog tests positive does *not* mean you should automatically treat him. If he has no clinical signs of disease, he may recover by himself. Using drugs if they're not truly necessary may encourage *Giardia* to develop resistance, hampering our ability to help a severely infected dog down the line. (Possibly also for this reason, many doctors today do not treat *Giardia*-infected humans who have no symptoms.)

But sometimes it makes more sense to treat. Dogs like Caleb, overwhelmed by too many cysts, or whose weak immune systems can't throw off the infection, need help. Also, if a dog lives with a human or another pet who has a compromised immune system (from cancer or AIDS, for example,) *Giardia* could hit that individual hard. To protect the immune-suppressed family member, Dr. Peregrine advises treating even *Giardia*-positive dogs who show no signs.

Owners may choose to treat their dogs for *Giardia* with conventional pharmaceutical drugs that kill the parasite in the gut, or by attempting to bring about intestinal balance through natural means. Whichever method you use, first carefully shampoo the hair around the dog's rear end to remove any cysts that may be present.

The conventional pharmaceutical drugs used to kill *Giardia* are:

■ **Fenbendazole (Panacur, SafeGuard).** Originally used for dogs as a de-wormer, it eliminates *Giardia,* too. Dr. Peregrine asserts that it's generally more effective against *Giardia* than the old stand-by, metronidazole. It appears to have fewer side effects, too; consisting, if anything, of vomiting. "It's probably one of the safest drugs we use in veterinary medicine," he says. Individual dogs may be allergic to it.

The use of fenbendazole for *Giardia* is pretty new on the scene; two out of four practicing vets I consulted did not yet know of its use for that purpose. It's given once a day for three days; if the dog still tests positive a month later, your vet will probably repeat treatment for a longer duration.

■ **Metronidazole (Flagyl).** The drug of choice for years, it's also the mainstay for treating *Giardia* in humans. It has a good success rate. However, it also has a rather daunting list of possible side effects: neurologic disorders, lethargy, weakness, effects on blood cells, damage to the liver, blood in urine, anorexia, vomiting, and diarrhea. It's not considered safe for pregnant females. Still, many vets rely on it because it has worked well for them and they've had few, if any, problems with it.

Clinical experience suggests *Giardia* is becoming resistant to metronidazole, according to Dr. Peregrine. But he advocates keeping both drugs in use, because if everyone switched to fenbendazole, "sooner

or later, we're going to get resistance to that, too! We want to be sure, in 50 years' time, we've still got one or two drugs that work." For this reason, he advises against using either drug *preventively* for high-risk dogs.

■ **Natural methods.** Grapefruit seed extract, oregano oil, and colloidal silver, among others, reputedly kill microbes, among them bacteria, viruses, and parasites. You can find these and other preparations in health food stores; follow instructions for treating parasites.

Although these methods may help with many things, it appears that holistically oriented folk haven't yet reached consensus on their effectiveness against *Giardia.* In my survey of eight natural pet care books – some classic, others hot off the press – six didn't mention *Giardia* at all; the seventh did, but only in passing. Only Mary Wulff-Tilford and Greg Tilford, in their book *All You Ever Wanted to Know About Herbs for Pets,* deal with it. After noting that herbal preparations for *Giardia* are "moderately successful at best," they suggest combining low-alcohol tinctures of the following:

2 parts Oregon grape
2 parts licorice
2 parts cleavers
1 part garlic

They instruct giving this to the dog at least one hour before a meal. Dose at about ¼ teaspoon (1 milliliter) per 20 pounds of body weight, twice daily for up to 10 days; if the dog does not improve significantly by then, consult a holistic veterinarian.

Given the Tilfords' cautions, perhaps we simply haven't yet found the most effective nonconventional remedies for *Giardia.* If you do want to try one, remember it may take awhile to work – a consideration if your dog is already in poor condition or in pain.

Unfortunately, regardless of treatment, *Giardia* may persist. Dogs often reinfect themselves during therapy. Take precautions to reduce exposure. Also, your dog's *Giardia* may be nonresponsive to the drug used. A change of drug might help. She may have an underlying issue suppressing her immune responses. Observe her closely and consult with your vet. Finally, neither dogs nor people develop immunity against *Giardia.* They, and we, can always have it again.

Giardia does not do permanent damage, but once it's gone, a dog may need a little time to heal her intestinal lining. Probiotics can help with digestion in the meantime. Feed clean, non-irritating foods. If she had malabsorption, add nutritional supplements to help her regain what she lost.

Caleb did not respond to maximum doses of grapefruit seed extract and oregano oil, given for five days. But after two treatments with fenbendazole, he finally tested clear and regained his ideal weight. His digestion recovered over a few weeks, and his breath cleared along with it. Plus, his aggravated, itchy skin and achy joints calmed again to their "normal" level of irritation. Maybe the *Giardia* had interfered with his absorption of the supplements we give him to ease those problems.

Prevention

You probably won't be able to avoid *Giardia* completely, but you can certainly reduce your dog's chances of contracting it.

■ Support her immune system so that she can handle *Giardia* better. This requires a proper diet, regular exercise, enough natural light, and a minimum of problem stress. But even if she does contract the parasite, she still may not have an immune issue; a sufficiently high number of cysts could infect even the healthiest dog.

■ Keep your dog's living quarters and hindquarters clean and dry. Gentle shampoo followed by clean water will look after the dog personally; soaps lift cysts away from the body so you can rinse them off.

