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Pets and PETA

Exploring the mission of the animal rights group.

BY NANCY KERNS

Criticizing an organization that accomplishes good things on behalf of beings with no resources with which to help themselves – why would I want to do that? Actually, I hadn't meant to – yet.

In the February issue, I mentioned that it had come to my attention that someone in the pet food industry was spreading a rumor that WDJ and People for the Ethical Treatment of Animals (PETA) were somehow in alliance. I have a good hunch that the rumor was being spread maliciously, to try to undermine WDJ's standing as an independent and reputable voice. I addressed the rumor directly because I wanted to nip it in the bud, fast.

I mentioned that I didn't know much about PETA, but was aware that the animal rights organization had a poor reputation among dog owners. I offer my sincere apologies; that was a sloppily written statement, and I knew better. I should have said, "among *some* dog owners." Because the little bit that I *do* know about PETA is that there are a number of dog owners who can't stand the high-profile group.

I know this because I've seen many anti-PETA statements posted on dog-related bulletin boards, and heard many critical comments about the PETA at dog-related venues. The criticisms I've heard suggested that PETA is anti-pet – that the group is opposed to the practice of owning dogs and every other type of animal. I've also seen a number of quotes to this effect attributed to Ingrid Newkirk, PETA's founder and president.

Since being taken to task for my inaccurate statement by a number of readers who are fans of PETA, I belatedly educated myself about the group's stance on dog ownership and use of dogs. I found no evidence to support the accusation that PETA is against dog ownership in the organization's literature on its Web site (peta.org).

PETA does, however, disapprove of any and all dog *breeding*. One of its factsheets ("Companion Animals: Doing What's Best for Them") cites a number of sad statistics quantifying the numbers of dogs and cats put to death in U.S. animal shelters each year, and comments, "In light of these tragic statistics, no breeding can be considered 'responsible.'"

It follows that the group is not crazy about conformation dog shows, which promote dogs based on appearance, because breeding has created health problems in many breeds. It is opposed to all tail-docking and ear-cropping.

I've heard it alleged that PETA is opposed to all dog training, dog sports, and use of service or working dogs. That's not currently reflected in its literature, either, although the factsheet referenced above does mention the group's opposition to dog sports and the use of working dogs when the dogs are treated inhumanely, pushed beyond their natural limits, sent into dangerous situations, and deprived of opportunities to socialize with other dogs.

PETA *is* opposed to *all* laboratory testing on animals – which is one place where the group and I disagree. My personal opinion – which is not that of WDJ or its contributors – is that it's *possible* for labs to keep and use animals in a humane fashion, and that *some* lab tests involving animals are valuable and necessary. I would include feeding trials, which I discuss at length in "On Trial" (facing page), in this category.

PETA has been a part of a movement that has improved living conditions for many animals. I think that's commendable. Even so, I admit I'm not a fan of the techniques it uses to forward its mission of "establishing and protecting the rights of all animals."

How about you? Do you think that any means justify the potential end of poor living conditions for lab dogs? *NK*

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CORRECTION

In the March 2005 issue, we listed an incorrect phone number for Dr. John Symes, who advocates a gluten-free diet for dogs. The correct number is (251) 343-7110. We regret the error and apologize for any inconvenience it may have caused.

On Trial

The truth about pet food feeding trials.

BY NANCY KERNS

In 2003, People for the Ethical Treatment of Animals (PETA) launched a media campaign aimed at exposing what it characterized as the cruelty, pain, and suffering experienced by dogs and cats that are used in laboratory research studies conducted by pet food companies.

One of the more unfortunate results of this campaign, as far as we're concerned, is that consumers may have become convinced by PETA's campaign that two important lab tests – feeding trials and metabolic studies – are inherently cruel. In fact, there is nothing innately cruel about the tests themselves; neither imposes anything more invasive than the removal of a blood sample on the canine test subjects. Also, we believe the tests do benefit the canine population at large. In our opinion, it's how (and how long) the dogs are kept by the labs that could stand major improvement.

There are all sorts of other laboratory research studies conducted by the larger pet food manufacturers that push the envelope of "humaneness." Some companies perform (or order a "contract lab" to perform) studies that call for a disease or health problem to be induced in a population of test dogs, such as a damaged kidney or cardiac problem. Then various nutritional approaches to improving the condition are tried. Some

of these tests also require euthanasia and postmortem studies of the dogs; feeding trials and metabolic studies do not.

Research conducted to formulate foods that improve health problems has the most potential for inflicting pain and suffering on the test dogs. But it shouldn't mistaken for what happens in a feeding trial to confirm the nutritional adequacy of a food – which is what *this* article is about. We'll save for another day a discussion about the ethics and practice of conducting research that requires the induction of disease and euthanasia of the test subjects.

Definition of a feeding trial

It should not come as a surprise that pet food makers use dogs and cats to develop and test their products, and not just in a "He likes it! Hey Mikey!" kind of way. The most common test ordered by dog food makers is the "feeding trial," a formal test where dogs are fed a certain food and nothing but that food for about six months. Feeding trials are conducted to test and – it is hoped – establish the ability of a food to keep dogs alive and reasonably well. When a food "passes" a feeding trial, its maker earns the legal right to include a statement on the product label assuring consumers that a feeding trial has established the nutritional adequacy of the food.

The "metabolic study" is another increasingly common test used by pet food makers. It requires that a dog spend at least five days in a relatively uncomfortable cage with a slatted metal floor, which allows technicians to collect every bit of the subject's urine and feces. We'll describe it in more detail below, but suffice to say it's a common test, not invasive, but not particularly fun for the dog, either.



Living conditions in research labs can stand a lot of improvement. Many shelters employ minimum mental health guidelines for their wards, and labs should, too.

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WHAT YOU CAN DO . . .

- We believe feeding trials provide information that is beneficial to the dogs that consume the food – **our** dogs. Look for products that have passed an AAFCO feeding trial.
- Ask the company (via its toll-free number or e-mail) about its policy concerning the welfare of the dogs used in its tests.
- If you don't receive answers that satisfy you, let the company know that its test animal welfare policies play an important role in your buying decision. Encourage the company to provide time, facilities, and staff to ensure the dogs receive time outside and opportunities to socialize.

Sound like a case for PETA? The high-profile animal rights organization opposes all laboratory testing on animals, so it was perhaps just a matter of time before it trained its sights on the laboratory testing conducted by pet food makers.

However, PETA's metaphorical weapon isn't sharpshooter-precise; it tends to be more like a shotgun splatter of allegations of animal cruelty. PETA has taken the pet food industry (with a special concentration on one unlucky company in particular) to task for the *all* the research it conducts to develop and establish foods. (For more on the PETA campaign, see "Truth Is the First Casualty of War," page 5.) But again, we're going to limit *our* discussion to just two pet food tests that we feel are useful.

“Complete and balanced”

Go grab a can or bag of your dog’s food, and look for a little bit of fine print that mentions AAFCO – the Association of American Feed Control Officials. The statement tells you what sort of proof the manufacturer used to establish the nutritional adequacy of that product. Pet food makers cannot claim a food is “complete and balanced” unless they can prove this in one of three ways:

■ A feeding trial confirms that the food was able to maintain a population of test subjects for a determined period.

■ A laboratory analysis confirms the food contains nutrients in amounts established by AAFCO as necessary for either “maintenance,” “growth,” or “gestation and lactation.” If the label claims it meets the AAFCO nutrient profiles for “all life stages,” the food must meet or exceed the requirements of the AAFCO nutrient levels for growth *and* gestation/lactation.

■ A dog food in the same “product family” as a similar, “lead” product that passed a feeding trial may make the same nutritional adequacy statement as the lead product. To qualify as a “family member,” the family and the lead product must be of the same processing type (both are extruded kibble, for example) and contain the same approximate amount of moisture, a similar amount of metabolizable energy (as determined by a metabolic study), and similar amounts and ratios for crude protein, calcium, phosphorus, zinc, lysine, and thiamine (as determined by laboratory analysis).

There are three ways a product can earn its AAFCO statement, but only two different statements found on dog food labels: a “nutrient levels” or a “feeding trial” statement. That’s because AAFCO allows a product that meets the family requirements to use the lead product’s feeding trial claim, even though the family members didn’t pass a feeding trial. To complicate matters, pet food companies don’t (and don’t have to) disclose to consumers which food is the lead product that passed a feeding trial and which foods are the family members.

Feeding trials are considered by most veterinary nutrition experts to be the “gold standard” for proving nutritional adequacy claims – superior to the “nutrient levels” method of proof. That’s because it’s quite possible for a laboratory analysis to con-

firm that a food contains the amounts of various nutrients judged to be necessary for maintaining a dog, but for the product, in practice, to fail at that very job.

This is possible because not all nutrients may be in a digestible (“bioavailable”) form. Most nutritionists agree that feeding trials offer the most reliable confirmation of a food’s ability to deliver nutrients in a form that will benefit the target species.

AAFCO feeding trial protocols

Of course, to be of comparative value, a feeding trial needs to be standardized, so all products that “passed” a trial can be considered equally adequate. That’s where AAFCO comes in.

Contrary to its official-sounding name, AAFCO is *not* a regulatory power; it’s an advisory body comprised of state feed control officials (the voting members) as well as representatives from the pet food industry, the Food and Drug Administration (FDA), the United States Department of Agriculture (USDA), and other interested groups.

AAFCO researches and discusses policies that affect the feed industry, and drafts model regulations that feed control officials can bring home to their states for modification and/or adoption. Committees are appointed to study specific topics, such as ingredient definitions, labeling, manufacture, inspection, and enforcement; the committees then bring their analyses to the entire body for review and action. All of the individual American states enact and/or codify most or all of AAFCO’s suggested regulations for the manufacture and sale of animal feeds within their borders.

