

The Whole Dog Journal™



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A monthly guide to natural dog care and training

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Emotional Rescue

Here's to the exchange of comfort between dogs and humans.

BY NANCY KERNS

I suspect I'm not alone in having a childhood filled with dogs as my primary companions and emotional "security blankets" – I'll bet that an awful lot of you experienced that, too. Or you came to love and lean on dogs for friendship and comfort at another challenging time in your life. How do I know? Because it's been my observation that people who are committed to their dogs to a degree that inspires them to subscribe to magazines tend to be highly emotionally invested in their canine companions.

Wonderfully, in my family, I wasn't the only one who cried in my dog's coat on a bad day, and who expressed great joy by running and racing around with our pack of family dogs; all of us were dog-lovers, including my parents. I wasn't made fun of for considering our dogs as my best friends; each of my siblings had a special dog of his or her own. I challenge anyone to find a family portrait taken at our home (as opposed to one taken at a larger family gathering in one of our more urban aunts' and uncles' homes) that doesn't have at least one dog in it. Some may contain four or five dogs!

I have a hunch that this is also true of all of WDJ's dedicated contributors. I know it's true of Training Editor Pat Miller; I've seen her childhood family photos, and they contain as many dogs as mine! And I would bet good money that it's also true of trainer Laurie Williams, who has contributed a deeply personal story to this issue (page 4). Her story, about how she was saved from a life-threatening illness by a fellow dog trainer, demonstrates how the shared love of dogs can *sometimes* bind us humans together and inspire us to do good, selfless deeds.

Speaking of emotional dog-related experiences, my family recently lost a beloved canine: Hannah, my brother's dog. Though Hannah grew a tad rickety toward the end of her 12-year lifespan, her warm and loving soul shined more and more brightly through her large, beautiful eyes as she aged. Hannah was dubious about the arrival of my niece Ava five years ago, but (with the help of a *lot* of treats in the first couple of years), she matured into Ava's most devoted, protective companion – thus carrying on our family tradition for at least one more generation. Rest in peace, sweet Hannah. We miss you. *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.

Helping the Helpless

Five things to do if you witness animal abuse.

BY PAT MILLER, CBCC-KA, CPDT-KA

I assume that most *Whole Dog Journal* readers are as upset as I am when I see someone treating a dog badly. What should you do when you see someone being rough with their dog? Hard as it may be, I urge you to be calm and take several deep breaths before you act. Then . . .

1 ASSESS THE SITUATION. Calmly take a good hard look at what’s going on. Does the human appear to be someone who is simply trying to train his dog using outdated methods and who might be receptive to your assistance? If the person is applying hard yanks on a choke chain or prong collar, or blithely pressing the remote button for a shock collar, they are probably simply following the instructions of an outdated dog training professional and may not know that there is a far superior way to communicate with their dog. If, however, you see someone who has lost his temper and is deliberately abusing his dog, hanging, punching, smacking the dog repeatedly, or worse, this person probably won’t take kindly to your intervention and might just as easily redirect his anger onto you. If this is the case, you need to use extreme caution. The action you take will depend on your careful assessment.

2 EVALUATE YOUR OPTIONS. If it appears that the dog handler may be amendable to your suggestions, you might approach in your best helpful, non-threatening manner as a fellow dog lover, and offer to assist. If, on the other hand, the handler appears emotionally aroused and dangerous, I wouldn’t recommend approaching or confronting him. If the dog abuser appears violent or unsafe, a better option is to call the authorities.

3 LOOK FOR BACKUP. Regardless of how you proceed, look around for another person who can watch out for you when you step forward. It never

hurts to have support; there is safety in numbers. Let your back up person or people know what you intend to do, and agree on a signal you will give if you want them to step up in a show of support or call 9-1-1. Ask them to otherwise stay quiet unless you ask for help; catcalls from the peanut gallery won’t help keep the situation calm and positive.

4 CAREFULLY INTERVENE. Approach the dog handler with a low key introduction; something like, “Excuse me, but I have a dog myself (or “I’m a dog trainer”), and if you’re willing, I would love to show you a different way to do that, a way that worked really well for my dog (or “works really well for my clients”).” If the person is receptive, you can coach him through a simple positive reinforcement exercise (you may have to provide the treats, if you have them – another good reason to always have dog cookies in your pockets!), and then explain how the exercise applies to what he was trying to get his dog to do.

Or, if the dog is friendly, you are confident in your abilities and the person is willing, you can take the leash and demonstrate one or more positive behaviors. Then leave the person with some good resources – local positive trainers, books, Facebook pages, Yahoo groups – so he will be more likely to pursue

more dog-friendly training with his dog. (Consider keeping a one-page handout of dog-friendly training resources for times like this.)

5 STAY OUT OF IT AND CALL THE AUTHORITIES. If you think the treatment of the dog rises to the level of prosecutable or near-prosecutable abuse, or the person seems dangerously angry, don’t even think of attempting to intervene. If the handler is hanging, punching, slapping, kicking the dog – or worse – step back and call for help. Don’t worry about looking up the number for animal control, just call 9-1-1 and let them take it from there.

If you are carrying a cell phone with video capabilities, and you are at a safe distance, record as much as you can. Unless your support group consists of several large, strong guys who eat animal abusers for breakfast, you don’t want to risk getting yourself beat up in your humanitarian crusade. Do know that if the case is prosecuted, you may be called to testify in court against the abuse. Be willing to bear witness.

Arresting animal abusers was one of the most satisfying aspects of my 20-year career as an animal protection professional/humane officer. I have to say that, notwithstanding my own advice above, I might be hard-pressed to stop myself from physically intervening if I saw someone violently abusing an animal. I’m not saying you should, mind you, but I would understand if you did! 🐾

Pat Miller, CBCC-KA, CPDT-KA, is WDJ’s Training Editor. Pat is also the author of many books on positive training. See page 24 for more information about her dog-training classes, books, and courses.



The Healing Power of Dogs

Social connections made in the dog world, and the comforting company of dogs themselves, literally saved this dog trainer's life.

BY LAURIE C WILLIAMS, CPDT-KA

Somehow I always felt my connection to dogs and to dog people would have a significant impact on my life, and I was right. That's not even a strong-enough statement: they not only impacted my life, they've saved it.

I've been a dog trainer for more than 25 years. I own my training business, Pup 'N Iron Canine Fitness & Learning Center in Fredericksburg, Virginia. I'm one of the first dog trainers in Virginia to become a Certified Professional Dog Trainer (CPDT) with the Certification Council of Professional Dog Trainers (CCPDT), and I'm a past Vice-President/Assistant Chair and Board Member of the Association of Professional Dog Trainers (APDT). I've written about dogs for dozens of publications, and hosted dog-related radio and Internet shows. I'm an evaluator for AKC Canine Good Citizen dogs and Delta Society Pet Partner therapy dogs, and a licensed judge for AKC, UKC, World Cynosport (formerly APDT) Rally, and C-WAGS Obedience.

The entire time I've been working with dogs, I've been battling to stay alive. I was diagnosed with lupus when I was 22 – almost 30 years ago! Tests first indicated that my kidneys were failing in 1999 – a complication of the lupus. I was diagnosed with “end stage renal disease,” the technical term for complete, chronic, irreversible kidney failure, almost 15 years ago.

I've always hated the term, “end stage”; it seems so final and hopeless. But there's no way to sugarcoat it: chronic kidney

failure is progressive. The deterioration may be slow at times and rapid at others; you can't be sure of the course it will take. You become increasingly sick and weak as your body becomes unable to remove fluid and toxins, balance electrolytes, regulate blood pressure, and produce red blood cells. You hold on as long as you can until all kidney function is gone and you're faced with three choices:

- to allow the toxins and fluid to build up and eventually drown within your own body, a very painful, horrific death;
- to have your life sustained by dialysis treatments; or
- to try to get a kidney transplant.

EXPERIENCED

I've actually been down this road twice. The first time my failing kidneys threatened my life was in 2002. Because my doctors had anticipated my kidney failure, we had a contingency plan in place: my husband Mike, a former Marine and long-time police officer, was a match and would donate one of his kidneys to me! What with one complication and another, however, I had to spend three weeks



Dog trainer Laurie Williams, and the most famous of her four Maltese, Andrew. The pair were contestants on the reality TV show, “Greatest American Dog” in 2008.

on dialysis before the transplant surgery could take place. After the surgery was complete in 2003, however, my health returned.

Mike's kidney sustained me for almost 10 years, before it, too, began failing. So I knew exactly what I was in for – only this time, having only one kidney himself, my heroic husband wouldn't be able to save me again.

I still had too much living to do – not to mention a *village* of loved ones who needed and depended on me – so making the decision to seek out only palliative care until my death was not an option for me. Instead, as much as I hated it, I chose to go on dialysis again and start the process of getting on the transplant list.

My village? It includes my beloved dogs, all nine of them, and as time would demonstrate, their presence and quiet support would be instrumental in my journey. My current “pack” consists of four Maltese, a Pharaoh hound, a Standard Poodle, a Dalmatian, a long-haired Chihuahua, and my youngest, a Yorkshire Terrier whom I only recently adopted.

Most of my dogs are seniors: six of them are over 10 years old (including two who are over 12 and two who are over 14!). One of those 12-year-olds is Andrew, my Maltese sweetheart, the dog with whom I appeared on the short-lived

(but fun!) 2008 reality TV show on CBS, *Greatest American Dog*, which was sort of a mix of *Survivor* and a dog-training camp. Andrew and I placed second in the show's inaugural season, and were repeatedly praised by the show's judges for demonstrating the beautiful, mutually respectful relationship that can result from positive, dog-friendly training.

DREADED DIALYSIS

Faced with kidney hemodialysis again was terrifying. It consists of being intravenously hooked up to an "artificial kidney" machine and allowing it to remove toxins from your blood and excess fluids from your body. For hours, your blood must repeatedly circulate through the machine's filters and back into your body. The process is risky and hard on the cardiovascular system. Vital signs must be monitored throughout and at any moment you could go into cardiac arrest. I always found that I was wiped out the following day, unable to work or even do much around the house. It's estimated that up to 30 percent of people on dialysis die within the first three years, so remaining on it long-term is not desirable.

Unfortunately, for many people, there's no other option. Even if you are deemed a good candidate for kidney transplantation and put on the United Organ Sharing Network (UNOS) transplant list, it's a waiting game all over again. There are currently more than 100,000 people waiting for kidney transplants in the United States! Getting a match can take anywhere from four to 10 years, depending on where you live. So the challenge becomes keeping yourself alive on dialysis while you wait.