Concerning floors, here's the *most* effective solution: flush them frequently with lots of plain water and let dry thoroughly before the dog comes back in. Concrete runs, especially, benefit from this. Many disinfectants don't affect *Giardia,* and heavily soiled areas shield cysts from chemicals, anyway. Keeping clean is better. Steam-cleaning can also help as *Giardia* can't survive temperatures over 60°C/152°F. Wash your hands well after clean-up.

■ When you go out with your dog, avoid quiet waters where cysts may gather and to visit streams or bigger lakes, instead. Walk in woods *after* vernal pools have dried up in summer. Discourage him from eating feces. In your yard, see what you can do about standing water, but don't worry about things like raised bird baths; if they're too high for mammals to poop in, they likely won't collect *Giardia* that could infect your dog.

What if, like us, you're surrounded by swamp, or your dog loves the water and you don't want to deny her that pleasure? Have your high-risk dog tested for *Giardia* annually. And if she develops diarrhea, think of *Giardia* first instead of last, and prompt your vet to look into it.

■ Water treatment. Town water systems should deal with *Giardia,* but not all do. If yours doesn't, you're on a private well, or you take your dog camping, boil water for at least one minute to destroy cysts. Properly maintained ultraviolet light systems for private wells kill them. Filters with an absolute pore size of one micron, or that are rated "for cyst removal," will snag them. Remember: you can't detect *Giardia* just by looking or sniffing at water. Cysts may dwell there even if it appears pristine and delicious!

Finally, don't get discouraged if you're trying to do everything responsibly but your dog still gets *Giardia.* There's no such thing as zero risk with the parasite; just do what you can, be realistic, and get out there and have fun with your dog.

Susan Weinstein is a freelance writer with a strong interest in animals and holistic healthcare. Presently, she is working on a book about pets and stress with Paul McCutcheon, DVM. Weinstein and Caleb live in Grafton, Ontario.

A Word About *Giardia* Vaccines

Wyeth makes a vaccine called GiardiaVax,® which, the company claims, can prevent dogs from developing *disease* (diarrhea) caused by *Giardia;* it does not prevent infection. Dr. Peregrine conducted a study to look at whether the vaccine might also clear infections in dogs who have been nonresponsive to traditional treatment, but did not find that it had any effect on this. Further, he states that some people believe, on the basis of clinical experience, that the vaccine provides no significant benefit either preventively *or* therapeutically.

It should also be noted that the vaccine contains thimerosol, a preservative that contains mercury. Many holistic practitioners believe that preservatives that contain mercury can cause abnormalities of the nervous system, such as problems with coordination, vision, and learning.

Control Yourself!

The benefits of developing your dog's skill at self-control.

BY MARDI RICHMOND

Recently, at a dog-related event, I had the opportunity to witness dozens of acts of self-control. There was the cute Lab who sat patiently in front of a five-year-old, ice-cream-eating child. There was the mixed-breed dog who politely turned her head and moved away when an adolescent Pug lunged in her direction.

One of the strongest examples was a young Border Collie who noticed a great game of Frisbee happening a short distance away. He started toward the group, obviously eager to join the game. He took one step, and then seemed to remember that he was with his person. He glanced up at his person (who was chatting with another person and unaware of her dog's dilemma) and then the Border Collie made the choice to sit and patiently watch the game instead of trying to join it.

Of course, there were also a few "out of control" exchanges at this same event. And in a few instances, only the owner's vigilant management prevented the dog from becoming out of control. So what made the difference? Why do some dogs exhibit such great self-control while others are lacking?

Self-control is often thought of as an inherent quality – something a dog (or person) either has or doesn't have. Admittedly, some of us may be more naturally capable of self-control than others!

But self-control is much more than just behaving calmly or even resisting excitement. It is more than being well trained. It is an emotional *skill.* Self-control can be taught and developed much the way physical skills like loose-leash walking can be taught.

How dogs learn self-control

Dogs, like people, learn self-control through life experiences and through interactions with dogs and people. They learn from the "consequences" of their actions when they experiment with behavior. All types of consequences (both positive experiences and negative experiences) influence the development of self-control.

Puppies and young dogs, for example, may learn to have self-control around dogs during play. If a puppy plays nicely and with restraint (showing good self-control), the play session is likely to continue. However if the pup bites too hard, becomes too rambunctious, or is otherwise "out of control," the other dog may offer a warning and then disengage from the play.

Some dogs are more comfortable hanging out for extended periods while sitting; for others, a lying down or standing position might be easier to maintain. Allow your dog to practice self-control in a comfortable position to set him up for success.

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WHAT YOU CAN DO . . .

- **In the beginning stages of teaching your dog the advantages of deciding to be calm, try to avoid putting your dog in a situation where she is more than likely to fail – for example, at a busy dog park or on the action-packed sidelines of your son's soccer game.**
- **Pay attention to your dog! Reinforce her frequently, with warm praise and treats, when she exhibits self-control, especially in the face of temptation.**

Since most of us live with our dogs in a controlled environment, with fences and leashes that enforce our control, it may be difficult for some dogs to learn self-control strictly through their daily interactions; they may need a little help from us.

This is where training for self-control comes in. You really can help your dog gain this fundamental skill. Training exercises to teach self-control involve three elements:

- Teaching the dog that being calm is an option.
- Allowing the dog the opportunity to experiment (safely!) so that he begins to understand that self-control is a rewarding option.
- Teaching the dog to "listen" in the face of excitement or arousal.

Step one: It's OK to be calm

For some dogs, being calm comes naturally. But many dogs, especially dogs with self-control issues, actually need to be taught that being calm is an option and a good choice!