AAFCO designed the standardized protocols used by pet food makers to test the nutritional adequacy of their products through feeding trials. There are slightly different rules for different trials, depending on the claim the manufacturer wants to make for its product. The possible categories for dogs are:

- Adult maintenance
- Growth (puppy food)
- Gestation/lactation
- All life stages

We’ll examine each of these in detail.

Tried as adults

For an **adult maintenance** claim, a minimum of eight healthy adult dogs (at least

one year of age) and of optimal body weight are required to start the test. Eight control dogs meeting the same description are required for a control group and are fed a different food. While eight is the minimum number for each group, a minimum of 30 dogs must be monitored to establish values for “colony averages” of weight and blood test results before and after the trial.

Because a minimum of 30 dogs are required to establish the colony averages, the number of dogs used for both the control and the tested food groups are generally more than the minimum of eight. The distribution of different breeds in the two groups should be the same.

The adult maintenance test runs for a minimum of 26 weeks. The test diet is the sole source of nutrition (besides water, which must be provided at all times) for the dogs in the test diet group; the control group is fed a different food, one that has already passed a feeding trial for the same claim.

All the dogs are weighed at the beginning of the test, weekly, and at the end of the test. They also receive a complete physical inspection by a veterinarian before and after the test, and are evaluated as to general health, body, and hair coat condition. After the test, blood is taken from each animal and the results for hemoglobin, packed cell volume, serum alkaline phosphatase, and serum albumin are recorded.

Some dogs, not more than 25 percent of those starting the test, may be removed from the trial for “non-nutritional reasons” (say, one develops cancer or somehow breaks a leg) or for poor food intake (meaning the dog is not eating enough). Dogs can be removed for the latter reason only in the first two weeks of the test. A necropsy must be performed on any dogs that die for any reason during the test and the findings must be recorded.

The test food will fail the trial if any dog on the test diet shows clinical or pathological signs of nutritional deficiency or excess, or if any dog on the test diet loses more than 15 percent of its initial body weight.

The average weight of the entire test group is also taken into account; the food fails if the entire group’s average body weight change (from the start of the test to the end) is more than -10 percent or if it is less than the average of the control group’s body weight (minus an allowance for normal variation).

The average values from the dogs’ blood tests can also cause a food to fail. The test group must have adequate values for hemo-

globin, packed cell volume, and albumin and must not exceed specific values for serum alkaline phosphatase.

A pet food manufacturer can employ the protocol for either a growth or a gestation/lactation study – both are considered more rigorous than the adult maintenance protocol – and still make the “adult maintenance” claim if the food passes the trial.

Finally, in case it wasn’t absolutely clear, feeding trials are not terminal; they do not require the euthanasia of any dogs.

Puppies on trial

The protocols are similar for the growth and gestation/lactation trials. The major differ-

ences are as follows:

In order to make a **growth** claim, a minimum of eight puppies from three different mothers are required to start the test, with a control group of eight puppies from three different mothers. The distribution of pups of different breeds *and* sex in the two groups should be the same. A total of 30 puppies are required to establish colony averages. The puppies must be weaned, but no older than eight weeks, when the test is started. The test runs for a minimum of 10 weeks.

The post-trial blood test measures the same blood values as the older dogs, except for serum alkaline phosphatase, which is not measured.

The average body weight gain in the pups fed the test diet must be no less than either 75 percent of the colony average, with averages for males and females determined separately, or the colony average minus 2.33 times the standard error.

For **gestation/lactation** trials, enough females must be used to ensure that a minimum of eight pregnant females start the trial. The females must be in at least their second heat period and be at least one year of age.

There is no size or breed requirement, but the females must have been bred to dogs of the same breed. Breed distribution must be the same in both the test and the control group. A minimum of 30 pregnant females

Truth Is the First Casualty of War . . . But Some Good Has Come of This

Here are the few facts that are uncontested in the war of PETA vs. pet food testing: A contract lab that provides research services to pet food companies (as well as other animal-based research) unwittingly hired a PETA “investigator” as a study monitor. She worked there for a little more than nine months. During that time, she secretly took video footage of dogs that were being used in various studies. Not long after she quit working at the lab, PETA launched a media campaign, featuring the investigator’s footage, that leveled a number of accusations of animal cruelty at two primary targets: The Iams Company and Menu Foods, a contract manufacturer of canned pet foods. These two were among the companies having studies conducted there. Iams promptly canceled its contracts with that lab.

Pretty much everything else having to do with PETA’s campaign (which can be explored at iamscruelty.com) and Iams’ counter-campaign (see iamstruth.com) is in dispute, and we’re not going to repeat any of it here.

In my opinion, neither campaign helps consumers determine what conditions were really like at the contract lab in 2002-2003, nor what the conditions are like for Iams’ (or any other pet food manufacturer’s) test dogs today. PETA’s descriptions of the content of the images captured by its

investigator are inflammatory and, in my judgment, terribly inaccurate and quite uneducational – though they certainly do capture a dog lover’s attention and concern.

Iams’ assurances that everything is all better now are also unconvincing to me. *Its* video footage, presumably depicting current conditions at Iams’ own research facility, shows happy dogs romping around a lush lawn, playing in groups and individually with toys, receiving uninvasive veterinary examinations, and being groomed by affectionate handlers. No cages or kennel rows anywhere in sight!

We’re probably not the ideal audience for either presentation. Neither horror-based propaganda nor what resembles glammed-up spin does much for us. What we’d *really* like to see is a video taken by a neutral party on an unannounced visit to a lab, one that shows every nook and cranny of the facility.

WHAT’S HAPPENING NOW

PETA continues to research the pet food testing industry, focusing special attention on Iams, in part because, according to PETA research associate Shalin Gala, Iams has the highest market share for pet foods in the United States. Gala told WDJ, “. . . we feel certain that any humane changes made by Iams will motivate other companies to follow suit. Failing to do so would risk the loss of a key competitive edge with the large and growing base of ethical consumers.”

PETA is opposed to all laboratory testing on animals, states Gala. “However, we are also practical and realize that animal testing will not end overnight, so in the meantime, we’ll fight for any and every welfare advance that we feel will make a positive difference in animals’ lives in the short term.”

For its part, Iams has established an animal care advisory board that will help the company evaluate its animal care program, and publishes the results of its evaluators’ unannounced study site visits on its Web site. Iams has published its research policy, which now includes the elimination of all terminal studies. It also has promised that all of its pet food testing will be moved to Iams’ own facilities by October 2006; after that, it will no longer employ contract labs. And, demonstrating a leadership role, the company has taken several opportunities to present information to the pet food industry about its current animal welfare program. – *Nancy Kerns*

PHOTO COURTESY OF PETA



PETA’s campaign against lab tests of pet food features tragic-looking dogs in cages . . .

PHOTO COURTESY OF IAMS



. . . while images released by the primary target of PETA’s campaign are beatific.

must be used to develop colony averages.

The test begins at or before estrus, and ends when the puppies are four weeks of age. The females are weighed at breeding, weekly during gestation, within 24 hours after whelping, weekly during lactation, and at the end of the test. The puppies' body weights are measured within 24 hours of birth, weekly, and at the end of the test.

The litter size is recorded at birth, one day of age, and at the end of the test. Stillbirths and congenital abnormalities are recorded. Both the mothers and puppies are given a physical examination by a veterinarian at the end of the test and general health, body, and hair coat condition are recorded.

As with the other trials, the diet fails if any female or puppy shows clinical or pathological signs of nutritional deficiency or excess. Additionally, 80 percent of all the puppies that survived past the age of one day must survive and successfully finish the test.

Also, the females must gain weight during their pregnancies, and the average percent body weight change of the females – from breeding to the end of the test – can't be too great. The litter size of the puppies in the test group must be at least 80 percent of the colony average, and they must have an adequate average weight (with respect to the colony averages) at the end of the test.

The required blood test results are similar to those required for the growth trial.

All the world's a stage

To earn the right to make the claim that a food provides adequate nutrition for **all life stages**, the product must pass the gestation/lactation trial and then be fed to the puppies produced from the litters whose mothers ate the test product in a growth trial. This is the most stringent test used to confirm a dog food's nutritional adequacy.

However, while the term "all life stages" suggests a dog can eat the food from puppyhood to grave, this probably shouldn't be taken quite that literally, since the inclusion of senior dogs is not required in any AAFCO feeding trial protocol.

A consumer might also mistakenly conclude that an all life stages food is guaranteed to benefit dogs with various health problems – dogs with poor kidney function, cardiac conditions, diabetes, etc. Not so. In fact, there are no AAFCO feeding trial protocols that prove a "medical benefits" claim.

Pet Food Development Tests

Again, the topic of testing for the purpose of developing "veterinary" or "special purpose" foods is beyond the scope of this article. We'll describe what these tests may consist of and how they are regulated very briefly, just to help differentiate them from feeding trials and metabolic studies.

If a food label bears a claim that the product can "prevent" or "treat" disease, it's a "veterinary" diet – supposedly available only with a prescription from a vet following a specific diagnosis. The FDA's Center for Veterinary Medicine (CVM) dictates the rules regarding the proof of veterinary diet claims.

There are also dozens of over-the-counter "special formula" foods on the market today. These products are labeled by their makers with softer, less specific language, conspicuously lacking the word "proven." For example, you've probably seen foods that "promote" healthy coats or "support" digestive function. As long as the label omits the word "proven," and doesn't claim to "prevent" or "treat" any medical conditions, pet food manufacturers can make these claims without having to submit research that proves they are true.

That doesn't mean the pet food makers don't conduct laboratory tests to develop special formula foods; they probably do, because to succeed in the marketplace, a product will need to demonstrate at least some degree of success in improving the condition for which it is indicated. So, here, too, the labs are likely to induce disease or a health challenge in a population of dogs, and then try to improve it.

None of the studies conducted in the development of veterinary or special formula foods can replace or be used in lieu of a feeding trial to establish the product's nutritional adequacy. They are completely separate matters.