One of my biggest comforts during this wait was my pack of dogs. Multiple studies and research over the past 25 years confirm the positive effects that pets can have on our overall health and wellbeing. Pet owners suffer fewer minor ailments, such as headaches, colds, and hay fever; pets can help lower blood pressure, reduce anxiety, and boost immunity. There are insurance companies that ask potential clients if they have pets on their initial medical screening questionnaire! Affirmative answers work in the client's favor. All these factors would influence both my prognosis and decisions I would make about my care.

Because kidneys regulate blood pressure, one of the symptoms of kidney

failure is chronic high blood pressure (also known as renal hypertension). Another secondary illness that kidney failure can lead to is congestive heart failure, resulting from excess fluid accumulating in and around the heart and blood vessels. I struggled with both, which landed me in the hospital multiple times. Even though I knew I needed to be in the hospital, I hated it; being hospitalized took me away from my life, my home, my family, my dogs. I knew my doctors would not discharge me until my blood pressure went down.

Each time this happened, it took multiple medications to lower my blood pressure enough so that I could safely go home. I was instructed to continue my medications and monitor my blood pressure throughout the day – which was only ironic because, each time, within hours of being home and with my dogs showering me with love and kisses, my blood pressure returned to normal.

TREATMENT AT HOME

This repeated experience led me to an important decision regarding dialysis.

Normally, dialysis is performed in clinics, with trained nurses and technicians who insert the IVs, hook up the patients to the dialysis machines, and monitor them during treatment. However, because there are so many people on dialysis (it's estimated that one in 10 Americans have some level of chronic kidney disease), each patient is limited to only three treatments per week; each treatment lasts two and a half to three hours. In other words, patients are allotted a maximum of nine hours per week on the machines, to accomplish what healthy kidneys do 24 hours a day, seven days a week. So, to be even more frank, dialysis patients normally receive the minimum treatment needed to keep us alive.

Well, the bare minimum was just not acceptable to me. Further, I wanted to be home with my dogs and allow the "pet effect" to work its magic. So my husband (who had recently retired) and I attended six weeks of intense training to become certified to undertake my treatments in our home, on our own, with no medical personnel present. Home dialysis would enable me to undergo dialysis treatment five or six days a week, and for longer periods of time, more closely simulating the work that healthy kidneys do.

Home dialysis is time-consuming,

intense, risky – and, yes, a little scary – but being able to receive more dialysis, privately, in the comfort of my own home, and surrounded by my dogs and loved ones, helped me both physically and emotionally. My intention was to be the "healthiest" dialysis patient I could be so I'd be ready for that transplant if and when it came around.

I named my business Pup 'N Iron in honor of my two big passions in life: body sculpting through weight lifting, and dog training. Before my kidneys failed the first time, I was a full-time personal fitness trainer, and occasionally, even competed in all-natural bodybuilding competitions.

Remember how I said I had struggled with lupus for 30 years? Bodybuilding was a potent weapon against this autoimmune disease. So even though it was difficult when I was so sick and tired, I did my best to work out in between dialysis sessions. I took Zumba and "Body Jam" classes. I did step aerobics and used light handheld weights. It wasn't anything near as impressive as what I had done in years past, but given my medical condition, it was just as challenging – and it really helped both my mood and my health.

Williams in 2001, prior to her diagnosis with end stage renal disease. Williams was an avid bodybuilder, and the exercise undoubtedly helped control her lupus, the underlying cause of her kidney failure.



PUTTING THE WORD OUT

In addition to waiting on the UNOS list for a suitable transplant match, the only other way to receive a transplant is through a "live" donation.

Humans need only one working kidney; live donation enables a living person to donate one of his or her kidneys to a specified person in need. The donor must be in good health and, of course, must also be "a match" (in terms

of blood type and tissue antigens) for the recipient. Donating a kidney is the ultimate altruistic act, and yet thousands like my husband do it – heroes! Out of the 14,000 kidney transplants performed last year, almost 5,000 were from live donations.

The dog community is large, but I've found we are all connected in a "six degrees of separation" kind of way – especially today, with the help of social media. Word of my illness and need for a kidney transplant spread quickly throughout the dog world, and amazingly, I started hearing from people who were willing to be tested to see if they were a potential match and could donate a kidney to me! Some were friends, some were only acquaintances, and some – amazingly – were total strangers.

I was profoundly touched each time I heard from another "dog person" who was willing to be a donor. We come from different backgrounds, cultures, races, religions, and socioeconomic levels, but our shared love of dogs somehow binds us – and in this case, saved my life!

Paige Port and I met in 2009 when I hired her to judge a UKC agility trial at my training facility. Paige is a long-time agility competitor, trainer, and judge, and the owner of Hilltop Agility training center in Quinton, Virginia. She is an extremely pleasant person and we shared some laughs and enjoyed interacting with each other that weekend. Later we became Facebook friends and occasionally played Scrabble and Words With Friends online but hadn't seen each other since.

So I was shocked – and moved and grateful – when she emailed me and offered to be my kidney donor. She began all the necessary testing, and miraculously, she was a match for me!



Williams and her two heroes: husband Mike and "kidney sister" (donor) Paige Port, a fellow dog trainer. This photo was taken just two days after their transplant surgery!

Our kidney transplant surgeries took place on December 27, 2013 – exactly a year after I had started dialysis for the second time in my life. Now, in addition to being bonded through our love of dogs, we are "kidney sisters" for life. I can't express how grateful I am to her.

Shortly after the transplantation surgery, when asked why she decided to become my donor, Paige answered, "I thought about it, and talked to my husband about it. It was a pretty easy decision for me to make. I wrote Laurie and said, 'I've got one for you.' She was a dog person, and I could help."

Though Paige feels it was an easy decision, I can't help but feel there was something much more profound at work. Any of us who love dogs know that they

soften us. Maybe they were put on this earth not only for us to care for them and find the humanity in ourselves, but to facilitate us in caring for and finding the humanity in each other too.

As I approach the one-year anniversary of my transplant, I continue to advocate for patients with chronic kidney disease and raise awareness about the need for organ donors. Not everyone can or even *should* be a live donor; however, most can register with their states to be a donor in the event of an untimely death. Thinking about that is certainly unpleasant, but the need for organ donors has never been greater. Thousands of people die each year while waiting for a transplant. One donor can save up to eight lives. What an incredible way to impact the world and what a legacy to leave.

The late writer and television personality Roger Caras once said, "Dogs are not our whole life, but they make our lives whole," and I am a living example of that. My dogs have not only enriched my life, but through them, I got my whole life back. 🐾

A canine education specialist, dog behavior counselor, and trainer, Laurie Williams is the owner and Director of Training and Behavior Counseling at Pup 'N Iron Canine Fitness & Learning Center in Fredericksburg, Virginia. For more information, see pupniron.com or call (540) 659-7614.

FOR MORE INFORMATION:

✓ U.S. DEPT. OF HEALTH & HUMAN SERVICE ORGAN DONATION INFO

This is the primary federal entity responsible for oversight of the organ and blood stem cell transplant systems in the U.S. and for initiatives to increase the level of organ donation in this country (a good central site for information about organ donation). organdonor.gov/about/livedonation.html

✓ DONATE LIFE AMERICA

Donate Life America is a 501(c)3 not-for-profit alliance of national organizations and state teams across the United States committed to increasing organ, eye, and tissue donation. donatelife.net

Worms In, Worms Out

Getting to the bottom of a wiggly matter.

BY NANCY KERNS

Deworming agents are present in any number of prescription and over-the-counter treatments for dogs and puppies. If your dog shows signs of a gastrointestinal worm infestation, there are all sorts of products available that are made exclusively to rid dogs of various types of worms. But there are also deworming agents included – whether they are needed or not – in many flea and tick treatments and in most heartworm preventive drugs; in fact, it’s sometimes hard to find a minimalist flea treatment or heartworm preventive drug that does *not* contain dewormers. The question is, is this really necessary? Are intestinal parasites that much of an ongoing threat to most dogs – and their owners?

Yes, many of the worms that can infect dogs are zoonotic – that is, they can infect humans, too. (See “Which Worms Can Infect You or Your Human Family?”

on page 10.) Now that we have your full attention, let’s start with a description of the most common gastrointestinal parasites that can infect dogs.

■ ROUNDWORMS

Ascarids, more commonly known as roundworms, are the most frequently detected parasite in dogs. The most common species is *Toxocara canis*, probably because it has the most strategies for infecting dogs of any of the internal parasites, and because the females are such prolific egg-layers (a single worm can lay 100,000 to 200,000 eggs in a day). *Toxascaris leonina*, another ascarid species, is found less commonly.

Typically, roundworms live in the small intestine, though their larvae may migrate and “encyst” – become walled off and inactive, sometimes for months or even years! Adult worms are usually 3 to 4 inches long, although some *T. canis*

roundworms can be up to 7 inches. Seen in cross-section, they are indeed round and resemble thin spaghetti noodles. Occasionally, adult worms will be expelled in the feces (and more rarely in vomit), but it’s generally the eggs and larvae that are expelled and pose an infection threat to other canine hosts.

Roundworm eggs can exist in soil for years, making them a persistent threat. The parasite is found in every part of North America.

Roundworms can steal much of the beneficial content of what you feed to your dog, absorbing nutrients in the dog’s small intestine and interfering with digestion. Dogs who host only a couple of roundworms may display no symptoms at all, but dogs (and especially puppies) who are more heavily infested may be thin, with prominent shoulder, spinal, and hip bones framing their found, swollen bellies. Their coats are usually quite dull and their energy levels are low and lethargic. They may suffer from diarrhea or constipation, gas, and/or vomiting. Very severe infestations can actually block the intestines and cause the death of their host.

Almost all of the anthelmintic (worm-killing) agents that treat roundworms are effective against only the adult worms living in the dog’s digestive tract; encysted or migrating larvae won’t be harmed by deworming preparations. This makes a good case for occasional treatment with an appropriate deworming agent.

■ HOOKWORMS

There are actually three species of this nasty parasite commonly infecting dogs in North America: *Ancylostoma caninum* (canine hookworm), *Ancylostoma braziliense* (canine and feline hookworm), and *Uncinaria stenocephala* (Northern canine hookworm). They have notably different geographical concentrations, however; *A. braziliense* is found in the southeastern part of the U.S. in twice the prevalence it is found elsewhere, and *U. stenocephala* is found more commonly in northern climates.