■ **Sit calmly.** Sit or down are good foundation exercises for self-control. When a dog sits and stays sitting (or stays in the down position) for several minutes, he learns how to be calm. In her book, *Understanding and Teaching Self Control,* Suzanne Clothier writes, "A dog who is lacking self-control simply does not know that it is possible to sit quietly in the face of distractions." We have to show our dogs that it is possible!

Start with practicing "sit" or "down" in a low-distraction environment for one to five minutes. If your dog has trouble holding a sit or down, you may need to start with only a few seconds and build up slowly to a minute or longer. (See "Way to Stay," March 2006 for more tips on teaching your dog to sit/stay.)

Once your dog does well in your living room and other easy places, start practicing out in the world. Slowly increase the difficulty of distractions. A dog who can sit or down and hang out for several minutes in the face of distractions is learning that being calm is an option.

Note: In the rest of the article, we'll refer to asking your dog to "sit" as a default calm behavior. If it's easier for your dog to lie down than sit (many breeds find it to be more comfortable due to their conformation), substitute "down" for sit in the instructions that follow.

■ **Relax in new places.** When your dog has the idea of sitting calmly, take the exercise a step further. Teach your dog that he can "hang out" quietly with you in new but low-stimulation environments. Head for a quiet space – perhaps the neighborhood park, under an oak tree in a field, or even a new spot in your backyard. Take a book and perhaps a blanket to sit on. Keep your dog on leash, and invite him to sit or lie down (whichever he is more comfortable with), open your book, and settle in for a few minutes. When your dog settles, quietly praise him.

■ **Sit for exciting events.** You can reinforce the sit calmly by asking your dog to sit for all exciting events in his life. For example, ask your dog to sit before going outside to run, before walking through the front door, before having the leash put on, before being fed dinner, and even before being let off leash to play with other dogs.

Step two: Self-control is rewarding

Dogs with good self-control have had the opportunity to learn that restraint is a rewarding behavior. These exercises help dogs understand how rewarding it can be to control their own behavior!

■ **Leave it or off.** The "leave it" or "off" is when you teach a dog to back away or look away from an interesting object, dog, or person. It is commonly used to train puppies to refrain from mouthing or playing with the wrong items, and to help overexcited dogs learn to disengage from other dogs. While this exercise is usually taught as a safety behavior – a way to teach a dog that leaving something alone is the best option – it is also a great way to encourage self-control. (See "Off Limits," January 2002, for more about teaching the "off.")

In the early stages of the off exercise, you may cue the behavior by saying "off" when you want your dog to leave something alone, but for self-control practice it is essential to start rewarding your dog for *offering* the off. You can actually set up an "off practice course" by laying out 5 to 10 interesting objects (toys, cones, socks, etc.). Walk through the course one or more times asking your dog to "off" when you pass each object and rewarding him generously each time he does.

After your dog walks through the course once or twice, he is likely to begin offering the "off" before you ask. When this happens, jackpot by rapid-fire feeding him treats and lavishing him with praise!

Watch for opportunities in your daily life – on walks, for example – when your dog notices something or someone and then looks to you. If you can catch these opportunities, you will help your dog learn that disengaging (which is a part of self-control) is a great choice.

■ **Wait for the ball toss.** In the early stages of practicing this game, you will want to simply have your dog sit, and then toss the ball as a reward. As he learns the game, you can increase the time he waits before the ball is tossed.

Next, watch for opportunities to reward the *offered* sit – where your dog actually sits before you ask. Your dog will be learning that his act of *offered* self-control (sitting

Perhaps the most difficult place for your dog to control himself is in the car when you first pull up to the dog park. Don't let him out until he sits calmly and quietly.

Many fetch-loving dogs learn to annoy people into a game of fetch by hopping, barking, and repeatedly dropping their toys on the victim's foot. Refuse to throw until the dog is sitting calmly.

Dealing With Frantic Antics

Some dogs respond to new people, dogs, places, and events with caution. Others respond with enthusiasm and interest. For dogs who respond to newness by exploring or investigating, self-control behaviors like calmness and restraint can be especially challenging – after all, they want to visit, check it out, and get involved.

The challenge can be doubled if the dog is also under-socialized. The result: A frantic dog (he must investigate all the time because everything is new!) and a frustrated owner (this dog is out of control!).

If you have a dog who matches this description, the self-control exercises in this article can help. But extra socialization can also boost your dog's ability to exhibit self-control.

■ If self-control is difficult for your dog, expose him to new people, dogs, and places in a gradual and gentle manner where he can explore with less frantic energy. For example, find one calm dog for him to play with in a quiet place rather than taking him to the dog park where the large number of dogs may be overstimulating.

■ When you first practice self-control exercises in public, create enough distance from stimulation that your dog can be successful. For example, you may want to practice the "sit calmly" across the street from the park, rather than in the midst of kids, dogs, and soccer players. Move closer very gradually and only when your dog can be successful.

and waiting for the ball toss) is more rewarding than dancing around and demanding the throw. Of course, this means that you should limit the number of times that you throw the ball for him when he is demanding the throw with exuberant behavior, even when you are not actively "training" him!

Step three: In the face of arousal

When I asked friends with dogs what it meant for a dog to exhibit self-control, they all agreed that the most impressive examples of self-control were dogs who did what they were taught to do, in spite of their strong urges otherwise. One example was the Frisbee dog who waited patiently – even while quivering from head to toe with excitement – until she was cued to retrieve the plastic disc.

Hunting, herding, and even dog sports like agility encourage dogs to exhibit self-control while in the midst of excitement and arousal. Here is an at-home exercise that can also help dogs learn to turn on and off their excitement, and to listen to you in the face of arousal.