Good, not perfect

The most significant criticism of the feeding trials method of providing nutritional adequacy – aside from the alleged cruelty of the tests, which we'll discuss below – is that foods are tested for just six months. Many people feed their dogs the same food for years on end, unaware that there may be no scientific proof that dogs can thrive on the formula for years on end. Six months may not be enough time for the effects of any nutritional excess, deficiency, or imbalance to express itself to the point of detectable health problems in the test dogs.

AAFCO is cognizant of this concern. The serum alkaline phosphatase assay was added to the adult maintenance trial protocol in recent years, in an effort to detect calcium deficiencies that may not otherwise be detectable in a physical examination at the end of the six month trial.

As another example, there have been reports of foods found to contain levels of taurine that proved too low to prevent the development of cardiomyopathy in consumers' dogs – *after* passing feeding trials. And the protocols don't address the unique nutritional needs of breeds that are prone to genetic disorders that require specific nutritional therapy, such as Bedlington Terriers (which require a diet especially low in copper and high in zinc).

Another criticism has to do with the relatively small number of dogs required in the tests. As we detailed above, 16 is the minimum number of dogs needed to pass a feeding trial to prove an adult maintenance claim; this includes the dogs eating the tested food and the "control" group that eats another food. Theoretically, just eight dogs could "prove" the nutritional adequacy of a food that becomes the sole source of nutrition for millions of dogs. In actuality, the studies are generally more populous than the bare minimum required, but the more dogs that are used, the higher the cost of the tests, so it follows that no formula is likely to be tested on thousands of dogs.

It's also potentially problematic that the lives – and therefore, the nutritional needs – of dogs in labs aren't terribly similar to most of *our* dogs. Of course, as you'll see below, we'd *like* to see the living conditions of test dogs come to more closely resemble those of our dogs.

Metabolic studies

These studies have become far more common since AAFCO established a third way (the "family" protocol) for a product to earn its proof of nutritional adequacy; this method requires a metabolic study of each prospective family member.

CONTINUED ON PAGE 22

Greetings and Salutations

The process of teaching your dog to greet people calmly starts at home.

BY PAT MILLER

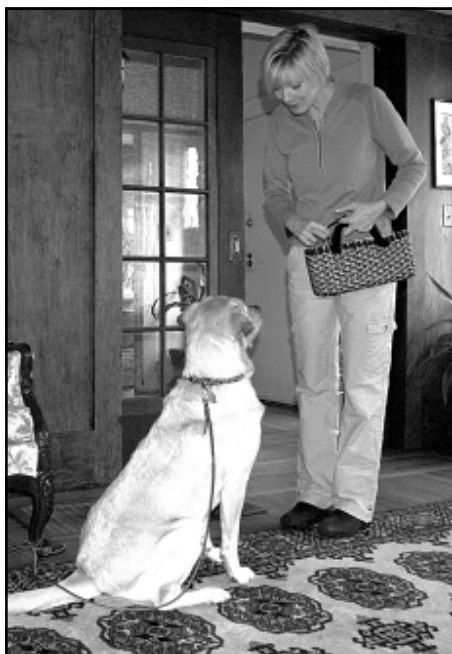
Week 2 of my Peaceable Paws Good Manners class, I ask the question, “How many of your dogs jump up on people?” Generally at least 80 percent of the dog owners in class raise their hands.

“Why do they jump up?” I ask.

I usually get at least one incorrect answer of “Dominance!” but most of my students realize their dogs jump up for attention. And because much of the time the behavior is successful, it’s a challenging one to extinguish.

Be consistent

Consistency is the cornerstone – and the bane – of training success. Consistent reinforcement of polite doggy greetings is reasonably easy. The tough part is ensuring that impolite greetings are consistently *not* reinforced. Even if *you* are very good at not reinforcing your dog’s jumping up behaviors, the entire rest of the world is pretty



Use a tether to prevent your dog from jumping up on guests when they arrive. Generously reinforce his calm behavior.

crummy at it. If jumping up is reinforced randomly, it’s very difficult to extinguish.

Paul (my husband) and I are very consistent at not reinforcing our Corgi for jumping up. Lucy is now very good at not jumping up – on us. She still wants to jump on everyone else she sees, so we persistently work on preventing her from being reinforced by everyone else.

I teach my students a three-step process for changing a behavior you don’t want. It’s perfect for applying to rude greetings:

■ **Step 1:** Visualize the behavior you *do* want. Instead of thinking, “I wish my dog wouldn’t jump on people,” have an image in your mind of the behavior you’d prefer to see: “I’d like my dog to greet people by sitting politely in front of them.

■ **Step 2:** Prevent your dog from being reinforced for the behavior you don’t want. This means taking appropriate management steps to proactively intercede *before* Boulder plants his paws on a guest’s shoulders. Your persistent removal of reinforcement for jumping isn’t enough; you have to convince the entire rest of the world to follow suit.

■ **Step 3:** Generously and consistently reinforce the behavior you *do* want. Simply ignoring an undesirable behavior leaves a behavior vacuum. Unless you generously reinforce an alternative behavior, your dog will likely default to the behavior he knows, that has worked for him in the past. Constantly be on the lookout for polite greeting sits. Be sure to greet your dog when he offers them. It’s human nature that we tend to overlook good behavior and respond to bad behavior. Turn that around.

Practice makes perfect

The three-step process sounds easy in principle. It’s not always so easy in practice. You’re most likely to encounter problems with greeting immediate family members,

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WHAT YOU CAN DO . . .

- **Impress on the entire immediate family the importance of being consistent about reinforcing polite greetings and preventing inappropriate greetings from being rewarded.**
- **Have the family agree on which training and management techniques you will use with your dog.**
- **Enlist the aid of friends and strangers to provide lots of reinforcement to your dog for appropriate greeting behavior.**
- **Be assertive about not allowing friends and strangers to reinforce inappropriate greetings.**

greeting guests in your home, and greeting people in public. Let’s look at how you could apply the three-step process in each of these scenarios.

Greeting family members

In theory, this should be the easiest of the three scenarios, since family members are around very frequently and should be committed to helping you change the behavior. In reality, we know how hard those darned humans can be to train! (Remember that positive reinforcement works well with primates, too!)

You can try several different approaches with family members. First, all must agree to stop reinforcing your dog for jumping, and must all understand that *any attention at all* is reinforcement. Making eye contact



Teach your family not to reinforce the dog when he jumps up – to quickly turn away.

with your dog when he jumps up is reinforcing him. By pushing him off, you've touched him – reinforcement! Asking him to "Off!" gives him attention by speaking to him. Reinforcement! In fact, just the fact that his paws touched you can be rewarding to your dog, even if you do nothing else.

To avoid reinforcing your dog for jumping up, he needs to get the opposite response. Rather than eliciting attention, a jump should make all attention go away. When Bounder starts his lift-off, say "Oops!" as you turn your back on him and step away. If he jumps again, turn and step away again. Keep an eye over your shoulder, and when he stops jumping (and, we hope, sits), turn back toward him and give him treats and/or attention.

Meanwhile, use a tether to *teach* him a more appropriate greeting. You can secure your dog with a leash, but a more durable tether consists of a four- to five-foot piece of plastic coated cable with sturdy snaps on both ends. Attach it to an adequately heavy piece of furniture, or create a tether station by screwing an eyebolt into a wall stud and clipping the tether to it. Alternatively, you can screw an eyebolt into a 2 x 4 block of wood, clip the tether to it, and slide it under a door that, when closed, holds your dog in place.

With Bounder on his tether, approach from a distance. If he's leaping about in greeting, stand still until he's calm, then move forward. Anytime he starts to jump,

stand still, or even take a step back. When you are close enough to reach out and touch him (but he still can't jump on you), stand still and wait for him to sit. You can help him get the idea by holding a treat at your chest a few times, but you'll want to fade the treat (stop using it) quickly so he learns to offer a sit in greeting without being lured. By the same token, don't *ask* him to sit – wait for him to offer it. You want him to volunteer the sit in greeting, not wait to be asked for it.

When he sits, mark the polite behavior with a "Yes!" or the click! of a clicker, feed him a treat, and give him attention. Repeat this exercise until he sits promptly as soon as you head toward him.

Many dogs will immediately resume jumping up when petted, especially if they have been allowed to greet people boisterously in the past. If your dog starts to leap up as you reach for him or pet him, simply stand up, take a step backward (out of his range), and wait for him to sit again. You may have to withdraw and return several times in rapid succession before he realizes that leaping up makes the thing he wants (attention) go away, and sitting firmly on his bottom makes it return.

Now have the rest of the family practice, all the way down to the toddler.

Of course, your dog won't always be on a tether, but when he has learned this exercise he'll be much quicker to offer you (and others) that highly reinforced "sit" behavior in other scenarios as well.

Perhaps the most aroused greetings occur when you return home after a long day away. Bounder is clearly thrilled to see you, and it can be hard to turn your back on such a sincere display of love. Our human family members should greet us with this much enthusiasm, day after day!

If you are reluctant to squelch your dog's welcome-home enthusiasm, redirect it to a game you both can enjoy. Stash your dog's favorite toy – or several – in a box just outside the door. Walk into the house with the toy in your hand, and toss it for him to fetch. Even better, reinforce polite greetings by waiting for a sit before you toss. The "welcome home fetch game" allows your dog to be happy about your return, lets you reciprocate, and still keeps his energy controlled and directed into a productive and polite outlet. It's also easy to transfer to children and visitors!

You may have a family member who insists that he *wants* Bounder to be able to jump on him. Promise your body-slammer

masochist that he can teach Bounder to jump up on cue – *after* the dog has learned to greet politely. That might motivate him to help with, rather than sabotage, Bounder's training. Then, when the two of you are ready to teach "Jump up!" be sure you select verbal and body language cues that are very distinctive, and not likely to be offered by accident by an unsuspecting dog greeter.