Despite their small size (adults are just ½ to ¾ of an inch long), hookworms are highly destructive parasites. Their name comes from a description of the mouth-parts they use to attach themselves to the wall of the dog’s small intestine and



Many puppies, like this shelter ward, owe their jolly round tummies to a heavy infestation of roundworms, which can infect the pups *in utero* and through the milk of their infected mother.

feed on his blood. Their aggressive feeding habits can cause obvious evidence of disease in a fairly short time, including anemia and serious diarrhea.

Hookworms produce an anti-coagulant that prevents their feeding sites from clotting and healing, so their hosts lose more and more blood as the infection progresses. The chronic bleeding causes the severely infested dog to produce black, tarry stools and grow weak. His coat will become rough. Puppies' growth will be stunted. Without treatment, dogs with heavy infestations may become emaciated and die.

Hookworm eggs are expelled in the dog's feces, and develop into infectious larvae in two to 10 days. Hookworm larvae are extremely aggressive survivors; they can travel in any moist environment (rain-wet or dewy vegetation) and swim in water.

This parasite also uses a variety of methods for entering its host. Dogs can become infected by ingesting larvae-contaminated food, water, vegetation, insects (including cockroaches!) or rodents; or by coming into skin contact with larvae (the larvae can burrow through the skin and migrate through the dog's tissues). Puppies can become infected *in utero* (as larvae migrate through the mother's tissues into the developing fetuses) or through an infected mother's milk. Larvae that migrate through the dog's body sometimes become encysted in muscles, fat, or other tissues and this can cause pain and discomfort.

Hookworms pose a special diagnostic problem; infections are generally detected via examination of a fecal sample from the dog for the presence of worm eggs. But hookworms can cause serious disease in puppies before the worms are old enough to produce any eggs. A diagnosis of hookworm infestation may have to be made from the observation of disease, rather than a fecal examination.

■ WHIPWORMS

Canine whipworms (*Trichuris vulpis*) are found all over the world, and though their infections are much less likely to cause

observable symptoms of ill health in a dog, a really severe infestation can cause bloody diarrhea and weight loss. They are not nearly as prolific reproducers as roundworms, with the adult females producing a much smaller number of eggs and much more intermittently. However, these eggs are extremely resistant to desiccation (being dried out), extremes in temperature, and ultraviolet radiation; they can remain viable in soil for years.

Dogs are infected by eating whipworm eggs that are present in feces or in soil, or on plants that came in contact with contaminated feces. Larvae hatch from eggs in the small intestine and move into the cecum (the first part of the dog's large intestine) as they mature into adult worms. The adults are rarely expelled into the dog's stool, so the worms are seldom seen, making it more difficult to diagnose a whipworm infestation.

Adult whipworms are much smaller than roundworms, only about 1½ to 3 inches long. The "head" end of the worm is threadlike and thin and the tail end is thicker; so the sum effect is that of a long-lashed whip with a sturdy handle.

The adults consume blood, tissue fluids, and tissue from the cecum's mucosal epithelium; their feeding habits can trigger inflammation in the cecum, resulting in the overproduction of intestinal mucus, which can be observed in the feces of their host.

■ TAPEWORMS

There are two major types and at least 10 species of tapeworms that infect dogs in North America – so many that we won't bore you with all the names of them. They are considered ubiquitous wherever there are flea-infested dogs, but their prevalence isn't calculated like the other intestinal parasites, because they can't be reliably detected (and their incidence quantified) through fecal examination or fecal floatation tests.

Adult tapeworms live in the dog's small intestine, where they hook onto the walls of the intestine. Unlike hookworms, however, they do not feed on the dog's blood; they absorb nutrients through their skins (robbing the dog of nutrients in its diet) like roundworms. They can be 6 inches or longer, but few ever see them in this long form, because they grow in "segments" that emerge from the worm's "neck" area, with older and older segments being pushed toward the worm's tail. Each segment is about the size of a grain of rice and contains a complete set of organs, but as the segments mature, all but the reproductive organs deteriorate. These older segments at the end of the worm eventually transform into a sac of eggs and then separate from the body of the worm; they then are expelled from the dog in its feces.

While these worms cause the least harm to the dog of any of the parasites mentioned here, they often alarm dog



No, this puppy didn't sit in a bowl of rice; tapeworm segments are being expelled from her anus and sticking to her fur. As the segments dry, they break open and release thousands of tapeworm eggs.

owners the most, due to one simple fact: most owners will be able to see (and be horrified by) tapeworm segments that have emerged from their infested dog. The segments often stick to the hair and skin around the dog's anus, and upon close examination, can be observed to be moving! Many a startled owner has called her veterinarian to report that her dog has "maggots" on its bottom, only to learn these are tapeworm segments.

Tapeworms can infect the dog in one (weird) way only: they require an intermediate host. Fleas are the usual intermediary, but lice can be, too. Larval fleas (or larval lice) consume the eggs that emerge from tapeworm segments (remember that they are nothing but egg sacs by the time they are expelled from the dog), and the eggs start to develop into tapeworm larvae *inside* the developing flea or louse.

The tapeworm larvae uses the flea like a Trojan horse; it gets into the dog inside a flea! Dogs accidentally (or incidentally) consume fleas when they groom themselves (or chew themselves to relieve an itchy flea bite). Long story short: your dog can't become infected with tapeworms unless he's exposed to infected fleas.

Tapeworm eggs don't often show up on a fecal flotation test, even if a dog is heavily infested with adult tapeworms, because the eggs generally stay contained in the segments until those egg sacs break open, which may take days after the segments passed out of the dog and his feces. But the presence of a tapeworm segment on or around a dog's anus is a clear sign that he needs anthelmintic treatment.

TAKING ACTION

Now that you know the players, how do you stop the game?

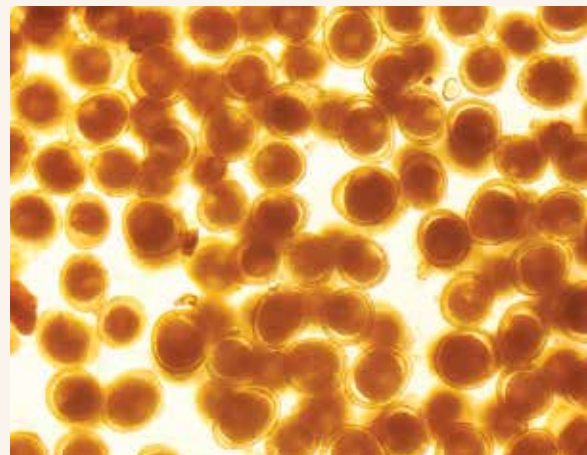
Thirty years ago, the prevalence of these intestinal parasites was two to three times what it is today. In decades past, dogs were routinely dewormed only as puppies, or if they developed obvious signs of an infestation and their owners sought veterinary attention. Today, with anthelmintic agents included in so many products that are administered for control of other parasites (such as flea, tick, and heartworm preventives), the overall incidence of intestinal worms is much lower in the overall population of North American dogs.

That said, many dogs originate from or are raised in circumstances where

"FECAL FLOAT" TESTS

Most intestinal parasite infestations are diagnosed by examining a fecal sample from the dog. Sometimes, adult worms (or in the case of tapeworms, worm segments) can be readily identified in the poop itself. More frequently, however, veterinarians perform what is called a "fecal flotation" test. The feces is mixed with a solution that causes any worm eggs present in the sample to float to the top; sometimes, the mixture is also spun in a centrifuge, to concentrate any eggs present. A sample of the floating material is then examined under a microscope.

If any eggs of any intestinal parasites are present in the sample, they are readily identifiable in a microscopic view. However, a dog may be heavily infested with worms that are not yet old enough to produce eggs (this is especially true in young puppies), or the sample may have been taken on a day when the worms did not produce eggs. Some worms produce only small numbers of eggs and only infrequently. For these reasons, many veterinarians recommend periodic "fecal float" tests – more frequently when a dog is young, and especially if the dog shows signs of a heavy worm burden upon physical exam (including a thin, pot-bellied body condition; poor coat; or persistent lethargy).



Roundworm eggs seen under a microscope; a view like this would indicate a heavy infestation of roundworms.

little veterinary care is given. Dogs who are rescued or purchased from crowded and/or neglectful homes, shelters, hoarders, or puppy mills will almost certainly be infested with every known variety of intestinal parasite. Puppies who were born to dogs from those circumstances will also be infested and require several treatments to be rid of worms.

There are a lots of anthelmintic products available to dogs owners; there are products that you can buy over the counter, and drugs that require a veterinary prescription. There are products that are targeted to treat intestinal worms only, and combination products that *also* control external parasites and/or prevent heartworm. (For more information about heartworm prevention, see "Sick at Heart," WDJ July 2011.)

What kind of treatment you use should depend on your dog's age and health. Treatment will need to be repeated at certain intervals, depending on the parasite. Most anthelmintics affect only the adult stage of worms; repeated doses

(usually in about three weeks, and again in two to three months) will be needed to eliminate any worms that were present in the dog in larval stages and unaffected by earlier treatments.

If specific intestinal parasites have been identified in your dog, it's wise to use agents that are specifically indicated for those worms, rather than relying on broad-spectrum treatments.

As just a few examples, milbemycin oxime and moxidectin are included in a number of heartworm preventive drugs, and are *also* credited with effectiveness against roundworms, hookworms, and whipworms; pyrantel pamoate (the "plus" in Heartgard Plus) is effective against roundworms and hookworms only. But we've heard of dogs who have routinely received these heartworm preventive drugs and still were diagnosed with severe intestinal parasite infections.

There's also the issue of the dog getting reinfected, especially if your dog eats feces, frequents areas where the soil has been heavily contaminated (such as dog parks), and/or if your yard was



A targeted approach, with prescription-strength products, is more effective for eliminating parasites than broad-spectrum treatments.

previously contaminated by neglected dogs. Environmental decontamination can be difficult, and the eggs of some of these parasites can persist for months or even years in the ground. Regular fecal exams (and treatment) for dogs in these situations are recommended.

NATURAL REMEDIES?

People who strictly adhere to “natural” dog-raising practices often eschew veterinary deworming agents in

favor of traditional remedies such as wormwood (artemisia), black walnut hulls, ground pumpkin seeds, food-grade diatomaceous earth, and others. In the view of many experienced holistic veterinary practitioners, however, some of these remedies turn out to be *more* toxic – more dangerous to dogs! – than conventional veterinary treatments. They may be ineffective as well, especially if non-toxic doses are used.