■ **Tug-sit-tug.** Tug games can be great fun and great exercise. For dogs who get wound up when tugging, this game can be a powerful tool for teaching a dog to exhibit self-control even when excited. Start by making sure your dog knows how to "drop" the tug toy on cue. (For more on this, see "Tug: Play It By the Rules," October 2004.) Start with a calmer version of tug (at a lower arousal level), and every 3 to 5 seconds stop pulling and ask your dog to drop the toy. At first, if you need to, you can reward your dog for dropping the toy with a treat.

Once your dog can easily and quickly drop the toy on cue, start requesting a sit after he drops it, so the sequence is tug-drop-sit. You can use the tug game as the reward. Begin increasing the length of time your dog sits before you start tugging.

When your dog is "good" at this game, start gradually increasing the intensity and excitement of the game by playing harder or longer (5 to 7 seconds, for example) before you ask for the drop and sit. Your dog may start to "offer" the sit after the drop; that's great!

Asking vs. offering

Several times when describing the above exercises, I recommended rewarding your dog for "offering" a behavior before you ask. When you ask or cue your dog to do a specific behavior, and your dog responds, he is listening to you or under *your* control. Sometimes just being able to follow direction does show a degree of self-control, but when a dog *offers* an appropriate behavior, especially a behavior that shows restraint or calmness, he is definitely exhibiting *self*-control.

One of the best ways you can encourage self-control is to watch for opportunities to reward your dog with praise, attention, or treats when he naturally makes a good decision. In addition, note those times when your dog opts for self-control in the face of a *big* temptation. Lavish your dog with praise, attention, treats, and other rewards.

When you selectively reward self-control oriented behaviors in daily life, you have provided the opportunity for your dog to experiment with behavior and learn that calm, controlled behavior is the best choice. Let your dog know that you notice and appreciate his good choices!

Keep it positive

When I am helping people help their dogs develop self-control, invariably the question comes up: Wouldn't he learn it faster if we "corrected" his impulsive behavior? Aside from the obvious that training with positive methods is kinder, I also believe that self-control is stronger when it is learned through reinforcement, rather than punishment.

Possibly the best example is the herding dog who exhibits amazing self-control around sheep. The dog learns that waiting patiently earns him the "reward" of working those sheep. Without the reinforcement of getting to move the sheep, the same dog might have a tougher time learning restraint in the face of incredibly strong drives.

Also, attempts to "correct" behavior may accidentally reinforce it. For example, if your dog jumps on you as a way to gain your attention and you scold him, he has just been rewarded for jumping! Scolding is a form of attention. In contrast, if you calmly disengage (showing self-control on your part!), you ensure the out-of-control behavior is not inadvertently rewarded. You also send a clear message that being out of control is not going to earn attention.

What can you do if you have a dog who regularly blows it in terms of self-control? First, identify and *respect* what your dog can and cannot handle! Then get busy and start training self-control behaviors. Make it clear to your dog that self-control oriented behaviors – like calmness in the face of distractions, restraint around temptations, and listening when excited – are always the most rewarding choices.

Mardi Richmond, MA, CPDT, is a writer and trainer living in Santa Cruz, California, with her partner and two wonderful dogs.

Basic Immunology

How to monitor and support your dog's immune system.

BY RANDY KIDD, DVM, PHD

The immune system is a dog's "great protector." To be immune (from the Latin *immunis,* meaning free or exempt) is to be protected from infectious diseases by either specific or nonspecific mechanisms.

It is the great protector's job to respond to infectious challenges and antigenic stimuli from the outside world and respond to them appropriately. An appropriate immune response will mount a defense against the body's challengers without in turn destroying the host animal itself; this type of response presupposes that the immune system can recognize or differentiate its "self" from the invader, the "not self."

Studies of the immune system include its basic structure and function along with all the biological, serological, physical, and chemical aspects of the immune phenomena. In addition, immune function is involved in immunization (vaccines), organ transplants, and blood transfusions.

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WHAT YOU CAN DO . . .

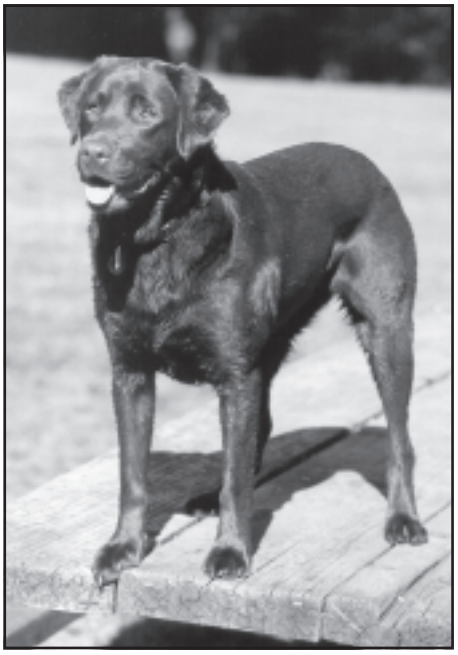
- **Support your dog's immune system with fresh foods, ample (not necessarily strenuous) exercise, daylight, and loving, hands-on attention.**
- **Don't overvaccinate! Use titer tests to determine whether your dog's immune "memory" needs "boosting."**
- **Take your dog's chronic health problems as a sign that you need to take further steps to balance him immune system; the complementary therapies are excellent in this regard.**

Functional testing of the immune system may include laboratory tests of the cellular and humoral (pertaining to the "humors" or fluids of the body, especially involving the blood) components of immunology, and the use of antigen-antibody reactions (serology and immunochemistry). Easy-to-perform clinical pathology tests (a CBC or needle biopsy, for example) might be used to indicate the current status of the animal's immune system.