Greeting guests in your home

Of course, it's too much to expect that visitors will know enough to turn their backs on your dog when he jumps up on them, so it's incumbent on *you* to make sure he doesn't have the opportunity. Your tether will come in handy here. When the doorbell rings, calmly clip him to his tether station, feed him a yummy treat, then go greet your guests. You don't have to worry about a door-darting dog, or one who blithely ruins your guest's nylons. Peace of mind. Over time, Bounder may even come to learn that the doorbell is the cue to go to his tether and wait for treats!

If necessary, leave a tab (a four- to six-inch piece of leash) or a house lead (a four- to six-foot light line) attached to your dog's collar so he's easy to gather up and tether. Be sure to remove these when you're not home, to prevent tangling accidents.

As your guests enter, hand them a few treats, and ask them to approach Bounder on his tether. Be sure they understand that they can feed him the treats and pet him *only when he is sitting*. Then supervise to be sure they follow directions.

When your dog's initial excitement subsides, you can release him to greet your guests off leash. By then, you will have had time to instruct them on how to properly reinforce his polite greeting, and how to avoid reinforcing him if he does try to jump.

You can also choose to play the "welcome fetch" game with visitors. Put a large sign on your door instructing visitors to take a toy from the box, bring it in the house with them, and throw it for Bounder when he sits. Dog-loving visitors – the only kind who come to my house! – will enjoy this immensely. Remove the sign when you're not home, so burglars don't learn the trick of getting past your guard dog!

Greeting people in public

In public, your leash is the tether. Hold the leash, giving your dog only about three feet of slack. As people approach, keep your distance and the leash at a length that prevents your dog from lunging forward and jump-

ing up on the passerby. You can, of course, reinforce your dog if he offers a sit. If the approachers appear to have dog-petting on their minds, ask (*insist!*) that they wait for him to sit first. If they say, "That's okay, I don't mind if he jumps up," politely but firmly tell them that *you* mind, and that they need to wait until Bounder sits. If they ignore your instructions, turn and walk away with your dog, with a cheery "Oops! Sorry!"

If they are willing, you can hand them a couple of treats to feed when your dog sits. If they seem really interested, ask them if they'll help you train. Give them a handful of treats and ask them to do several approach-sit repetitions to give Bounder more practice at greeting strangers politely on the street.

Fearful greetings

So far, we have presupposed an overenthusiastic greeter, whose behavior is best addressed with positive reinforcement and negative punishment principles of operant conditioning, where the dog's behavior (a polite sit) causes a good thing to happen (attention), and jumping up causes that same good thing to go away.

Some dog owners have the opposite problem: the dog who launches a volley of defensive fear-barking at the sound of the doorbell or the approach of a stranger on the street. This behavior is best modified through the use of counter-conditioning: changing the dog's association with visitors and strangers from "Bad! Scary!" to "Yay,

treats are coming!"

You might begin by ringing the doorbell yourself, and immediately follow the sound with several tidbits of canned chicken (or something equally succulent and delicious), delivered to your dog's waiting jaws, *even if he's barking*. Repeat this exercise until the sound of the doorbell generates a "Yay! Where's my chicken?" response instead of wild barking.

Then have someone else ring the doorbell – someone your dog knows. Repeat the doorbell-chicken sequence until you're getting the positive response. Then have the person ring the bell and open the door. This is likely to elicit another round of defensive barking. Feed chicken. Then repeat, and continue repeating until the doorbell/door opening sequence consistently generates the "Where's my chicken?" response from your dog. Then have the person ring the bell, open the door, and step into the room.

Continue the progression, one small step at a time, feeding chicken at each step until you get the positive response at that level, then take the next step. When he's fine with the person he knows, try someone he doesn't know, or at least doesn't know as well, until he can maintain calm when anyone enters the house.

You can do a similar exercise with people on the street. Set yourself up a distance off the sidewalk so people aren't walking directly at your dog. The instant he notices someone walking in your direction,

start feeding him bits of chicken. When the person has passed by, stop. Over time, as he associates people approaching with yummy chicken, his response should become calmer.

Important note: Do *not* have the *other* person feed treats to a fearful dog. His desire for the treat may overcome his caution, temporarily, but when the treat is gone and he realizes he's too close to a person who scares him, he may bite. You need to first change the association by feeding your dog the treats yourself. When your dog is happy to have visitors and strangers in close proximity, *then* you can ask the other person to drop treats, or offer them gently using very nonthreatening body language: kneel sideways to the dog, hold the treat out to the side, don't make direct eye contact or any overt moves to reach for the dog.

If you are consistent and persistent, your dog can learn to greet people politely. In fact, he will soon run up to you and sit as hard and as fast as he can, with as much enthusiasm as he now displays when he jumps up on you. After all, dogs do what works. If you can manage matters so the behavior *you* want is the behavior that works for your dog, everybody wins! 🐾

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

Alternative Procedure for Teaching Polite Greetings

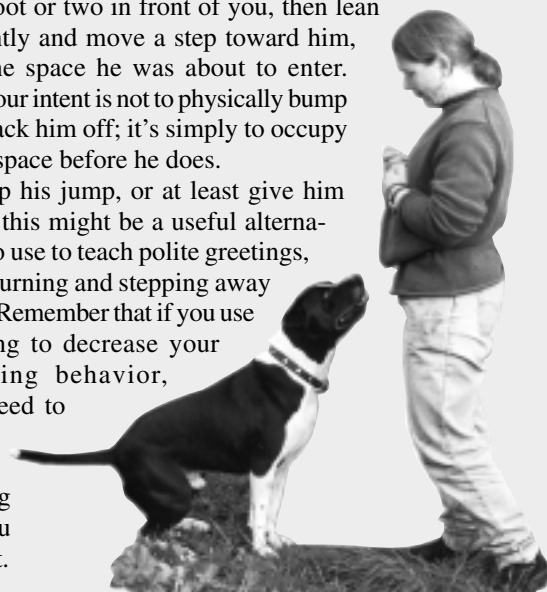
Patricia McConnell, PhD, author of the outstanding book, *The Other End of the Leash*, has a different perspective on modifying jumping behavior. She suggests that by turning away and stepping away you are giving the dog your space, and that some dogs learn polite greeting more quickly if you take *their* space instead, using a body block. If your dog seems to be one who delights in occupying the space you just left, try the opposite approach.

Try this first when Bounder is reasonably calm and standing or sitting in front of you. Lean slightly forward and take a step toward him. Watch his body language closely. If he leans away slightly, or even takes a small step back, you have a dog who is sensitive to you moving into his space. Practice this maneuver to encourage the "move away" response. Only do it for a step or two at a time, so you don't overwhelm or intimidate your dog.

When you have practiced the move several times and have a good sense of how to move your body to take Bounder's space, you're ready to try it out in real life. Next time you see Bounder moving toward you with "Jump!" in his body language, wait

until he's a foot or two in front of you, then lean forward slightly and move a step toward him, occupying the space he was about to enter. Remember, your intent is not to physically bump into him to back him off; it's simply to occupy his intended space before he does.

Did it stop his jump, or at least give him pause? If so, this might be a useful alternative for you to use to teach polite greetings, especially if turning and stepping away isn't helping. Remember that if you use body blocking to decrease your dog's jumping behavior, you'll still need to generously reinforce the polite greeting behavior you get as a result.



Canines in a Mist

Hydrosols are the newest and most gentle canine aromatherapy.

BY CJ PUOTINEN

Most essential oils used in aromatherapy are obtained by steam distillation, at the end of which a small amount of essential oil is extracted from a large amount of water. But that isn't just any water, for the liquid that condenses after steam drives volatile material from blossoms, stems, leaves, fruit, roots, or seeds is itself an aromatic substance with significant healing properties.

That liquid is called a hydrosol, hydrolat, hydrolate, flower water, floral water, or distillate water. Regardless of name, hydrosols are aromatherapy's hot topic – and for pet lovers, they're ideal. They combine the therapeutic benefits of essential oils, which they contain in minute amounts, with the safety of herbal teas. Make that *very strong* herbal teas, for hydrosols are 20 to 30 times more concentrated than any steeped or simmered tea.

Hydrosols have become buzzword ingredients in cosmetics and skin care products, where they are valued for their

pleasant fragrances, hydrophilic (water-loving) acids, and mild but effective anti-inflammatory, astringent, and antiseptic properties.

The most familiar hydrosols are rose water, orange blossom water, and lavender water. But these culinary and hand lotion ingredients are usually made from water and perfume oils, not by steam distillation. The difference is significant, for true hydrosols contain water-soluble components that never appear in essential oils. As a result, hydrosols are gentle, powerful, versatile, therapeutic, and unique.

May be difficult to find

The first step toward improving your dog's health with hydrosols is finding them. Until recently, few essential oil distributors sold hydrosols, and even now they're unusual. That's because hydrosols take up more space, cost more to ship, require more careful storage, and have a far shorter shelf life than essential oils. In addition, all of the quality concerns that apply to essential oils



WHAT YOU CAN DO . . .

- Use a hydrosol for a gentle, effective treatment that can complement your dog's conventional care.
- Buy products only from reputable sources; test the quality (with pH test papers) regardless of the source.
- Use hydrosols as a topical mist, dropped directly into your dog's mouth, in her food and water, and/or in her shampoo.
- Keep track of the hydrosol's expiration date. Discard and replace expired products.



Hydrosols can be misted directly onto a dog or serve as a wonderful complement to massage. Spray some onto your palms and massage it into your dog's coat. Ahh!

apply to hydrosols (see "A Word About Quality," WDJ December 2004). For best results, buy from recommended suppliers (see our list on page 13) and treat hydrosols with care.