And while it’s true that a healthy

dog, fed a superior diet and living in a clean, healthy environment, should have the benefit of a robust immune system response to help combat parasitic invaders, parasites, too, are capable of being quite robust. In our opinion (and that of many holistic practitioners) counting on the unverifiable “strength” of your dog’s immune system to prevent intestinal parasites is asking for trouble.

The natural approach may seem to prevent worm infestations in healthy, well-cared-for adult dogs who were produced by well-cared-for mothers, but the truth is, the incidence of worms in that lucky (and minority) population is bound to be low no matter what. Treatment of existing infections and prevention of reinfections in vulnerable dogs and puppies should be undertaken by more reliable, conventional anthelmintic agents. 🐾

WHICH WORMS CAN INFECT YOU OR YOUR HUMAN FAMILY?

ROUNDWORMS: Humans can become infected by unwittingly ingesting infective eggs. Roundworm eggs can build up in the soil where infected dogs eliminate. Infection can result if you get these microscopic eggs on your hands (say, by getting dirt on your hands in the process of doing yard work), and then eating something with your hands. If you become infected with roundworm larvae, you can develop a condition called “visceral larva migrans” – severe inflammation caused by the migration of the larvae through your tissues. Signs of this disease include an enlarged liver, intermittent fever, loss of weight and appetite, and a persistent cough. Asthma or pneumonia may also develop. “Ocular larva migrans” is a condition caused by roundworm larvae migrating through a human’s eye, causing partial or complete loss of vision.

HOOKWORMS: Humans can much more easily become infected with hookworms than roundworms, due to the hookworm larvae’s ability to migrate through skin (such as bare feet or hands) into tissues. As with roundworms, the migration of hookworm larvae through human tissue can cause a serious inflammatory condition known as cutaneous larva migrans.

TAPEWORMS: Humans *can* become infected by tapeworms, but it takes some doing; just as with dogs, a human has to ingest a flea that is infected with tapeworm larvae in order to become infected himself.

Preventing these infections is relatively simple:

- ✓ **PERIODICALLY TREAT YOUR DOG FOR INTESTINAL PARASITES.** If your dog eats dog and/or cat poop, treat him for parasites regularly.
- ✓ **PICK UP DOG FECES IN YOUR YARD FREQUENTLY.** It would be ideal if you could pick up and dispose of your dog’s poop immediately after he eliminated; this would minimize the chances of any worm eggs or larvae lurking in your yard.
- ✓ **WASH YOUR HANDS.** A lot! And especially after being in any environment where lots of strange dogs have eliminated. And before eating, any time you’ve been around soil where dogs have been. Don’t *ever* eat food with your unwashed hands in a dog park, for example.
- ✓ **AVOID BARE SKIN CONTACT WITH GROUND WHERE DOGS ELIMINATE.** We’ve been to plenty of dog parks and off-leash areas and witnessed people (worse, small children) walking barefoot – yikes! Remember, hookworm larvae need only skin contact in order to migrate into your body.
- ✓ **PROTECT YOUR DOG FROM FLEAS.** And treat him for tapeworms (*and* fleas) immediately if you see tapeworm segments on him or in his feces.

Now Hear This

The first year in the life and training of a hearing-alert service dog.

BY MARDI RICHMOND, MA, CPDT-KA

Meet Lulu. Lulu is a Havanese-mix puppy, just about a year old. In many ways she is a typical adolescent pup: outgoing, social, and full of enthusiasm for life. But there is something special about Lulu. She is in training to be a service dog. When Lulu is fully trained, she will be a hearing-alert dog for her human companion, Sara Walsh.

Lulu had a humble beginning. She was found in the San Francisco Bay Area, lost or dumped, and taken to a nearby shelter. A savvy rescuer met Lulu at the shelter and felt this 12-week-old pup had a special quality about her. The rescuer took Lulu home and began having her assessed for service-dog potential. I was asked to do an initial evaluation, and then Lulu traveled to service-dog trainer Rita Martinez of Clickin' Canines in Oakley, California, for a full evaluation. Martinez also saw something special in the little pup. Lulu was curious, resilient, adaptable, and able to calm herself when excited, all of which made her a good candidate for a future hearing-dog career.

Serendipitously, Sara Walsh had just begun researching the possibility of getting and training a hearing-dog companion. Walsh had been referred to Martinez to learn more, and she called the trainer to get more information. During that initial conversation, Martinez told Walsh about a puppy in foster care who had some potential. Walsh knew she would like a compact dog who could travel easily, and she thought a dog with hair rather than fur might be a good idea. Bichons and Havanese were on her radar screen. But a puppy was not.

"I really wasn't sure about getting a puppy," said Walsh, who had always had dogs and enjoyed training, but thought a very young pup might be too much. But when Martinez mentioned that Lulu was

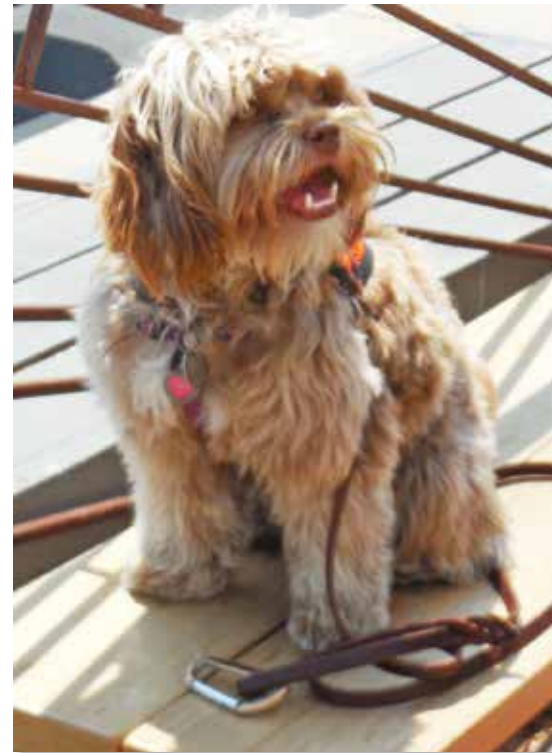
in Felton, California, just a short distance from Walsh's home, she decided that it might be more than just a coincidence, and went to meet Lulu. Then about 16 weeks old, Lulu was charming and cheerful, and quickly won over Walsh, who jumped at the opportunity to adopt the young pup. "Lulu came home and settled in right away," Walsh says, noting that the adjustment was a much bigger deal for her than it was for Lulu.

Walsh, who is deaf in one ear and has only limited hearing in the other, knew that starting with a puppy would not guarantee a hearing dog in the end. She understood there was no way to know for sure if Lulu would be happy in the role, but she felt that it would be worth trying and committed herself to Lulu and to the process. At the very least, a dog would give her life structure, encourage her to take walks, and give her a good friend. At best, she would also have a wonderful partner who could alert her to sounds and help her be safer.

Thus began Lulu's official journey.

EARLY PUPPYHOOD

Lulu's early days looked a lot like most other puppies' days. Lulu was prone to biting, peeing in the house, and chewing on things she shouldn't. She needed to learn bite inhibition. She needed to be housetrained and taught to trade items. She needed to be conditioned to handling and grooming. Her training had to include resource-guarding prevention,



Candidates for service-dog training need to be confident, curious, resilient, and able to calm themselves when excited. Lulu has these qualities in spades.

home-alone practice, and all of the other basic good-manners behaviors that every pup should know.

Walsh and Lulu also began working on basic cues. Practicing behaviors such as sit, down, come, and settle politely are an everyday activity for Lulu and Walsh.

"Every morning, we start with training. She's hungry and motivated. We go out and get the newspaper together and then in the front yard, driveway, and near the street we practice come, stay, and other regular life skills," Walsh says. They then head into the house to continue training.

"Lulu loves the training," Walsh says. "The attention, the treats. She gets a happy grin and her eyes sparkle!"

SOCIALIZATION AND MORE SOCIALIZATION

In Lulu's first year, socialization has been a key part of her preparation for life as a service dog. "The expectations for socialization are just not the same as for other dogs," Walsh says, noting that many times dogs stay home or in the backyard a good portion of the day and then go out for walks. They of course need to be socialized to the areas they

walk and the people and animals they encounter. But Lulu would also need to learn about restaurants, museums, art shows, shopping centers, elevators, and public transportation.

Lulu would need to be comfortable with sounds, scents, and sights. She would need to learn about all aspects of human life, as well as the normal aspects of dog life. From the time she adopted Lulu, Walsh began taking her everywhere. "I was socializing her for our life together."

Socialization is more than just providing exposure. It means carefully creating positive experiences. For Lulu, who is a very friendly dog, just getting to meet and greet new people and animals created that positive experience in most cases. Walsh also would bring out treats to help create good associations.

Walsh visited friends who graciously allowed Lulu to come inside and experience their homes and gardens. Walsh also made sure Lulu had fun experiences with children, and Walsh took Lulu to a farm where she met many animals, and made friends with one very cute lamb. She lined up doggy play dates so that

Lulu would continue to be comfortable around other dogs (and so that Lulu would get to play and have a normal puppyhood).

Along with general socialization, Walsh also worked toward specific socialization goals. For example, Walsh knew that Lulu would need to be comfortable on airplane trips for visiting family and for traveling. They took rides on shuttle buses so that Lulu could experience movement and tight, crowded spaces. They went on elevators so Lulu could experience the weightless sensation of airplane takeoffs and landings. Walsh even mocked up a metal-topped table and a wand-like object to simulate the experience of going through airport security.

A few of the things Walsh learned about Lulu in this process was how adaptable she is. Lulu is naturally calm around pretty much everything new and different. She is interested and confident. She can also settle and sleep in new places.

Everything did not come easily, however. Lulu went through a brief period where she was afraid in the car. Like most pups, during certain developmental phases she would focus on everything around her, but had trouble orienting

to Walsh. But the challenges have been manageable, and together they worked through many of those early trouble spots. As Lulu grew a little older and into adolescence, not only did she continue to have experiences that fed her social needs, she also began learning about not interacting with everyone, everywhere. Lulu has begun to understand that when she is wearing a vest, she needs to curb her social-butterfly ways and stay focused on Walsh.