The physical part of the dog's immune system extends from the subcellular level to the whole organism. Each and every cell and all organ systems have their own components of immunity, and in turn, each has some sort of independent, inner regulator. Recent evidence indicates that an animal's emotions have a profound effect – sometimes positive, sometimes negative – on an animal's immunity. And even environmental factors such as noises, odors, light patterns, and/or environmental pollutants can have an effect on the biochemistry and cellular components of the immune system.

The immune system has been extensively studied by the reductionist model of Western science. From the viewpoint of the holistic practitioner, however, the most important aspect of the system as a whole is that each individual component of immunity is intimately connected. Through these connections all the microscopic parts of the system are in constant and intimate communication with all other parts.

It is this inner communication that becomes important when taking a holistic approach to the dog's wellness. While Western medicine typically concentrates on confronting one component of a disease, holistic medicine tries to incorporate all aspects of that great protective inner web and outer blanket that is the immune system, ultimately trying to bring them all back into balance. "Balance" is the operative word here – imbalance in either direction, either a hypoactive or hyperactive immune system, will ultimately lead to disease.



This fit, healthy dog telegraphs her immune system health from her bright eyes, glossy coat, muscle definition, and attentive, calm demeanor.

The immune system

The best-known components of the immune system are those found in the blood and lymph systems – the **circulating immune system.** Lymphocytes and immunoglobulins tend to be the media darlings of the immune system. Many practitioners give short shrift to other, equally important components, such as the skin and other body barriers, the mucosal linings of many body surfaces, the gastrointestinal tract, the lungs, hormonal input into the system, and the interconnecting immuno-communication system.

Traditionally, the circulating immune system is divided into two components: cellular (primarily lymphocytes) and humoral (complex proteins that are referred to as immunoglobulins or antibodies).

Cellular components of this circulating system include two types of lymphocytic cells: B-cells and T-cells. One purpose of

the lymphocyte population is to recognize antigens. An antigen is any substance that is capable of inducing an immune response; bacteria, viruses, and parasites are antigens.

After recognizing a substance as "not self" and "not-good-for-the-self," lymphocytes may enter directly into the process of destroying and removing the foreign intruder. Or, via the production of antibodies (immunoglobulins), they can activate other cells – including the white blood cells, neutrophils, eosinophils, and monocytes – that do the dirty work for them. Total white cell numbers and the ratio of the kinds of white cells seen in a sample (observed on a CBC, or complete blood count) may be helpful in determining the type of disease present (see "Passing the Blood Test," November 2003).

There are several classes of **T-lymphocytes:** helper cells, cytotoxic cells, and suppressor cells. Each class acts in its own way as a coordinator and/or stimulator of the immune system. In addition to their actions on the circulating white cells of the blood, T-cells also influence lymph nodes, the thymus, spleen, intestines, tonsils, the normal flora of "good guy" bugs that exist in various areas of the body, and the mucosal protective coating that lines many tissues.

B-lymphocytes are the memory cells of the immune system, and they are the cells primarily responsible for **humoral immunity.** B-cells produce proteins termed immunoglobulins that act as antibodies, and these antibodies interact with antigens that have been introduced to the body. This interaction typically forms a protein complex that can be removed from the body.

There are several classes of **immunoglobulins:** IgA, IgE, IgG, IgM, and IgD. The immunoglobulins are found in the gamma globulin portion of the blood serum. Each immunoglobulin class has a typical area of the body where it is most often found; each has specific antigens it interacts with, and each has its own way of producing a removable antigen/antibody complex.

For example, IgE activates immediate hypersensitive reactions, and IgA is generally involved with immune functions of the secretory organs. IgG is the only class transferred across the placenta, and it is responsible for the maternal antibodies that protect puppies for several weeks after birth.

There are specific tests used to determine the class and the relative amount of immunoglobulin present. While these tests are generally nonspecific, they may give some indication as to the type of ongoing disease process.

B-cells are long-lived, perhaps as long as the entire life-span of the animal. As they are exposed to antigens throughout their lifetime, B-cells store the memory of these antigenic exposures so that they can mount a response against them when exposed at a later date.

Vaccines rely on stimulating B-cells so they will be encoded with a memory of the specific antigen found in the vaccine. The idea of the vaccine antigens is to provide this memory of the antigen without causing disease (we hope!); this memory will then (again, we hope!) stimulate an appropriate response to an actual exposure to the antigen at a later date.

Depending on the health status of the individual, lymphocytes comprise some 20 to 40 percent or more of the cells in the blood, and they also have their own method for circulating throughout the body: the **lymphatic system.** Unlike blood, which is pumped throughout the body by the heart, the lymph system has no active pump and thus has to rely on muscular activity to move its lymphocyte-rich fluids from one area of the body to another.

Ask your veterinarian for annual blood tests. The results can be used to alert you to health problems before obvious signs are seen, or to establish your dog's health history, in case problems arise

Lymph nodes occur at various points along the body's lymphatic circulation. They are accumulations of lymphocytes and other cells including macrophages (literally, *big eaters),* cells that kill, eat, process, and eliminate foreign substances.

In healthy animals the lymph moves as a seamless river, transporting immune information from one part of the body to another, bringing activated lymphocytes to areas where they are needed, and helping to remove accumulations of debris and toxins. Lymph will flow into an area of inflammation, and contribute to the swelling that occurs there. Fluid lymph can also accumulate and contribute to edema whenever an animal (or a normally moving part of the animal) is inactive for any length of time, and noticeable swelling may result.