In her book *Holistic Aromatherapy for Animals*, Kristen Leigh Bell explains that the best suppliers identify hydrosols by species, country of origin, growing method, plant parts used, date of distillation, and other details. Most hydrosols have a shelf life of one to two years, so inquire about expiration dates. In addition, ask how the hydrosol has been stored, preferably refrigerated in sterilized dark glass bottles that receive minimal handling. Were preservatives added? Ethyl alcohol, grapefruit seed extract, and synthetic chemicals are common preservatives, but therapeutic-quality hydrosols are preservative-free.

Ask for samples. Good suppliers offer

free or low-priced samples for tasting and testing.

Use only if they pass a test

“As soon as your hydrosols arrive,” says Bell, “wash your hands thoroughly with soap and water and pour a small amount into a clean glass. Hold it up to the light and check for particulate matter or a milky appearance. Fresh hydrosols are clear or have only a hint of color and should not contain a surface residue or large chunks or strings of particulate matter, all of which are evidence of a bacterial ‘bloom.’ Report spoilage to your supplier at once.”

Next, she says, “Smell your hydrosol. It won’t smell exactly the same as its essential oil, but it shouldn’t smell spoiled or rancid. Sniff carefully for any trace of alcohol. If all seems okay, taste it. The more you know about hydrosols and the more you use them yourself, the more effectively you’ll use them for your dog.”

Store hydrosols in the refrigerator or, if that’s not possible, in a cool, dark location. Some suppliers ship hydrosols in spray bottles, which prevents air from entering the bottle whenever you use it. Bottles that are frequently opened are easily contaminated.

Unlike essential oils, hydrosols are either slightly acidic like lavender hydrosol (5.6 to 5.9 pH) or very acidic like rock rose (2.9 to 3.1 pH). Suzanne Catty, one of the world’s leading authorities on these gentle yet powerful products, lists 70 hydrosols and their optimum pH values in her groundbreaking book *Hydrosols: The Next Aromatherapy*. Catty recommends using special pH test strips – available at a low cost from home-brewing catalogs – to check a hydrosol’s shelf life. As soon as it arrives, check your hydrosol’s pH, and write this value on its label or in a notebook, along with the date. Report any questionable pH values to your supplier for a refund or replacement.

After six months, test the hydrosol’s pH again. Any value change of 0.5 or more indicates the presence of bacterial growth. Note that added preservatives affect a hydrosol’s pH, giving you another reason to rely on this method for testing a hydrosol’s quality.

Hydrosols are best replaced after their expiration dates. Use “expired” hydrosols that are still fresh in bath water or your dog’s shampoo, as air fresheners, as a dog bedding freshener, or in floor, dish, or laundry

wash or rinse water. If you have plants that like acid soils, water them with expired hydrosols. Spoiled hydrosols should go down the drain or into the garden or compost pile.

Most common canine uses

Once you find a therapeutic-quality hydrosol, you can do all kinds of things with it. Here are some suggestions from Suzanne Catty.

To give a hydrosol in food or water, start with ½ to 1 tablespoon per day for a dog weighing 50 - 70 pounds. For toy dogs, give 1 to 1½ teaspoons per day, preferably diluted. For large and giant breeds, give up to 2 or 3 tablespoons per day. Adjust the following recommendations (based on 50 - 70 pounds) for your dog’s size.

For digestive problems, divide a daily dose of ½ to 1 tablespoon of coriander, peppermint, yarrow, fennel, carrot seed, oregano, basil, or rosemary hydrosol between water and food for three weeks.

For diarrhea, feed ½ tablespoon undiluted cinnamon bark hydrosol every 30 minutes for four doses, then hourly for four doses. “This usually does the trick,” Catty explains. “The cinnamon not only calms the stomach and digestive tract but also helps

Ten Recommended Hydrosols

In *Holistic Aromatherapy for Animals*, Kristen Leigh Bell recommends starting your dog’s collection with the following hydrosols. Their pH ranges are from *Hydrosols: The Next Aromatherapy* by Suzanne Catty.

Chamomile, German (*Matricaria recutita*), also called Blue Chamomile. Anti-inflammatory, important for skin problems and wound care. Calming, comforting. 4.0 - 4.1 pH.

Chamomile, Roman (*Anthemis nobilis*). Delicate, sweet-smelling, gentle, all-purpose. Good for skin irritations; calms nervous tension and anxiety. 3.0 - 3.3 pH.

Cornflower (*Centaurea cyanus*). Gentle, cooling, subtle fragrance. Excellent for topical use on any skin condition, especially dry, devitalized skin. 4.7 - 5.0 pH.

Geranium (*Pelargonium graveolens*), also called Rose Geranium. Anti-inflammatory, good for inflamed skin and wound care. Emotionally uplifting. 4.9 - 5.2 pH.

Lavender (*Lavandula angustifolia*). Cooling, antiseptic, itch-relieving. An all-purpose, must-have hydrosol. Excellent for wound care and cleaning; emotionally soothing. 5.6 - 5.9 pH.

Lemon verbena (*Lippia citriodora*). Anti-inflammatory, relaxing, stress-relieving. Delicate lemon fragrance. Good for skin and wound care, ear cleaning, tooth and gum inflammation. 5.2 - 5.5 pH.

Neroli (*Citrus aurantium*). Distilled from orange blossoms; complex floral, fruity scent. Gentle sedative, very calming, supports and nurtures. A perfect partner to flower and gemstone essences. 3.8 - 4.5 pH.

Rose (*Rosa damascena*). Gorgeous fragrance. Useful for all skin problems, bites, wounds, cuts, and scratches. Calming; blends well with Roman Chamomile and Lavender. 4.1 - 4.4 pH.

Rosemary (*Rosmarinus officinalis*). Stimulating, deodorizing. Intense herbal scent repels fleas. Powerful antioxidant, similar in action to witch hazel. 4.2 - 4.5 pH (cineole chemotype).

Witch hazel (*Hamamelis virginiana*). Forget the drug store versions, this is the real thing, no alcohol added. Subtle fragrance. Powerful antioxidant and anti-inflammatory. A must-have. 4.0 - 4.2 pH.



Let the Dog Choose

Whenever you receive a new hydrosol, offer a taste from your hand and watch your dog's reaction. Keep her preferences and dislikes in mind when deciding which hydrosols to use for therapeutic purposes. Sometimes blending a favorite with a not-so-favorite makes a difference.

Offering samples frequently and in an upbeat manner will help your dog feel comfortable with hydrosols that will be sprayed in the air, spritzed on her coat, massaged into her muscles, squirted into her mouth, mixed with shampoo, sprayed on her bedding, added to food, or added to water. Full-strength or diluted hydrosols can be administered orally with an eye

dropper or turkey baster, but the procedure is



far more pleasant and effective when the dog takes them willingly.

kill any bacterial cause of the diarrhea.”

For urinary tract problems, you can give your dog ½ tablespoon juniper berry, yarrow, cypress, sandalwood, or goldenrod hydrosol three times daily plus 1 tablespoon hydrosol in the water dish daily for three weeks. In case of infection, try winter savory, oregano, scarlet bee balm, or thyme (chemotype thymol).

For respiratory problems, give 1 tablespoon hydrosol twice or three times daily, and rub 2 tablespoons undiluted hydrosol on the chest and abdomen twice daily for three weeks. Try eucalyptus (*Eucalyptus globulus*), inula, rosemary (any chemotype), thyme (any chemotype), oregano, or winter savory, or a blend of two or more. Catty recommends supplementing this treatment with the use of essential oils, such as a blend of equal parts ravensara, *Eucalyptus radiata*, and palmarosa, with a drop or two of patchouli or vetiver. This blend can be dabbed onto the dog's bedding or diffused into the air with a nebulizer, available from aromatherapy supply catalogs.

For additional recommendations for pet use from Suzanne Catty, see *Hydrosols: The Next Aromatherapy*.

Creative applications

One of the easiest things to do with hydrosols is add them to your dog's shampoo. Try diluting a natural shampoo or liquid soap (one that doesn't contain synthetic chemicals) with an equal quantity of hydrosol. Do the same with your dog's conditioner, and add a splash of hydrosol to the final rinse water. The hydrosols of flea-repelling essential oils, such as cedar or rosemary, can help keep your dog flea-free. Where ticks are a problem, use any hydrosol that has a rose fragrance, such as rose geranium, palmarosa, or true rose – although true rose is so expensive and luxurious, you'll want to save it for spritzing on your own face.

In Madison, Tennessee, Marge Clark runs Nature's Gift, a leading supplier of therapeutic-quality hydrosols and essential oils. “Many of our customers have dogs,” she reports, “and it's important that these animals not experience an aromatherapy overdose. A dog's nose is so sensitive that exposure to essential oils might be painful. The hydrosols are safe, gentle, and effective. My dog, Max, is an 11-year-old, 5-pound Pomeranian. Because of his tiny size, I have to treat him the way I would a human infant.

Hydrosols are perfect for him.”

Clark's favorite hydrosols for canine application are yarrow for hot spots and other skin irritations; lavender, the all-purpose “must-have” hydrosol, which is gentle, soothing, relaxing, and antibacterial; St. John's wort, which relieves sore muscles and other pain; and neroli, which alleviates stress and anxiety. Helichrysum is her best-selling hydrosol and, at \$22 for 4 ounces, the most expensive. This powerful anti-inflammatory is best known for its skin-healing properties.

Jenine Stanley, who lives in Columbus, Ohio, with two Golden Retriever service dogs, has experimented with Nature's Gift hydrosols and recommends three “essentials” to all of her friends with guide dogs.

The first is tea tree hydrosol, which provides most of the benefits of tea tree oil without the problems that oil can cause. Tea tree oil is controversial because its application has caused temporary paralysis in some dogs and skin burns in others. Organic tea tree hydrosol, which Clark considers “totally safe,” is Stanley's favorite for drying, disinfecting, and clearing up oozing hot spots or lick granulomas.