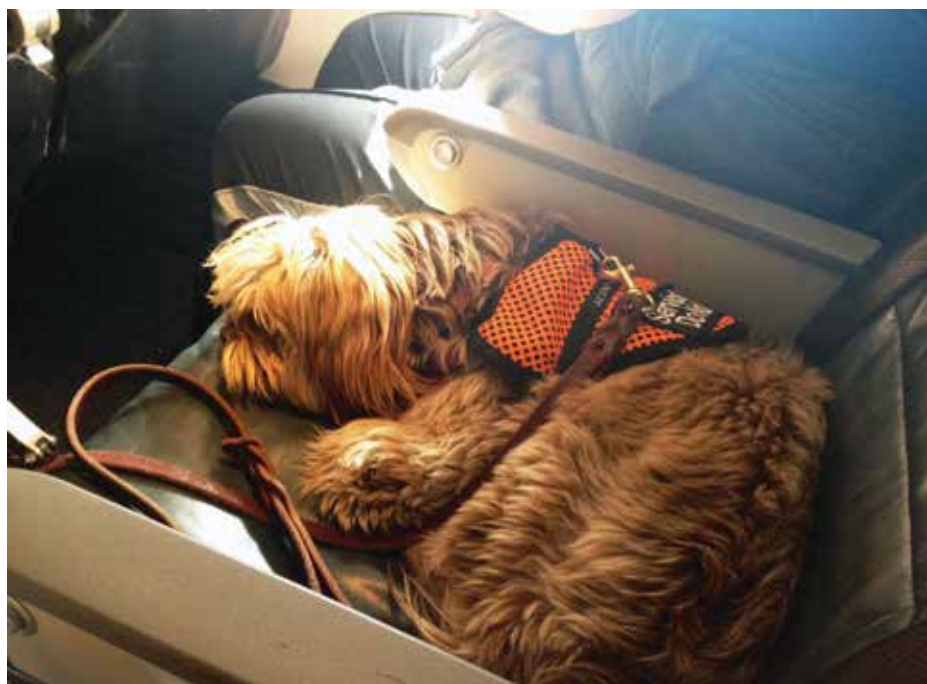
PUBLIC-ACCESS TRAINING

Public-access training is the part of being a service animal that is often the toughest for the dog. The key for Lulu is the vest. The very clear signal of putting on the vest helps Lulu understand what the expectations are in the moment. And when the vest comes off she knows she can socialize and play.

To pass a public-access test, Lulu will also need some very specific skills not related to her hearing-alert tasks. As a service dog, she will be tested on her ability to wait to be invited in or out of a car. She will need to be able to walk calmly on a loose leash through parking lots, busy sidewalks, and all sorts of buildings. She will need to navigate crowds and public areas while within a foot of Walsh, adjusting her speed as Walsh does. She will have to demonstrate that she can come when called as well as sit, down, and stay until released. Lulu will have to accept friendly adults and children and be able to remain disengaged from



Sara Walsh and her hearing dog-training, Lulu, during Lulu's first trip to an airport. Thanks to all of Walsh's preparation, Lulu handled every aspect of air travel calmly and quietly.





One of Lulu's biggest challenges to date has been learning to deal with anxiety during car travel. Fortunately, she seems to have outgrown that phase.

Lulu began to recognize that the bell or buzz meant "tap" and Lulu began alerting on the sound of a bell, without Walsh's verbal cue.

Walsh is also working with Lulu to locate where the sound came from and take Walsh to that spot. In this manner, Lulu will be able to not only tell Walsh when a specific sound occurs, but also show her what is making the sound. For example, when a doorbell chimes, Lulu will run to Walsh, tap her leg, and then show her the sound came from the doorbell.

FINDING THE BALANCE

Walsh is very clear about how important it is for both her and Lulu to find a balance between all of this training and just living their lives. "Training is happening all the time," Walsh says, even when they are not working on specific skills. Walsh notes that being with Lulu is a constant responsibility and at times she finds herself exhausted from trying to do a good job. She has learned that support is the key and along with working with her trainers, she also has a training partner and great support from friends.

Walsh is dedicated to making sure Lulu has positive experiences in the world and that Lulu continues to enjoy the training process. In so many ways, Lulu's first year has been similar to other puppies'. She spends time regularly with her best dog friend, runs on the beach, and has plenty of opportunity to play and be a dog. And while the heavy focus on socialization and training may be taxing for some puppies, it is obvious Lulu loves it. Lulu enjoys going places, is comfortable socially, and really likes practicing her skills. It is clear when you meet Lulu that she has enjoyed her first year as a hearing-alert puppy in training, and will do well at the next steps. 🐾

For contact information for service dog trainer Rita Martinez as well as author/trainer Mardi Richmond, see "Resources," page 24.

Writer and trainer Mardi Richmond lives in Santa Cruz, CA, with her wife and a Cattle Dog-mix. She is the owner of Good Dog Santa Cruz, where she works with all sorts of puppies and young dogs. Mardi thanks Sara Walsh for sharing her and Lulu's story.

other dogs. She must also be calm around startling noises or activities and settle under a chair or table in a restaurant. And she must be able to leave food alone even when in reach. Whew!

Lulu is already an expert in some of these areas, but Walsh and Lulu will need to continue prepping until they have the skill set down pat.

HEARING-DOG BASICS

Basic training, socialization, and public-access skills have consumed a lot of Walsh's time and Lulu's energy during her first year. But from a very early age, Lulu also learned an alert signal.

Hearing dogs need a way to tell or "alert" their people when an alarm buzzes, a doorbell chimes, or a phone rings. In Lulu's case, her alert signal is to jump up and tap Walsh's leg with her paws. This was first taught as a simple trick. When cued, Lulu would jump up and tap, tap, tap. Walsh would click and treat. It was a fun game for both.

Once Lulu understood the tapping behavior as a trick, Walsh began adding sounds as cues for the tapping behavior. Working under the guidance of Martinez, Walsh sets up training sessions where a variety of timers with different buzzers and bells will ring at random times. Initially, when a timer went off, Walsh cued Lulu to tap. Fairly quickly,

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The Sniff(th) Sense

Can dogs really detect cancer in humans?

BY LINDA P. CASE, MS

The dog's nose is an amazing organ, with abilities and features far superior to our own in many ways. First are the physical adaptations of the nose itself. The inside of the dog's nose is lined with many folds of tissue (called the olfactory epithelium), which in turn contain hundreds of millions of olfactory receptors, specialized cells responsible for detecting odors. Because of the increased surface area caused by these folds, the dog's nose contains a ridiculously high number of receptor cells when compared to the human nose; on average, the dog has about 220 million, while our noses harbor a paltry 5 million. This difference contributes to the dog's ability to detect almost impossibly minute concentrations of compounds, by some estimates in concentrations as low as parts per trillion.

The dog's brain is also highly adapted for smelling. From the receptors in the nose, sensory input travels to the olfactory bulb and olfactory cortex, regions of the brain that are highly developed in dogs and that process and interpret the incoming tsunami of odor sensations.

A final adaptation that dogs have (and that we do not) is a special kind of sniff. In dogs, sniffing involves a disruption of the dog's normal breathing pattern as small amounts of air are rapidly inhaled and exhaled. This type of breathing changes the shape of the dog's nostrils and diverts air into several flow paths within the nose. This partitioning increases the number of sensory cells that inhaled particles come into contact with, thus enhancing olfactory sensitivity.

And the power of the sniff does not end there. As the dog exhales, air leaves via the dog's "side nostrils," not out the front of the nose as it does with normal breathing. Exhaling through the side nose is presumed to prevent the dog's sensory cells from being repeatedly

exposed to the same compounds, delaying scent habituation. (Consider how you no longer can smell "wet dog" after being around one for a while. That's scent habituation.)

Today, the dog's extraordinary olfactory abilities are put to a lot of human uses. Dogs are trained to indicate the presence of contraband, find lost

people (and sometimes, animals), search natural-disaster areas, and even find victims of drowning. We also train our dogs to use their noses in a wide range of dog sports such as tracking, obedience, and nose work.

Another talent that dogs (at least some dogs) may possess and that is receiving increasing attention is the ability to detect the presence of disease in human patients. While the detection of several chronic health problems has been examined, including diabetes, seizure disorders, and heart disease, the dog's ability to identify the presence of cancer in human patients as a diagnostic early-screening approach is especially intriguing.

IT STARTED WITH A MOLE-SNIFFING BORDER COLLIE

Almost 25 years ago, a letter from two doctors was published in the scientific journal *The Lancet*. The letter described the case of a 44-year-old woman whose Border Collie-mix had started to fixate on a mole located on her leg. Over a period of several weeks, the dog repeatedly sniffed and licked the area, eventually escalating his behavior to biting at the spot. Concerned, the owner visited her doctor, only to discover that the mole had developed into a malignant melanoma.

All dogs' noses are better than ours at detecting very low concentrations of odor, but some breeds are better still. Hounds and other sniff-specialists can detect odors that are present in as little as a few parts per trillion.



Over the next few years, an increasing number of similar cases were reported, all variations of the scenario in which a pet dog spontaneously alerted his or her owner to the presence of a cancerous tumor. And these were not just mole fixations – dogs were reportedly finding a wide range of disease, including bladder, breast, lung, prostate, and ovarian cancers. As anecdotal evidence, these cases raised the question of whether dogs could be trained to reliably detect cancer and ultimately be used as screening aids for diagnosing malignancies at an early stage.

THE STUDIES

A wide range of research studies has examined the use of dogs to detect cancer, which is remarkable given the relatively few years of interest in this area of study. However, while the total number of studies is high, they vary tremendously in significant factors such as type of cancer; the number, breed, and age of dogs; training methods; and the type of samples used for detection. Cancers that have been studied include skin (melanoma), prostate, lung, breast, bladder, and colorectal. Dogs have been trained to detect cancer using tumor cells, urine, blood, feces and exhaled breath.

Although not always reported, all of the described training methods used positive reinforcement, and several studies employed clicker training. However, training methods, intensity and duration have differed, as has the experience level of the trainers involved.

Keeping these disparities in mind, have we learned anything of a general nature from these studies? First, the good news: Dogs can do this (at least under controlled, experimental conditions). For example, a Belgian Malinois selected from a group of dogs being trained for explosives-detection work was professionally trained to differentiate between the urine of healthy men and the urine of men with prostate cancer. The Malinois successfully identified cancer in 31 of 33 cases.¹

Another study tested the ability of a professionally trained scent-detection dog to identify the presence of colorectal cancer in stool and breath samples.² When tested in 37 trials, the dog correctly identified cancer when it was present 91 percent of the time and missed a correct diagnosis just 1 percent of the time.

In the largest of the published

studies, four trained dogs were tested using 220 breath samples from patients suspected of having lung cancer.³ The dogs accurately identified lung cancer 71 percent of the time, although there was a great deal of variation among the four dogs in their ability to correctly detect cancer when it was present (called sensitivity). This variability may have occurred because the researchers used pet dogs for the study rather than dogs who were specifically selected for scent-discrimination tasks, as were the dogs in the previous studies.