Even in the healthy animal some lymph nodes are large enough to be located by palpation in certain areas (especially along the neck and hind legs), but they can also enlarge into very visible lumps when they are actively draining an infected area or when affected by tumors – lymphosarcoma, for example, or other tumors that have metastasized to the regional lymph nodes. Simple needle biopsies can be helpful in determining the cause of lymph node enlargement.

In addition to the moving (lymphatics) and stationary (lymph nodes) network of the lymph system, lymphocytes are a prominent part of other parts of the body. In fact, the largest accumulation of lymphoid tissue in the body is located in the gut (more about this below).

The new kids on the block of the immune system are the **dendritic cells.** Dendritic (branched like a tree) cells are difficult to isolate, so study of them is in its infancy, but they may prove to be one of the most important components of the immune system.

Dendritic cells are generally located where maximal microbial encounters occur – the skin, gut, and lung. They can be thought of as local surveillance cells, acting as a bridge between innate and acquired immunity by initiating specific cellular and humoral immune responses.

Dendritic cells use their branching "limbs" to feel the local environment for intruding antigens. They physically

carry this antigenic information to local lymph nodes for processing and subsequent activation of the whole body's lymphoid immune system. Thus dendritic cells and the lymphoid system interact to create an intricate web of communication from locally exposed cells outward to the far reaches of the body.

Dendritic cells have retained many pattern recognition receptors of the ancient immune system and have the unique ability to sense stimulations such as tissue damage and necrosis as well as bacterial and viral infections. These pattern recognition receptors are encoded in the germ line of each animal, and they are passed from generation to generation – perhaps one of the reasons dog breeding lines seem to inherit their parents' immune capability, whether good or bad.

Other systems with immune function

In addition to the blood and lymphatic systems, *all* organ systems are involved, in one way or another, in the function of the immune system, and *all* are likewise affected – positively or negatively – by the animal's ability (or inability) to mount an appropriate immune response. There are, however, some organ systems that are especially prevalent in the immune response.

■ **Normal flora.** The normal, healthy animal literally teems with bugs. It's been said that there are many times more bugs on and in a healthy animal than the total number of cells that animal has in its entire body.

As an example, each square centimeter of healthy (human) skin contains 10,000 to 100,000 bugs! And, depending on where the sample is collected, a persistent bug counter will find anywhere from 100,000 to 1,000,000,000,000 bugs in each gram of intestinal contents. These good-guy bacteria produce many biochemicals that destroy other, pathogenic bacteria.

■ **Skin.** Everyone knows that a dog's skin, the largest organ of his body, acts as a physical barrier. But is also contains intrinsic factors that enhance his overall immunity. We've already seen that skin is replete with good-guy bugs. In addition, hair follicles produce sebum, an oily substance that contains lactic acid and fatty acids, both of which inhibit growth of some pathogenic bacteria and fungi.

Too-frequent bathing or persistent use of antibiotic-type soaps can destroy the natural immune function of the skin by drying it (opening pores and minute skin cracks to invasion of bacteria), eliminating beneficial bugs, and removing the protective layers of oils and acids.

■ **Mucosal barriers.** The inner linings of several organs – the gastrointestinal tract, lungs, urethra, and urinary bladder, as examples – are lined with a thick and tenacious layer of mucus that traps (and may kill) foreign bodies, including microorganisms.

■ **Gastrointestinal tract.** From its beginning to its endpoint, the gastrointestinal tract is actively involved in the animal's immune functions. Lysozymes in the saliva (and also occurring in healthy tears) can break down the walls of some bacteria. The normally acidic environment of the stomach is an effective barrier to many incoming germs. The lining of the intestinal tract is also coated with mucus, another effective way to prevent the invasion of microorganisms.

As discussed above, an extremely important component of the gut's immune function is the presence of the normal flora, the naturally occurring bugs of the gut.

Finally, the gut is a prime source of lymphocytes, containing more of these immune cells than any other part of the body. This accumulation of lymph cells is collectively called GALT, for "gut associated lymphoid tissue." GALT begins with the lymphoid tonsils in the throat and is further expressed by large patches of lymphoid tissues, called Peyer's patches, that are located along many areas of the intestinal tract. The job of GALT is to recognize incoming foreign particles that may be harmful.

■ **Lungs.** The innate and first line of defense of the lungs includes the germ-trapping mucosal lining of the inner lung walls along with tiny hairs whose ciliary action, along with sneezing and coughing, ejects living and nonliving things. Dendritic cells are also an active component of the lung's immune system, along with a healthy population of white blood cells and immunoactive cells in the epithelial lining.

It is interesting to note that some of the immune pathways of the lungs are activated by mechanical stretching, further adding to the notion that exercise is healthy for the immune system.

■ **Liver.** The liver is another prime site for immune function, and it is healthily supplied with lymphoid tissues as well as liver macrophages (Kupffer's cells).

The liver is also a prime organ for processing and eliminating all sorts of toxins, and its antitoxic abilities are crucial for the health of the animal's immune system. In light of this, it is interesting to note that the most common cause for withdrawal of drugs from the human pharmaceutical market is drug-induced liver injury (often referred to as DILI).

Drugs can be either directly toxic to liver cells, or they can adversely affect the liver's immune function. This latter reaction may not show up until days or weeks after the beginning of drug use, and it is easy to miss the connection. According to one report, in humans DILI accounts for more than 50 percent of acute liver failure!