“Tea tree hydrosol is also an incredible ear wash for killing yeast in dogs' ears,” says Stanley. “I saturate several cotton balls and clean the ear as usual. If the ear is crusty or moist, I apply the hydrosol directly to the ear canal – outdoors to accommodate head shaking to clear the debris and liquid.”

Oregano hydrosol has proved valuable for cleaning cuts, insect bites, stings, and even hot spots that have become infected. “I wash the area first with oregano,” Stanley explains, “then apply tea tree hydrosol as a drying agent. Yes, your dog will smell like pizza, but he will be much happier without the infection.”

Her third hydrosol of choice is witch hazel. “It's an effective drying agent,” she says, “and it keeps the skin inside the ears at an appropriate pH. Witch hazel hydrosol smells good, is soothing, and helps prevent what we affectionately call ‘swamp ears.’ As our two dogs are guide dogs, they are often in tight quarters in public, airplane cabins, elevators, and crowded store lines. Using the hydrosols keeps them fresh, clean, and free from infections.”

At Prairieland Herbs in Woodward, Iowa, Maggie Julseth Howe and Donna Julseth experiment with hydrosols daily. “My Great Pyrenees had chronically ‘dirty’ ears,” says Howe, “and comfrey hydrosol was a wonderfully gentle way to keep them

clean. We have also used comfrey hydrosol as an eyewash – not on our dogs, because the occasion has not arisen, but on kittens and a horse, with wonderful results.”

Bathing her Great Pyrenees is such an undertaking that Howe uses other means whenever possible. “A good brushing and a few spritzes of lemon balm hydrosol do wonders for coat shine and smell,” she says. “Commercial dog sprays send her running for the nearest patch of dirt to roll in, but like most dogs, she seems to tolerate the gentle, all-natural scent of hydrosols much better. Last but not least, a light spritz of a mint or other pleasantly scented hydrosol is a great way to freshen up a dog’s favorite bed or sleeping place, or even your couch or car seats.”

Finding reliable sources

According to Suzanne Catty, the major problem relating to hydrosols is not contamination, but rather fake or synthetic products sold as hydrosols, real hydrosols to which preservatives and/or stabilizers have been added, or real hydrosols that were improperly collected at distillation, resulting in nontherapeutic, unstable, and only

slightly aromatic waters. “True therapeutic hydrosols that are free from preservatives, alcohol, or stabilizers and properly handled are a healing boon for animals of all kinds,” Catty says.

Suppliers find these hydrosols through research, networking, testing, and trial and error.

“If I love a distiller’s hydrosols,” says Marge Clark, “I’m a loyal and enthusiastic customer forever. I never, ever, make a sourcing decision based on price. I’ve done that and regretted it! We have the majority of our oils tested by a well-known chemist with gas chromatography and mass spectrometry, assuring that an essential oil is not adulterated, that it falls within the ‘expected range’ for components. But that testing will not distinguish between a so-so specimen and an extraordinary one. Personal selection makes that distinction, and it involves looking for intangibles, like the vibrancy or life in the aroma. Sometimes there is an energetic difference that can be felt.”

We recommend that you start with suppliers listed below and learn everything you can from them. They are generous with information, recommendations, and

suggestions – and they sell superior-quality hydrosols, everything from familiar lavender to rare “boutique” hydrosols like cardamom or comfrey. The only factor that will interfere with your hydrosol collection is availability, for hydrosols are seasonal items that often sell out. When that happens, you have to wait for the next distillation.

Are any hydrosols potentially dangerous for dogs? Clark suggests avoiding the topical application of Australian lemon myrtle (*Backhausia citriodora*) because this powerful antibacterial hydrosol, which is best used as a room spray, can irritate the skin. “We don’t use it on our own skin,” she says, “so I wouldn’t use it on my dog’s.”

Hydrosols are still so new on the aromatherapy scene that discoveries about their benefits are being made every day. You and your dog can be in the forefront of this exciting new therapy. 🐾

CJ Puotinen is the author of *The Encyclopedia of Natural Pet Care* (Keats/McGraw-Hill) and *Natural Remedies for Dogs and Cats* (Gramercy/Random House). She wrote the foreword for Kristen Leigh Bell’s *Holistic Aromatherapy for Animals*.

Resources for Hydrosols

RECOMMENDED READING

Holistic Aromatherapy for Animals: A Comprehensive Guide to the Use of Essential Oils and Hydrosols with Animals, by Kristen Leigh Bell (Findhorn Press, 2002). Available from aromaleigh.com and most booksellers.

Hydrosols: The Next Aromatherapy, by Suzanne Catty (Healing Arts Press, 2001). Available from acqua-vita.com and most booksellers.

RECOMMENDED RESOURCES

Aromaleigh. Kristen Leigh Bell no longer manufactures aromatherapy products for pets, but her Web site (aromaleigh.com) features articles and recommendations.

AromaTherapeutix. Educational catalog, some hydrosols. PO Box 2908, Seal Beach, CA 90740; (800) 308-6284.

Aromatic Plant Project. Supports the production of authentic, therapeutic-quality hydrosols. Referrals to suppliers. Membership and newsletter for serious aromatherapy students. Online articles. PO Box 225336, San Francisco, CA 94122-5336; (415) 564-6786; aromaticplantproject.com.

Acqua Vita. Suzanne Catty. Single-note, rare, and boutique hydrosols, blends. Online articles. 85 Arundel Avenue, Toronto, ON, M4K 3A3, Canada; (866) 405-8855; acqua-vita.com.

Diamond Heart Co-creative Garden. Home-grown hydrosols: helichrysum, devil’s club, comfrey, Labrador tea, and others. 942 Tyonek Drive, Anchorage, AK 99501; (907) 274-2359, diamondheart.net.

Hydrosols.com. Educational Web site with articles by Suzanne Catty.

Nature’s Gift. Marge Clark. Online orders preferred. Friendly, informative Web site. 314 Old Hickory Boulevard, East Madison, TN 37115; (615) 612-4270; naturesgift.com.

PrairieLand Herbs. Home-grown hydrosols: comfrey, lemon balm, yarrow, peppermint, and others. 1385 S. Avenue, Woodward, IA 50276; (515) 438-4268; prairielandherbs.com.

Prima Fleur. Leading supplier. 1525 East Francisco Boulevard #16, San Rafael, CA 94901; (415) 455-0957; primafleur.com.

A Woman of Uncommon Scents, Inc. Wholesale distributor. PO Box 103, Roxbury, PA 17251; (800) 377-3685 or (717) 530-0609; awomanofuncommonscent.com.

pH test papers are available from wine- or beer-making supply catalogs, such as NorthernBrewer.com. Wine range 2.8 to 4.4 or beer range 4.6 to 6.2. \$2.95 (plus shipping) per vial containing 100 strips.

We Can Help

What assistance dogs can teach you and your dog.

BY LORIE LONG

Have you ever watched an assistance dog work? On the campus of the Virginia university where I attended graduate school, I often crossed paths with a student who used a wheelchair, accompanied by her assistance dog, a lovely Golden Retriever. They went to classes, visited the snack bars and cafeteria, hung out in the student lounges, and hoofed it all around campus together.

The assistance dog opened doors, picked up dropped items, pressed elevator buttons, and accompanied her owner everywhere. When you approached her owner, the dog looked confidently and calmly right into your eyes. She was the kind of take-anywhere canine companion that any dog lover would be proud to call her own.

What, I wondered, could this assistance dog and her trainers, teach family dogs and their owners about the secrets of her success? How did she become such a solid, confident, and reliable companion? Can ordinary people obtain a go-anywhere canine companion with the steadiness and confident demeanor of an assistance dog?

The Whole  Dog Journal™

WHAT YOU CAN DO . . .

- **Search carefully and choose a puppy or dog whose skills and temperament will help him fit well in your family.**
- **If you have the opportunity, begin socializing your puppy early and often, managing his interactions to keep him safe and secure.**
- **Integrate your dog into as many of your family's daily activities as possible.**

Assistance dog trainers were happy to help me find the answers.

According to Brian Jennings, staff trainer for the Massachusetts-based National Education for Assistance Dog Services (NEADS), creating a great dog takes lots of time and planning.

A compatible candidate

Bringing home the right dog, assistance dog trainers say, makes the task of developing a friendly and reliable canine companion a lot easier. The goal is to seek a type of dog that tends to be constitutionally suited to the sort of environment in which it will be expected to live and work, and to find an individual dog who seems to exhibit the temperament and personality of a dog who will likely enjoy his new home and job.

For assistance dog work, Jennings and NEADS executive director Sheila O'Brien define what kind of dog they look for in each type of assistance dog:

- **Service dogs help people with impaired mobility, including those in wheelchairs.** Labs and Golden Retrievers whose calm and confident temperaments fit their job requirements often fill this role.
- **Guide dogs assist the sight-impaired.** More assertive Labs, Golden Retrievers, and German Shepherds excel in this mission, where more independent decision-making is required of the dog, who may have to refuse an owner's command for safety reasons.
- **Hearing dogs help the hearing-impaired by recognizing specific sounds, investigating and locating the source of sounds, and**



Assistance dogs usually appear calm, alert, and focused on their handlers – traits that ordinary dogs can learn, if you spend a lot of time teaching them.

alerting their owners to the presence of the sounds. NEADS selects feisty, inquisitive, and persistent mixed-breed dogs, many with terrier or herding breeds in their heritage, for this high-energy work. O'Brien refers to these dogs as "self-made men and women . . . who need a job," and often selects these dogs as adults from shelters. These dogs take initiative.

■ **Therapy or social dogs are often released from specific assistance dog programs, but go to live in nursing homes or with families with emotionally disturbed children, acting as facilitators for social interaction and therapy.** The best candidates are exceedingly friendly dogs who thrive on lots of physical contact and affection from people, and are temperamentally "sturdy" enough to disregard a bit of strange behavior from the people they meet. These dogs can be from any sort of background – purebred or mutts.