Similar inconsistencies among dogs were reported when experimenters trained a group of six unselected (pet) dogs for detection of melanoma, breast, or lung cancer.⁴ While most studies trained dogs to detect a single type of cancer, one group of researchers tested five dogs who were trained to detect either lung or breast cancer.⁵ They reported almost 100 percent accuracy when the dogs were tested with lung-cancer patients and almost 90 percent accuracy when they were tested with breast-cancer patients.

Success at varying rates has also been reported in dogs trained to detect bladder cancer in urine samples, ovarian cancer in blood or tissue, and melanoma from skin-tissue samples.^{6,7,8}

PROOF OF PRINCIPLE VERSUS USE IN PRACTICE

Most of the currently available studies make the point that their results should be viewed primarily as “proof-of-principle” studies. In other words, these studies show us that, yes, dogs have extraordinary scenting capabilities and also that some dogs can be successfully trained to reliably detect the presence of cancer in human tissues. Pretty cool stuff, indeed. Taken at this level, I think most would agree that the results of the current cancer-detection studies provide additional evidence to the already multitudinous piles that the dog has a remarkable nose. Most dog people, myself included, are pretty darned impressed by these data.

However, the jump from knowing that dogs can do this amazing feat to using dogs as early screening detectors for cancer in human patients is one very big (and perhaps unattainable) jump. There are a number of obstacles that need to be cleared for such a role to become reliable, economical, and accepted by medical professionals and patients.

Perhaps most important is to first attain a better understanding of what exactly these dogs are doing.

WHAT ARE THEY SMELLING?

Cancer cells, along with some of the changes that occur in the body in response to cancer, produce a wide range of unique substances that emit very specific odors. As a group these are called volatile organic compounds (VOCs), which means that they contain carbon atoms and have airborne properties (i.e., they can be sniffed).

Because the set of VOCs varies with the type of cancer, researchers refer to these collectively as a cancer’s “odor signature.” However, there are gaps in our knowledge about these compounds. First, not all of the biologically significant molecules that are produced by cancer cells have been identified, nor do researchers have well-defined odor signatures for all forms and stages of cancer. Although each cancer is presumed to possess a unique set of VOCs, these may vary with stage of disease, location of the tumor, presence of other illnesses, and with the age, health, or genetic make-up of the patient. Similarly, the type of sample that is used (urine, breath, tissue) is expected to affect which VOCs are present.

It is presumed, but not known, that dogs who can successfully differentiate between non-cancerous, healthy cells and cells or secretions that are cancerous are detecting the presence of that cancer’s odor signature – its particular set of VOCs. It is also presumed that most of these odors exist at levels that are undetectable by the human nose but are present at levels that a dog’s nose is capable of detecting. The problem lies in understanding exactly which compound or compounds in the overall signature that the dogs are learning to detect.

From a practical standpoint, this means that dogs are being trained to detect a cancer odor signature that is still incompletely understood and to compounds that as of yet have not been identified. Therefore, if a dog who has completed training misdiagnoses a sample, it is impossible to troubleshoot errors to determine the reason that the dog failed, since we do not know exactly what the dog is looking for or if the compound is consistently found in all patients, of all ages, and all stages of disease with that particular cancer.

SCENT MEMORY?

It is known that the dog has an astounding ability to form “scent memories.” This means that dogs are capable of recognizing odors that they have encountered previously, and that they have a high capacity to store memories of a large number of individual odors.

A helpful analogy is to consider how many faces you recognize of people you have met during your lifetime. For most of us, this is a really large number; most of us readily recognize people who we may have only met a few times or have not seen in a long time. Research has shown that humans have an astounding ability to remember up to thousands of

faces, even those that we have experienced only via photographs! Think of the dog’s nose in the same way. While we excel at recognizing human faces, the dog excels at recognizing distinct odors. This is an important consideration given that we do not know exactly what it is that dogs are smelling when they detect cancer in an experiment.

This is of consequence because training dogs for scent-detection work involves taking a set of known (target) odor samples that are repeatedly used to teach the dog to identify and indicate the target odor. For cancer-detection training, these samples come from patients who are confirmed to have a

particular type of cancer. Such samples are a limited resource, both in terms of the number that can be obtained from medical centers and in sample viability (i.e., how long they can be stored and retain their scent odor for reuse).

On a practical level, this means that most dogs used in these studies have been trained using a relatively small set of cancer-containing samples. Once they are trained and are demonstrating proficiency on the known samples, the dogs are then tested on either planted samples (healthy patients with hidden cancer samples on their body) or with actual patients.

A challenge that researchers have faced is determining whether dogs are *generalizing* what they have learned during training on a small set of samples to the general population of patients, whose scent signatures will vary in unknown ways. Have the dogs learned to identify a general cancer odor signature or have they simply memorized some components of the samples that they were trained with? If it is the latter, the dogs would be expected to fail when tested using a large population of patients (who may or may not have a similar odor signature to the training set).

A recent study using dogs trained to detect prostate cancer attempted to tackle the issue of scent memory.⁹ The researchers clicker-trained 10 dogs through three incremental stages of training to detect prostate cancer from urine samples. At the conclusion of the training, only two dogs demonstrated high proficiency in detecting cancer using the training samples. These dogs were then tested on a large set of unique samples (both cancer and controls).

During the actual tests, neither of the dogs successfully differentiated between cancer samples and healthy samples at a frequency that was greater than that expected by chance. As a possible explanation for this failure, the researchers suggested that during training, the dogs had memorized the odors of each of the training samples, and while they clearly were able to discriminate between those samples and healthy patient samples, they did not subsequently generalize that ability to the odor signature present in the urine of the large group of prostate-cancer patients that was tested.

It must also be mentioned that like some of the earlier studies that demonstrated low proficiency, the dogs

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The mere fact that some dogs have demonstrated a reliable ability to identify biological samples from humans with cancer is an astounding breakthrough; it means that cancer somehow alters our bodies' chemistry in ways that scientists were previously unaware of. This may lead to the development of new cancer-detection tools.

in this study were selected from a group of pet dogs whose owners were attending a local dog-training school, rather than from dogs who were specifically selected and trained for scent work.

PATIENTS WITH OTHER ILLNESSES?

Most of the studies reported to date have tested dogs' accuracy at cancer detection against samples from healthy volunteers. However, many people who have cancer also have other health problems or benign disease. Because false positives cause extreme anxiety and can lead to unneeded biopsies or treatment, minimizing this type of error is of enormous importance when considering the reliability of early-screening techniques. While it appears that some dogs are capable of consistently discriminating between healthy and cancerous patients, can they make this distinction when faced with people who may have complicating disease?

Only two studies have tested this ability. The large lung-cancer study discussed previously also tested the ability of their four trained dogs to differentiate between patients with confirmed lung cancer and patients afflicted with another (non-cancerous) lung disease, chronic obstructive pulmonary disease (COPD).³ They found that while the dogs were still capable of identifying patients who had lung cancer, their success rate decreased somewhat when they had to distinguish between cancer and COPD.

A more recent study, published in early 2014, was less promising.¹⁰ Four trained dogs were found to be highly effective when distinguishing between patients who were healthy (had no lung disease) and patients who had some type of lung disease. However, when tested to determine if they could distinguish between benign and cancerous lung tumors, the dogs' accuracy decreased dramatically. For example, the dogs performed with 99 percent sensitivity



in the initial tests of healthy versus not-healthy patients, but this decreased to 56 to 76 percent (depending on the dog), when they were required to discriminate between malignant and benign lung conditions. This means that up to 44 percent of the cases were identified as cancerous when they were not (false positives) – not a good result for a cancer-screening tool.

NOT THERE YET

As dog lovers, we all would like to see cancer detection turn out to be one more job our beloved dogs can help us accomplish. We all want to believe that dogs can be trained to reliably predict the presence of cancerous cells in a human patient, and that once we have the training properly nailed down, these dogs will show themselves to be superior to other screening tests that may be invasive in nature, costly, or not sensitive enough to catch cancer in its early stages.

But at this point in the game, it appears that only *some* dogs are able to

detect *some* cancers *some* of the time, and that this detection is most successful when dogs are carefully selected for scent-training work and when they are asked to compare potential cancer patients with healthy patients. Challenges lie ahead in determining what exactly it is that dogs are sniffing; refining and standardizing training; increasing accuracy and reliability; and completing more rigorous, double-blind, well-controlled studies.

Regardless, in my view, because these studies do provide “proof of principle,” they give us one more reason to be in awe of and thankful for our canine friends and their amazing sniff(th) sense! 🐾

Linda P. Case, MS, is the owner of AutumnGold Consulting and Dog Training Center in Mahomet, Illinois, where she lives with her four dogs and husband Mike. She is the author of Dog Food Logic and many other books and publications on nutrition for dogs and cats. Her blog can be read at thesciencedog.wordpress.com. See “Resources,” page 24 for contact and book purchasing information.

More Dogs, Please?

Considering adding a dog to your household? Here are some things to think about first – and first-time introduction tips.

BY PAT MILLER, CBCC-KA, CPDT-KA

We currently have three dogs. We lost our Scottie a few months ago to cancer, and our Australian Shepherd last year to old age and failing health. This is the fewest number of dogs we've had in our family for as far back as I care to remember, and while I grieve Missy and Dubhy's absence every day, a part of me feels some guilty relief that the canine chaos and caretaking load has lightened somewhat. Still, while I know it won't be for a while yet, another part of me contemplates the next potential pup-addition to the Miller pack . . . which leads me to contemplate the complexities and challenges of bringing home a new dog.

However, as much as *you* would like to run out and go look in shelters and at online photos of candidates being fostered by rescue groups, you should consider some other individuals – namely, the dog (or dogs) you may already have at home, and your human family or housemates.

A DOG FOR THE DOG?

Lots of dog owners are convinced they are getting another dog, at least in part, as a companion for the current dog – or dogs. Don't kid yourself on this one. While some dogs do enjoy the company of their own kind, many would just as soon *not* share their beds, bones, and humans' attention with another canine resident. Be clear that if you are getting another dog, you are getting it for yourself (or for other human family members), and it's an added bonus if your current dog and the new one end up becoming bosom buddies.

Be careful when adopting a dog who is far smaller or larger than any other dog in the family. It's fine if they have similar temperaments (see photo, opposite page) but could be dangerous to the little dog if they don't get along – or even if they play too rough or run too fast (predatory drift).