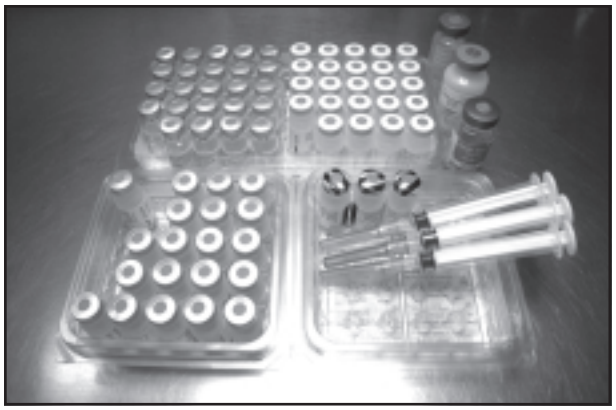
■ **Hormones.** Many, if not all, of the hormones of the body have either a direct or indirect effect on the im-

Your dog's skin is one of his first lines of defense from pathogenic bacteria. Keep it healthy with brushing and massage, and don't bathe him too frequently.

mune system. Of particular interest are the thyroid and sex hormones.

Many practitioners feel that the thyroid is the master gland of the body. The thyroid can also be easily affected by outside influences – one of interest to holistic practitioners is that vaccines and/or the preservatives in vaccines have been linked to thyroid dysfunction.

The overall capability of the immune system may also be adversely affected by sex hormones, and particularly the female sex hormones. Autoimmune problems such as diabetes, lupus, hypothyroid, and rheumatoid arthritis are much more common in females than males.



Vaccines can save lives – but they do *not* need to be given annually. Overvaccination can cause problems in the immune system.

Immune system disruptions

There are several ways normal immune function can be disrupted or inhibited. The following are some of the most common.

Many **diseases,** especially those caused by viruses, can directly attack the cells of the immune system. Or they can be more insidious and slowly infiltrate one or more components of the immune system and ultimately cause diminished effectiveness.

Stress, especially if it is prolonged and if the animal can't avoid it, can eventually overwhelm the ability of the immune system to respond, ultimately leading to increased susceptibility to disease. However, *some* stress is good for the body and soul, rather like working the immune-muscles to make them stronger.

An interesting study recently demonstrated that short-term moderate stress to animals (two hours of restraint) enhanced the immune response of the skin. This response was measured to be two to four times more robust than a normal response, it occurred quicker than normal, and it remained strong for weeks to months after the stress had ended.

"We believe that in many situations of acute stress, the body prepares the immune system for challenges such as wounds or infections," says Firdaus Dhabhar, one of the study's coauthors. "The immune system may respond to warning signals (such as stress hormones) that the brain sends out during stress. These prepare the body to deal with the consequences of stress."

While **antibiotics** can help the immune system by decreasing the numbers of pathogenic bacteria, they can also destroy much of the animal's protective mechanisms by killing the good-guy bugs that normally inhabit the gut, the skin, and other parts of the body.

Corticosteroids may be used to inhibit a hyperactive immune process, but excessive or prolonged use may inhibit the system to the point that it is no longer functional.

Vaccines are meant to stimulate the immune system so that it will be able to mount a later attack against the specific disease the vaccine is directed against. Problems with vaccines occur when the immune stimulation is too much for the animal to handle. This may cause anaphylaxis – a rare but immediate hypersensitive reaction that can be life-threatening.

More commonly (at least in the minds of holistic practitioners), the repeated introduction of vaccine antigens, along with the presence of modified viruses shed into the environment, may provide the final insult that exceeds the immunological tolerance threshold of some individuals. These individuals may exhibit any number of immune-related diseases, including arthritis, inflammatory bowel disease, cystitis, and skin conditions.

Immune system diseases

Most holistic practitioners (including me) feel that nearly all diseases have a direct link to an imbalance of the immune system, and those that aren't directly involved eventually have an adverse effect on the system. There are some diseases that are known for their involvement with the immune system, and these can be loosely divided into those where the system is hyperactive or where it is hypoactive.

Anaphylaxis is the term used to describe any acute, systemic manifestation of the hyperactive interaction of an antigen as it binds to an antibody. (This is also termed a **Type I reaction,** and it is typically the result of IgG immunoglobulins triggering a reaction with mast cells and basophils.) Possible causes include stinging and biting insects, vaccines, drugs of any kind, food substances, and blood products (transfusion from an improperly matched blood type, for example).

Clinical signs of anaphylaxis include restlessness and excitement, itch, edema, salivation, tearing, vomiting, abdominal pain, diarrhea, difficult breathing, shock, convulsions, collapse, and possibly death. Unlike other animals that typically have severe respiratory signs, the organ that is primarily affected in the dog is the liver; gastrointestinal signs rather than respiratory signs are more apt to be seen in dogs.

Anaphylactic shock and total collapse can be the result. Or more focal reactions may occur, including hives, itching, and facial swelling, especially around the eyes. Other diseases considered to be anaphylactic or Type I reactions include allergic rhinitis, chronic allergic bronchitis, allergic asthma (less common in animals than in man), food allergies, and atopic dermatitis, a chronic itchy skin disorder.

Other immune-related diseases are related to the self-production of antibodies that are toxic to various cells within the animal's own body – a classic case of the immune system not being able to recognize "self." The inciting agent for the self-against-self reaction is not always evident, but often appears to be related to drugs or to an oversupply of antigens from outside sources (vaccines).

The most common diseases in this category (also termed **Type II reactions**) include the complex of autoimmune hemolytic anemia (AIHA) and autoimmune thrombocytopenia. In general, autoimmune skin disorders fall into the various "pemphigoid" conditions.