Choosing your family dog

Imagine that you are an assistance dog trainer looking for a dog who will be as

perfectly suited as possible to live with a certain family – *your* family. Think about what your family is like, and what traits a dog should have to succeed in his new job as your family’s dog.

For example, if you’re looking for a dog whose primary “job” will be to provide company for your elderly and not-very-mobile mother, you’ll want to consider types of dogs that don’t require a lot of exercise to be happy or calm, and who thrive on a close relationship with a person. There are a number of breeds, small and large, that excel as affectionate lap-dogs.

If your household is chaotic, with rowdy, active kids running in and out, you should look for a confident, gregarious dog who will cheerfully accept any and all visitors to your home and handle spontaneous eruptions of activity with aplomb. In contrast, dogs who tend to be nervous, sound-sensitive, or shy will have an uphill struggle to simply survive in your home.

In addition to understanding what traits you *want* in your new dog, you need to know what characteristics you definitely *don’t* want. If you have cats, birds, rabbits, or other small pets in your home, you definitely don’t want a breed whose predatory (or hunting) instincts are legendary. If your heart’s desire is a dog who will hike with you in the woods unleashed, steer away from scenthounds or sighthounds, whose talents may propel them toward new adventures, but not always with you.

If you are not familiar with the traits commonly associated with certain breeds or breed-mixes, do some homework. Attend a breed show and talk to as many breeders as you can about their dogs’ common personality traits. Tell them about your family and ask if they’d recommend one of their dogs for your household. Responsible breeders won’t hesitate to warn you away from a breed that is unsuited to your life-style; puppy mill-type breeders, of course, will place their puppies in any paying home.

Check out a breed book at your local library and pay attention to the part about the breed profiles that discuss the dogs’ activity levels, propensity for barking or predation, and reputation for trainability. Cross-breeds and mixed-breeds may display traits from all the contributors to their ancestry.

Once you decide on a breed – or if you prefer a mixed-breed dog from a shelter (and good for you!) – look for an individual who has a temperament that suits your family, too. Not all representatives of a certain

breed will have equal doses of the breed’s hallmark temperament.

Lydia Wade-Driver, executive director and founder of Virginia’s Blue Ridge Assistance Dogs, says that a few simple interactions with a puppy or adult dog can provide clues about his temperament and personality. Does the dog approach you willingly? Does he enjoy being touched? Does he startle easily? Does he recover quickly after a scary moment? Does he respond to treats and toys? Watch for confidence without aggression, then, “It’s the whole package and a gut feeling,” says Wade-Driver, “That’s what I go by.”

Socialization is critical

Selecting for certain characteristics is only the first step to improving the odds of raising a great family dog. Developing that great dog’s potential after it has joined your family is where the rubber meets the road.

Assistance dog trainers often disagree about the best techniques for training, but the one thing most dog trainers *do* agree on is this: intense, well-managed socialization is *the* most important factor in developing a great dog, whether it’s a family pet or an assistance dog.

“Socialization definitely outweighs obedience,” states Kali Kosch, director of training for Assistance Dogs of America in Swanton, Ohio. “I’d rather have a dog who’s very well socialized than one who’s very well obedience-trained. You can do all of the obedience training in the world but, if you have a dog who’s afraid, you’re at a loss,” she says.

Even though the term “socialization” generally implies some interactions with other individuals, a big part of socializing the dog actually has to do with exposing him to inanimate objects and various environments. Assistance dogs are exposed to every mode of transportation imaginable, including cars, buses, airplanes, trains, moving sidewalks, elevators, and escalators. They are taken to noisy stadiums, quiet libraries, busy fairgrounds, deserted parks, industrial areas, and farms. The idea is to expose them to every sort of environment they might ever find themselves in – in a calm, safe manner.

It’s a big job, though, getting your dog out and exposed to a wide variety of people, places, and things. “I try to present the

enormity of it to dog owners in a way that doesn’t feel that enormous,” says Elsa Larsen, president of My Wonderful Dog, a service dog training center in Portland, Maine. Larsen utilizes short, daily socialization and training sessions of two to three minutes each, a program most families can emulate.

“You can get a lot into two to three minutes,” says Larsen. Adding up the small increments of training time over the weeks and months makes the job appear larger than life, so she focuses on “eating the elephant” one piece at a time.

Larsen encourages owners to get their dogs out in public regularly, but to carefully manage the process. Proper socialization is not a free-for-all, she says.

Careful management

Jennings starts taking young puppies and adult shelter dogs to “easy places” to meet “easy people.” She defines easy places as quiet locations without crowds, such as banks, libraries, and malls in the morning. Easy people are sympathetic individuals who resemble the assistance dog trainers, or, for pet dogs, people who resemble family members.

The important part is to carefully observe the dog’s reaction to her experiences and environment, and adjust the process accordingly. Watch her body language for signs of stress such as tucking her tail, licking her lips, shaking, withdrawing, yawning, or losing focus. A little dog may respond with a fast heart rate – easy to detect if you are holding her. Start with short visits of no more than two to three minutes each.

Stop when the dog shows any indication of “too much too soon,” but don’t go home yet. Just return to a place where the dog felt comfortable, and allow the dog to regain her composure. Ask for one more “easy” interaction. Then go home. Jennings refers to this process as “habituating” a dog to different environments slowly and carefully, a critical step that family dog owners often neglect.

For instance, if your dog was fine when meeting adults outside the bank, but became agitated when children approached her, give her a quiet moment to rest, then encourage her to meet with a friendly adult or two, then stop for the day. This approach teaches the dog that exhibiting fearful or



A puppy in the St. Francis of Assisi Service Dog Foundation program gets accustomed to walking on a strange surface.

avoidance behaviors will not release her from a situation completely, but that she will have the opportunity to collect herself before continuing. Of course, lots of treats to reinforce steadiness are the order of the day.

Solid socialization arises from positive exposures to people, places, and other animals. "Negative socialization can do more damage than good," claims Kosch. The dogs learn to feel safe in lots of places, but planning and constantly adjusting the pace of the program to fit the dog are the keys.

After a couple of weeks, the trainers graduate their dogs to "hard places" and "hard people." Hard places include supermarket parking lots, city streets, and pet supply shops. Hard people are unlike any the dog has ever met before, and can include boisterous, active children; large, gruff men; heavily perfumed women; or the elderly. Repeat the process. Watch for signs of stress, and back up to the last point of success, if necessary. End on a positive note, with lots of treats. In about 15 trips, Jennings' dogs show confidence, even in moderately hard places and for more than a few moments.

Most family dogs don't receive this amount of managed socialization, with a concentration on positive-only experiences at a pace adjusted for the dog. Kosch reminds dog owners that it's the quality of the socialization, not just the socialization, that's important. Jennings adds, "Doing it right is a whole lot more important than doing it a lot."

Focus on you

One of the most noticeable qualities of good assistance dogs is their focus on their handlers, even in strange places. Family trainers can get the same attention from their dogs by using a few simple training techniques.

For instance, Ann Hogg, staff trainer at the St. Francis of Assisi Service Dog Foundation in southwestern Virginia, teaches dogs to make eye contact and sit as a way of asking for permission to interact with a stranger or to get his dinner bowl. All good things originate from an interaction with the handler.

Fully integrated in the family

Another reason that assistance dogs seem to be so bonded with their handlers is because they spend literally their entire days

and nights with their handlers. Completely integrating the assistance dog into the daily life of his adoptive handler allows the person to incorporate training into almost every hour of the dog's daily life.

Both Hogg and St. Francis training director Karen Hough agree that the effectiveness of the training, however, relies on consistency among all members of the dog's household. Hogg prepares a "vocabulary list" of training words to use with an assistance puppy, which she tapes on her refrigerator door. All of her family members use this specific vocabulary when they interact with the dog.

Hough is never without a treat in the presence of her assistance dog trainees and doesn't worry about fading out the treats over time. According to Larsen, treats are the one constant in an assistance dog's life, as he moves from breeder to puppy raiser to skills trainer to owner.

Time commitment

How much time does it take to perform all of this managed socialization and consistent training? Well, it depends how you look at it. At 3 to 5 minutes, a couple of times a day during early training, then adding 15 to 20 minutes a day when obedience and skills training begins, the commitment sounds reasonable, even for busy families.

However, Kosch warns against underestimating the time involved in raising a well-socialized dog, not only for teaching lessons, but also for planning the training program and monitoring its status. According to Larsen, it takes about 20 months to socialize and train an assistance dog. After the dog is placed with his new owner, it takes another year of work to develop into a close-knit, working team – a sizeable investment, to be sure, starting from day one.

Trainers encourage owners to watch their dogs throughout the day. If you do this, your time with your dog will be filled with on-the-spot training opportunities. 🐾

For information about any of the assistance dog programs mentioned, see "Resources," page 24.

Lorie Long is a freelance writer and agility competitor from Virginia. Her most recent article for WDJ was "Go With Glucosamine," August 2004.



Puppies from Blue Ridge Assistance Dogs' program meet volunteers.

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Just Kidney'n

The kidneys play many vital roles – but are often credited with just one.

BY RANDY KIDD, DVM, PHD

Put simply, the function of the kidneys is to make urine, a “waste” product of body metabolism. Of course, there is much more to the kidneys. They are powerful chemical factories that:

- Remove waste products, toxins, and drugs from the body
- Balance the body’s fluids and help maintain a constant body pH
- Release hormones that regulate blood pressure and control the production of red blood cells
- Produce an activated form of vitamin D that promotes strong, healthy bones

Anatomy and physiology

The two kidneys lie against the back abdominal wall, lateral to the spine, in the lumbar region. They are encapsulated organs, shaped somewhat like a kidney bean, and their size varies with the size of the dog.