A couple of years ago, Scooter, our now-13-year-old Pomeranian, made it quite clear he wasn't in favor of adding any more dogs to our family; the presence of our most recent foster, a high-energy young Terrier mix, elicited a bout of hemorrhagic gastroenteritis

(yes, it's as bad as it sounds) in the older dog. Cricket wasn't even living in the house – he was kenneled in the training center and joined us for barn chores and hikes around the farm, but even that was enough to cause Scooter's severe stress-induced gastrointestinal disaster. Cricket had to be dismissed from barn duty, while Scooter opted out of the hikes. Scooter now also suffers from a collapsing trachea, another life-threatening condition (common in small dogs) that is exacerbated by stress, so a new Miller dog is definitely out of the question for the time being.

Scooter aside, our 11-year-old Lucy (Cardigan Welsh Corgi) and 10-year-old Bonnie (Scorgidoodle) *might* tolerate a canine addition, but neither one is begging for a puppy for Christmas. They are tolerant of doggie visitors to the farm, but are happier keeping to themselves if given the choice. Lucy has never been one for sharing with other dogs anyway, and her well-managed resource-guarding tendencies don't need the stress of a new canine competitor.

Evaluate your own home dogs before blithely adopting another. Do they welcome canine visitors with open paws? In that case, your wise selection of a new furry family member should go relatively smoothly, especially if you do careful



We often warn against adopting dogs with a wide size disparity, for good reasons. But the dogs' temperaments also have to be taken into account. These two are quite disparate in size, yet they possess matching low-key personalities.

introductions. If, however, they are less than enthusiastic about entertaining visiting dogs, know that if you chose to increase your hound numbers, at best it may take some skillful orchestration to create a harmonious household, and at worst you could be creating a nightmare.

THE PEOPLE'S CHOICE

You also need to make sure all your human family members are in favor of adding another dog to the group. It's not fair to your dogs to put them in the center of controversy if one or more family members are opposed to the idea. You will need the enthusiastic support of all household members to ensure you won't be pushed by inter-family drama to return the new dog to the shelter. That's not fair to anyone, least of all the dog.

THINK IT THROUGH

If you decide that your dog (or dogs) and family are all ready to bring another dog into the mix, consider these additional factors as you start your adoption search:

■ **SIZE OF THE NEW DOG** – This is not an absolute, but think carefully before setting up a multi-dog family made up of individuals with a significant size or substance disparity. Scooter, at 12 pounds, lived happily with 45-pound Missy – but Missy was eight years old when we adopted her, well past those puppy or adolescent bursts of energy that might have stressed or injured the smaller dog. The greater the size difference, the greater the possibility that the smaller dog might get hurt, either during too-rough play, a dog-on-dog altercation, or even in a tragic moment of predatory drift (in which the larger dog suddenly perceives the smaller running dog as a prey animal such as a rabbit or a cat and chases or grabs it).

■ **AGE** – It's true that a mature dog can be rejuvenated by the addition of young-dog energy. It's also true that a high-energy youngster can make life miserable for the senior dog who just wants to lie on his rug in the sun and



enjoy his golden years in peace and quiet. There are lots of homeless adult dogs in shelters and rescue groups, so if you have older dogs already at home, consider adopting another senior or at least middle-aged dog, rather than subjecting your old-timer dogs to puppy biting and body-slammings.

If you *do* opt for a younger dog, then you owe it to your seniors to protect them from the unwanted attentions of a pesky puppy. Also, if required to defend themselves from unwanted puppy persistence, older dogs can become defensively aggressive, and teach the puppy to become aggressive in return. So, find an appropriate playmate for the youngster, one who appreciates endless games of high-speed-chase-around-the-yard, and manage your home environment with closed doors, tethers, crates, exercise pens, and baby gates to maintain the domestic tranquility.

■ **PERSONALITY** – Take your dog's (or dogs') personality quirks and traits into account, and try to adopt a new dog with a personality that will mesh well. Our Lucy is a very assertive, possessive herding dog, while Bonnie is super soft and appeasing. They do well together. Bringing another assertive dog into the mix could spell trouble; there would likely be serious clashes with Lucy.

And don't discount your own personality! If you have a Bonnie-style soft and deferent home-dog, bringing a bossy Lucy-type dog into the family could be upsetting to *you* – as you see your sweet-

heart getting pushed around by the newcomer (even if the sweetie doesn't seem to mind). If you already have one dog who is a real attention hog, you might take pains to adopt one who isn't so needy, so they aren't trying to push each other off the sofa to snuggle with you. If you have a dog who is sound-sensitive, avoid adopting a dog with a strong propensity to bark. You get the idea!

■ **PLAY STYLES** – Energy levels aside, different dogs have different play styles. Some like to play chase, some like to wrestle and do “chew-face.” Some are body slammers, while others eschew physical contact. Some like to dance around the action and cheerlead, while others are “fun police,” trying to break up the action if two or more dogs are playing roughly. Your prospects for pack harmony are much greater if you look for a new addition with a play style that is compatible with one or more of your current dogs.

■ **GENDER** – This can get tricky. The world over, there are male dogs who get along with males and females, sterilized or not, and females who get along with both genders, sterilized or not. Yet many rescues and shelters flat out refuse to adopt a female to a home where there is another female, on the supposition that female dogs can't get along.

Hogwash! . . . to a point. For the past 30-plus years, my husband and I have had three to five dogs at a time, all combinations of genders (albeit all spayed and



How NOT to introduce dogs! Tight leashes transmit tension to the dogs and interfere with their ability to communicate with each other – or to dodge away from the other dog if need be. If you are this close and things are going well, drop the leashes (but leave them attached). This will enable you to more easily separate the dogs if a fight breaks out.

INTRO SCENARIO #1 – ALL GOES SMOOTHLY

Position one of your current dogs at the far side of the yard, on leash, with the leash held by a reasonably knowledgeable dog person, and your other dogs where they can't see/won't get aroused by the sight of a new dog. I like to start with the dog whom I think will be the easiest and friendliest, to build confidence in all participants.

Bring the new dog into the gate, on leash. Let the dogs see each other, and calmly approach. If one or both get aroused, stop and encourage them to settle and relax before coming closer. You may need to use high-value treats to get them to think about something other than the exciting presence of the other dog.

As long as their body language looks affiliative (i.e., friendly, "I'd like to get to know you!") and the dogs are reasonably calm, continue closing the distance between them until they are eight to ten feet apart.

Assuming both dogs still look friendly and happy, drop both leashes and let them meet. Dropping the leashes allows the dogs to meet and interact naturally, increasing the likelihood of a positive interaction. Leashes held by humans interfere with normal canine social signals, and may cause one or both dogs to send tension signals they don't intend. Leaving the leashes attached for the first few moments (but not held by a human) allows you to separate the dogs more easily and safely if things don't go as well as you had hoped.

After the dogs interact appropriately

neutered), and for the most part they've gotten along beautifully. That said, when there *are* problems, conflicts between females tend to be more intense, longer-lasting, and harder to manage and or modify than male-male or male-female problems. Even in our own household, the most challenging relationship we've had was between Lucy and Missy. Still, this seems like a poor reason to rule out *all* female-female adoptions. If you have a difficult female at home, then, yes, a male is probably a better choice. Absent that, take it on a case-by-case basis and look for a dog who is compatible with your dog(s), regardless of gender.

■ **BREED** – Breed doesn't matter much, other than taking breed propensities into consideration as you consider the previously listed factors (Labs tend to be high-energy body-slamers; the herding breeds tend to dislike other dogs getting in their space; St. Bernards are large; Chihuahuas are small, etc.). The individual's personality is more relevant than the breed propensity, because there *are* Labradors who are soft and gentle, and you *can* find Border Collies who are happy to share their space. You may have breed or breed-mix preferences yourself, and that's just fine – by all means, indulge. But don't rule out a dog on the basis of breed norm alone; sometimes, the candidate in question is the outlier.

CAREFUL INTRODUCTIONS

So you're taking the plunge. You really want another dog and you've decided your current dog-loving canine pal(s) really *would* appreciate a companion – or will at least tolerate an addition with

reasonable good graces. You've picked out a dog at your local shelter and done initial introductions there that went well. You're ready to bring the new family member home. The way you do so can make or break future relations between the newcomer and your home dogs.

First, make sure all dogs are well exercised before they meet. Take your current dogs for a good hike in the woods, or a run at the dog park, or at least play a good solid round of tennis ball or Frisbee before you go to fetch the newbie. If you live in the city and don't have access to woods, dog parks, or fenced yards, do whatever serves for exercise for your dog(s): jogging on the treadmill, chasing a toy down the hallway, or jumping over broomsticks in the living room.

Next, arrange to do introductions one at a time. Allowing multiple dogs to mob the new one can literally scare the pee out of him, and the trauma can damage his future relationships with the group. My preference is a neutral fenced yard, but absent that, your own yard will serve the purpose.

It's is hugely helpful to do introductions outdoors; indoors, your new dog can feel trapped, and your home dogs are more likely to feel possessive or territorial. If you don't have a yard, find a friend who does, or arrange to borrow some other neutral space. You may be able to set up the meet and greet at your favorite dog professional's training facility – and get some expert guidance as well.

Much better! Start out at with the dogs at a distance and on loose leashes. Keep them like this until they are relaxed before you allow them to get closer to each other.



for a moment or two, gather them up, remove the leashes, and let the two dogs interact for another five to 10 minutes. Then remove home-dog #1 and leash the new dog. Repeat the process with your next home-dog, until all of them have met. Then start over in groups of threes: two of your current dogs (again, include the two who are most likely to interact well) and the new dog.

Depending on your household, you may be able to integrate all the dogs on the first meeting, or you may decide that discretion is wisdom, and spread the introduction process over several days. If you do this, you will need steadfast management systems in place to avoid accidental introductions in less-than-optimal conditions. Once everyone has met and all are getting along you can take a deep breath, relax, sit back, and get on with life.



INTRO SCENARIO #2: MORE TENSION THAN YOU WOULD LIKE

If at any time during the approach-on-leash part of your introductions you see a level of tension or arousal that makes you uncomfortable, slow down the process. Increase the distance between the two dogs and do some parallel walking, with both dogs and handlers walking in the same direction. Maintain the increased distance, with handlers on the inside, dogs on the outside, so the humans act as a buffer between the dogs. If tensions seem to subside, you can gradually decrease the distance between the dogs.

It may be necessary to take several lengthy parallel walks over a period of several days before the dogs are ready to

meet off leash. Meanwhile, you may be able to proceed with greetings with the rest of your dogs. If, however, the new dog seems too upset by the unsuccessful introduction, you may need to go more slowly with the others as well.