Myasthenia gravis is a rare disease that causes extreme muscular weakness. Its symptoms are the result of autoantibodies that are directed against receptors that energize muscle activity.

Another way the immune system can run amok is by producing immune antigen/antibody complexes that are deposited in various areas of the body. These complexes interfere with normal function, and symptoms depend on the area affected. Examples of these **(Type III)** reactions include canine rheumatoid arthritis,

systemic lupus erythematosus (SLE), and glomerulonephritis (a kidney disease).

A final category of hyperactive immune diseases **(Type IV reactions)** activates the cell-mediated portion of immunity. Diseases in this category include contact sensitivity, autoimmune thyroiditis, and keratitis sicca.

At the other end of the spectrum, the hypoactive immune system, there are several diseases that result in poor immune performance. The most common of these result from infection with various viruses – for example, canine distemper, parvovirus infections in dogs and cats, and AIDS in humans.

Maintaining a healthy immune system

Maintaining immune health is a matter of trying to keep the whole of the system in balance with itself as well as in balance with the animal as a whole. Following are some general (and user-friendly) ways to help balance the immune system:

■ **Massage and exercise.** The easiest and most enjoyable way to enhance your dog's immune system is to put your hands to fur. Massage has been proven to increase lymphocyte numbers and to enhance lymphocyte function. The relaxation that comes with a good massage is good for emotional health, which has also been proven to be good for the immune system. The best part of massage is that it benefits the giver as well as the receiver; you enhance your own immune system as you help your best buddy enhance his or hers.

Exercise is another easy-to-implement activity that has proven, direct benefits for the immune system. In addition, the muscle activity helps cleanse the body of toxins and helps to move important components of immunity from one part of the body to another.

You don't have to be overstructured about massage or exercise. Simply rub your best buddy in a way you'd like to be rubbed, and take a daily walk or romp in the park.

■ **Nutrition.** The immune system demands good nutrition. Conversely, a diet deficit in any of the necessary nutrients will almost certainly cause immune-related disease. Specific nutrients that are indicated for immune-system health include: vitamins A (beta-carotene), C, E, and B-6; zinc; selenium; linoleic acid; and lutein.

Many of the above nutrients are high in antioxidant activity, and this may be the reason they are immune-supportive. Herbs and unprocessed vegetables are also excellent sources of antioxidant activity. It is interesting to note that recent studies have shown that the effects of antioxidants is much more profound when they come from a natural source rather than in the form of a pill or capsule.

■ **Herbs.** Some herbs demonstrate a direct immune-enhancing activity. In most cases this enhancement actually *balances* immune function rather than being purely stimulating. For example, when given as the ground-up parts of the entire (fresh or dried) plant, echinacea has been shown to increase lymphocyte numbers when they are abnormally low, thanks to one of several biochemicals it contains. The same plant contains *another* biochemical that actually *decreases* the lymphocytes when their numbers are abnormally high.

Many herbs, ounce for ounce, have as much or more antioxidant activity than that found in vitamins A, C, and E. Herbs can be given on a daily basis, in the form of a pinch of fresh or dried herb sprinkled over your dog's food or a mild tea made from the herb and poured over his food.

■ **Alternative medicines.** Acupuncture is said to enhance the flow of chi, that immeasurable energy that flows throughout the body. It is thus a balancing medicine, and as it balances all parts of the body, it likewise helps to balance and enhance immune function.

Homeopathy works by enhancing what homeopaths refer to as the vital force, again by helping to balance this immeasurable vital force throughout the body. Many homeopaths equate the vital force to the immune system; its actions are similar, if not the same, as an intact and healthy immune system.

Flower essences and aromatherapy have been shown to enhance an animal's immune function. It is likely these two work by modulating emotions which in turn enables the mind/body connection to ease the immune system into more optimal performance.

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).*

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The Association of Pet Dog Trainers (APDT) has references to member trainers in your area. Write to 150 Executive Center Drive, Box 35, Greenville, SC 29615, or call (800) 738-3647. The APDT database of member trainers can be seen at apdt.com

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

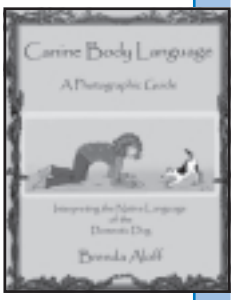
Ruffing It: A Complete Guide to Camping With Dogs by Mardi Richmond (Alpine Pubs, 1998), is also available from DogWise, (800) 776-2665 or dogwise.com

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

CORRECTIONS

Last month, we recommended a book, *Canine Body Language: A Photographic Guide,* by Brenda Aloff. We described the book as having 157 pages; it actually has 370 pages. $40 from dogwise.com or (800) 776-2665



Also, the price of *Language of Dogs,* a two-disc DVD set by Sarah Kalnajs, is now $60. (608) 213-5304 or bluedogtraining.com

We regret the errors.

WHAT'S AHEAD

The Magic Look
How to teach your dog to literally look to you for direction when things get hairy.

Paean to the Pancreas
The Tour of the Dog digests this important canine organ.

Willard Water
Sounds like snake oil, but its many fans swear it improves just about any health problem.

Stress Signals
These behaviors mean more than just "Calm down, please." They are a sign that your dog is stressed out!

More for Your Freezer
We add to April's list of commercial frozen raw diets.

Thanks to Juliette
An interview with Juliette de Baracli Levy, author of "The Complete Herbal Handbook for Dogs and Cats," and the earliest proponent of a natural diet for dogs.

Still to Come:
- *The best leashes*