SCENARIO #3 – A TURN FOR THE WORSE

The majority of the time, canine introductions *do* work out, even if they require a little tincture of time to smooth out the wrinkles. Dogs are, after all, a social species. That said, we humans are *also* a social species, and we certainly don't all get along!

If you see tensions that aren't resolving, issues that are escalating, or worse, if at any time in the process you experience knock-down, drag-out battles, you may have misjudged the dogs' compatibility, and you may need to rethink your family

process, you can still make it work. There are times, however, when it's only fair to all concerned – the dogs who are at risk, and the other human family members who will have to live with the stress of ever present canine tensions – to face the reality of rehoming. It will be a sad day for all if you have to accept that you cannot provide your new dog with the lifelong loving home you promised him, but quality of life for all your family members is a vitally important consideration. As you dry your tears, know that you have done the very best you could. (For more about the best way to go about finding your dog a new home, see "Rehoming Responsibly," August 2013.)

NEXT MILLER DOG?

It's been more than 30 years since we've actively gone looking for a dog, and I promise we're not about to start now. Our dogs for the most part seem to "just happen" – and I have a hunch that sooner or later, I'll be sharing with you the news of our latest "happening." In fact, although after we lost Dubhy, my husband suggested that perhaps we not adopt any more dogs because it hurts too much to lose them, he confessed to me just yesterday that he had gone online to look at the Australian Kelpie Rescue website. If a Kelpie or Cattle Dog just happened to show up on our doorstep, I suspect we'd be hard pressed to turn him – or her – away. Stay tuned for our own next introduction experience. 🐾

Pat Miller, CBCC-KA, CPDT-KA, is WDJ's Training Editor. She lives in Fairplay, Maryland, site of her Peaceable Paws training center, where she offers dog-training classes and courses for trainers. See page 24 for more information about her dog-training classes, books, and courses for trainers.

expansion plan. Dog fights are no fun for anyone, and can cause injury to dogs and humans. (For information on what to do if a fight breaks out, see "Break It Up," WDJ April 2012.)

Before you get to that point, before tensions erupt into fights, you are wise to seek the counsel of a qualified force-free behavior professional. (For more about decoding the letters following a trainer's name, see "Training Titles," February 2014.) A pair of educated eyes can give you a realistic opinion on the advisability of continuing with your efforts, and can help with whatever behavior modification and management might be necessary to make things work.

Chances are, with some good assistance and your commitment to the



I just finished reading my June issue of WDJ and, as usual, loved it! I just have one comment/question regarding “Vaccine Titer Tests” where you state, “Rabies is a slightly different case. Because the disease poses a significant risk to human beings, it’s the only vaccine that is required by law to be administered to dogs. Each state has its own legal requirements for rabies vaccination. Some require annual rabies vaccinations; the rest require the vaccination be given every two or three years (depending on the state).”

To my knowledge, the part I’ve italicized is not correct. In recent years, every state has adopted a three-year rabies vaccination policy, thanks in large part to Ronald D. Schultz, PhD, (whom you quote elsewhere in your article) and his colleagues. That said, Dr. Schultz, professor and Chair of the Department of Pathobiological Sciences at the University of Wisconsin, Madison, and head of the Rabies Challenge Fund, notes that dog owners should check their local regulations, as municipalities in some states have the right to set rabies laws that are stricter – but not more lenient than – state policies.

Diana Laverdure
Via email

Thanks, Diana, for this correction. And thanks to Dr. Schultz and everyone else who worked to make this positive change happen! It’s important that dogs are vaccinated against rabies and equally important that they not be over-vaccinated.

I just started reading my June WDJ, and when glancing at “What’s Ahead” I was terribly excited to see that you are going to do something on L-Tryptophan.

I am sure you have already written the article, but I just wanted to say that my dog’s life was saved (well, okay, absolutely his quality of life was definitely saved) because I was able to use this very effectively when he was so OCD he could not even train for five minutes. Ruffie was diagnosed clinically as OCD (CCD for dogs, more accurately) at Tufts, by Dr. Nicolas Dodman himself. But I had to keep researching because all they wanted to do was put him on Prozac, which I refused to do.

Thanks to L-Tryptophan, Ruffian was able to completely turn around. To make a long story short, now at 10 years old, he has earned every single multiple top championship agility titles well beyond my wildest dreams. He won the CPE nationals a few years ago as well, and placed at the USDA Regional in tournament classes a couple of times as well. He wins classes at the DOCNA championships every year. And because of some other dietary changes (no grain, low carbs) made a few years ago, he no longer needs the L-Tryptophan either.

Barbara Rogers
Atlanta, GA

No doubt by now you’ve seen the article on L-Tryptophan in our July issue (“Talking Turkey”), which indicated that in double-blind studies (and one single-blind study), the supplement didn’t prove to be as helpful for anxiety-related disorders as some hoped it would. But we’re proponents of doing what works, with the least harm, and the supplement fits the bill in both of those categories. We’re very happy that you found “what works” for Ruffian!

Regarding “What’s SUP, Pup?,” your article on stand-up paddleboarding in the August issue: While the pastime and the bonding is admirable, I’m curious about one thing in particular.

As a dog trainer of 40-plus years and a professional mariner of 37 years, I find the pictures of the handler most grievous. While the author makes great mention of personal flotation devices (PFDs) for the dog, she makes only makes small mention of such for the handler. Drownings are common to persons ill-trained in water-related activities. Combine that with a dog who under normal circumstances is obedient and stable with an unknown situation such as distress in unfamiliar surroundings and you have a recipe for disaster.

Trent Farrell
Via email

Point taken. As the article mentioned, the Coast Guard requires the presence of a PFD on any vessel when paddling beyond the limits of swimming or surfing areas.

I was reading yet another terrific issue of the WDJ tonight, and felt like I needed to tell you how very much I value this publication. As I started thinking about it, I realized that I feel a special connection with it after all these years.

I’ve subscribed for a very long time, long before I was interviewed for an article on my use of gold bead implants for my female Doberman’s Wobblers syndrome. The gold bead implants were so successful that my dog even returned to agility.

And I really owe you thanks for the series of articles you did on various dog sports in 2009, and one in particular, on K9 Nose Work, in the August 2009 issue. I do Doberman rescue with Jane Fratesi, and Jane emailed me in November 2009 and asked me if I thought nose work would ever come to Atlanta. I told her I had an idea of how it might, and I called (frequent WDJ contributor) Lisa Rodier, whom I had known for years. The rest is how K9 Nose Work came to this part of the country, including the popular K9 NW Camp, co-directed by Lisa.

The dog I took to my first nose work workshop was my 8-year-old agility star, Parker. Once we tried nose work, we were hooked, and because I wanted to learn all about what she was doing when she hunted, I videotaped all of our training. The founders of the sport saw the videos and asked if they could use them for their first introductory DVD. That DVD was in the finals for the Dog Writers Association of America contest this past February. It lost to Turid Rugaas; no shame in that! But it remains a Dogwise best-seller. And Parker turned 12 in August.

I’ve not even mentioned the health information (I love Zeel, Wobenzyme, coconut oil, I’ve shared the Budwig diet with friends), and training ideas. And toys, and crates, and oh! Great info about food! Thanks! I’m only touching the tip of the iceberg regarding the things I love and am grateful for from WDJ!

Christy Waehner
Atlanta, GA

Christy, thanks so much for your long-time support (and occasional contributions to Lisa’s articles!). We’ve learned a lot over the years, too! 🐾

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BOOKS AND DVDS

- ❖ Linda P. Case, MS, is author of *The Dog: Its Behavior, Nutrition, and Health; Canine and Feline Nutrition; Canine and Feline Behavior: A Complete Guide to Understanding Our Two Best Friends*, and the very recently published *Dog Food Logic: Making Smart Decisions for Your Dog in an Age of Too Many Choices*. Her blog can be read at thesciencedog.wordpress.com. You can find all of her books at Dogwise, (800) 776-2665; dogwise.com
- ❖ WDJ Training Editor Pat Miller is author of *Positive Perspectives; Positive Perspectives 2; Power of Positive Dog Training; Play With Your Dog; Do Over Dogs: Give Your Dog a Second Chance at a First Class Life*; and her newest book, *How to Foster Dogs: From Homeless to Homeward Bound*. Available from dogwise.com and wholedogjournal.com

TRAINING AND INSTRUCTION

- ❖ **Linda P. Case**, MS, AutumnGold Consulting and Dog Training Center, Mahomet, IL. Linda Case is a canine nutritionist, science writer, and companion animal consultant who uses positive reinforcement and shaping techniques to modify behavior in dogs in basic level through advanced classes. (217) 586-4864; autumngoldconsulting.com
- ❖ **Rita Martinez**, CPDT-KA, Oakley, CA. Private service dog training, medical alert dogs, hearing dogs and assistance dogs. One on one environment, no regular group classes. Workshops on occasion. (926) 813-1715; clickincanines.com
- ❖ **Pat Miller**, CBCG-KA, CPDT-KA, Peaceable Paws Dog and Puppy Training, Fairplay, MD. Group and private training, rally, behavior modification, workshops, intern and apprentice programs. Trainers can become "Pat Miller Certified Trainers" (PMCT) by successfully completing Pat's Level 1 (Basic Dog Training and Behavior) and both Level 2 Academies (Behavior Modification and Instructors Course). (301) 582-9420; peaceablepaws.com
- ❖ **Mardi Richmond**, MA, CPDT-KA, Good Dog Santa Cruz, Santa Cruz, CA. Puppy, beginning, intermediate, and advanced group classes, out and about classes, and in-home training. (831) 431-0161; gooddogsantacruz.com

Bronco (left) playfully kowtows to Otto, who is six years older. He outweighs Otto by a lot, but has known Otto since he was a young pup, so discretion is the better part of valor.

WHAT'S AHEAD ...

❖ **COLLECTING CANNED FOODS**

What's new in canned dog food.

❖ **IN VITRO SOCIALIZING**

Can a mother dog's experiences while pregnant affect her puppies? More than you might think!

❖ **WAIT! DON'T PULL THOSE TEETH JUST YET**

In some circumstances, and with very proactive care, loose teeth can be saved. Here's how.

❖ **TRYING TURMERIC**

Dog owners are increasingly feeding this spice to their dogs for its anti-inflammatory effects.

❖ **BATHING BEAUTY**

How to bathe your dog in the most efficient, effective, and safest way.