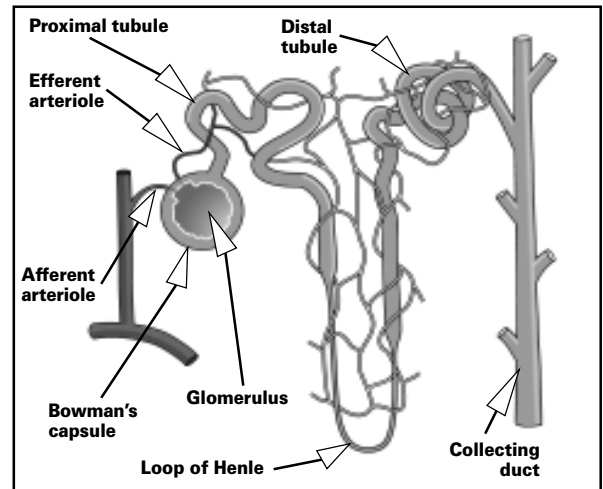
The functional unit of the kidney is the nephron. There are perhaps a million nephrons in each kidney, each one comprised of a glomerulus and a long tubule that eventually empties into the ureter. The glomerulus is a congregation of blood vessels contained

within Bowman’s capsule, and the glomeruli are located in the outer portion of each kidney (cortex). Blood is filtered as it passes through the kidney’s collection of glomeruli.

After **filtration** in the glomeruli, the resulting protein-free fluid is passed into a thin tubule. The proximal tubule descends into the medulla of the kidney and then makes a sharp U-turn (at the loop of Henle) to return into the cortex, where it empties into a collecting duct, eventually exiting via the ureter. The tubules are responsible for secretion of some substances (such as drugs and their by-products, uric acid, fatty acids, and bile salts) and reabsorption of a variety of other permeable solutes, among them glucose, amino acids, vitamins, minerals, urea, and some salts, notably sodium, chloride, and potassium. Urine passes into the bladder where it’s stored until it’s excreted via the urethra.

Blood pressure is controlled by a complex interplay of hormones. In response to decreased blood pressure (as a consequence of chronic congestive heart failure or CHF, for example) the kidneys release renin. This is a proteolytic enzyme that acts on liver-produced angiotensinogen, which is converted to angiotensin I and then to angiotensin II. Angiotensin II causes retention of sodium and water, in part through stimulation of the synthesis and release of aldosterone by the adrenal cortex. Angiotensin II also causes vasoconstriction, thus increasing vascular resistance.

Vasoconstriction and water retention place further stress on the already compromised heart muscles, and ultimately these conditions may also damage the kidney’s nephrons. Thus, angiotensin-converting enzyme (ACE) inhibitors are widely used



This is a microscopic view of a nephron, one of about a million of the filtering units of the kidneys. Blood enters the glomerulus via the afferent arteriole. Blood cells and most proteins exit via the efferent arteriole. Water, glucose, amino acids, and salts exit via the proximal tubule, and eventually are excreted as urine.

in treating CHF in dogs, and many practitioners include them for the treatment of kidney disease.

The maintenance of the body’s overall acid/base balance also relies on a complex mechanism that depends on adequate respiratory and digestive function as well as kidney mechanisms. The kidney’s role in keeping the body’s pH within a healthy range is related to balancing the potassium and hydrogen ion retention and depletion and is especially important during hypoxia (when the animal is not receiving enough oxygen, either from poor respiratory function and/or a diminished supply of red blood cells).

The kidney is both the sensor organ and **the major site for the production of erythropoietin, the hormone that regulates production of red blood cells.** Chronic renal failure is thus typically accompanied with a mild to moderate anemia.

Bone health is reliant upon healthy kidneys in at least two ways. First, vitamin D is necessary for the utilization of calcium, and the activated form of vitamin D is pro-

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WHAT YOU CAN DO . . .

- **Casually monitor the approximate color and amount of your dog’s urine. Major changes should be investigated at your veterinarian’s office.**
- **When giving a dog a vitamin supplement – especially if he is predisposed to kidney stones – have your vet check the pH of his urine to prevent further stone formation.**



For earliest detection of kidney problems, monitor your dog's daily water consumption and urine production.

duced in the kidney. Second, normal kidneys excrete phosphorous; chronic renal failure may lead to excessive retention of phosphorous, which in turn causes an imbalance between calcium and phosphorous.

Vitamin D must be metabolically activated (via hydroxylation in the liver and kidney) before it can function physiologically; the conversion in the kidneys is the rate-limiting step in vitamin D metabolism.

Occasionally the imbalance of calcium to phosphorous seen with increased retention of phosphorous may create a decreased amount of circulating calcium. Parathyroid gland hyperplasia occurs (to maintain serum calcium in normal ranges), and the resultant high parathyroid hormone (PTH) concentrations result in increased bone resorption, which ultimately creates **thinning of the bone**.

Note here that the major contributor to the softening of the bones is an *imbalance* between calcium and phosphorous levels in the body. Rarely, the opposite of the above condition (hypercalcemia) occurs with renal disease, but the pathogenesis of this condition is unknown. Note also that calcium metabolism is involved with bladder and kidney stone formation, which often makes for complicated therapeutic decisions whenever we need to treat kidney disease.

Notes about renal disease

Renal disease refers to the presence of morphologic or functional lesions in one or both kidneys, regardless of extent. Renal failure refers to the retention of nitrogenous waste products of protein metabolism, regardless of the cause. Renal insufficiency is a term that has been used to describe a state of reduced renal function that has not yet resulted

in retention of nitrogenous waste products.

Azotemia (from the Greek *azote*, meaning “nitrogen”) is defined as an excess of urea or other nitrogenous compounds in the blood. You may also hear the term “uremia” used to replace azotemia, but uremia has now come to refer to the entire constellation of signs and symptoms of chronic renal failure: nausea, vomiting, anorexia, uremic odor of breath, pruritus (itchy skin), neuromuscular disorders, pain and twitching of muscles, hypertension, edema, mental confusion, and acid-base and electrolyte imbalances.

Typical causes of azotemia are classified by their location: **prerenal**, from diminished blood flow into the kidneys; **post-renal**, usually due to a blockage of the “outflow vessels” (ureters or urethra); and **renal disease that can be caused by a lack of proper function of any of the components of the nephron** (the glomerulus or tubules), or it can be caused by conditions affecting the tissues between nephrons.

Finally, to help determine treatment, practitioners also like to know if the disease is acute or chronic, and if it appears to be progressive or nonprogressive.

Diagnosis of urinary disease

Noticeable symptoms and signs of urinary system disease will, of course, vary with the disease and its severity, but the following general symptoms should make you suspicious of urinary system disease.

Dysuria, that is, any abnormality of urination, including **polyuria** (passage of large amounts of urine in a given period), may be the animal's attempt to compensate for diminished functional capacity of the kidneys, and it is often associated with **polydipsia** or chronic excessive thirst.

Hematuria indicates the presence of blood in the urine and may be due to renal calculi, trauma, or destruction of the red blood cells within the body (this latter condition is more correctly referred to as hemoglobinuria). **Oliguria** (from the Greek *oligos*, meaning little or few) describes the secretion of a diminished amount of urine in relation to the fluid intake, and **stranguria** (from the Greek *stranx*, meaning “drop”) describes slow and painful discharge of urine, due to spasms of the urethra and bladder.

Anuria is defined as the complete suppression of urinary secretion by the kidneys. It is an emergency condition whenever urine flow has ceased, whether due to kidney shut

down (shock, for example) or blockage of the outflow vessels of the urinary tract (stones). See your veterinarian immediately.

If renal disease proceeds to chronic renal failure, uremia results, and (as mentioned above) uremia produces an entire constellation of signs and symptoms. Other symptoms, seemingly unrelated to the kidneys, may occur with chronic renal failure: pulmonary edema and coughing, bone conditions related to softening of the bony mass, heart conditions related to improper control of blood pressure, and symptoms related to anemia such as difficulty breathing, exercise intolerance, restlessness, etc.

Symptoms, even those that become evident when specific diagnostic aids such as urinalysis and blood chemistries are employed, may not occur until a very high percentage of the nephrons are not functioning properly. Perhaps as many as 70 percent or more may need to be dysfunctional before specific symptoms are detected.

Urinalysis

The primary diagnostic aid for kidney disease, a typical urinalysis includes the urine's specific gravity, its pH, and the presence of abnormal amounts of substances such as protein, glucose, and creatinine. Important findings in the urinary sediment include red or white blood cells, crystals, bacteria, or other organisms such as yeasts.

A functional kidney is able to concentrate (or dilute) urine to a specific gravity that is different from that of the blood plasma (circulating blood plasma has a specific gravity of 1.010 ± 2); kidney disease is diagnosed when the urine specific gravity remains at 1.010 ± 2 , regardless of the dog's state of hydration. Normal pH of the carnivorous animal's urine is acid (below pH of 7), and it typically becomes more basic with bacterial infections.

The consistent presence of glucose in the urine (glucosuria) indicates the likelihood of diabetes mellitus. The presence of cells or microorganisms in the sediment are indicators of infection or inflammation. Moderate amounts of protein in the urine signify that there is a “leak” in the glomerular filtration system, that the kidneys are unable to retain proteins in the bloodstream.

See “Urine Luck” (February 2004) for more information on urinalysis.

Blood tests

Blood chemistry tests can also help diagnose some urine system dysfunctions. Renal excretion of urea is accomplished by glom-

erular filtration. Urea is also reabsorbed passively in the renal tubules, which means that its blood levels will increase whenever there are slower tubular flow rates – during dehydration or blood volume depletion, for example. So, one important result of the blood chemistry test examines the blood urea nitrogen (BUN) levels.

Creatinine, a product of the normal metabolism of muscles, is excreted by the kidneys by glomerular filtration. Non-renal variables, such as excessive muscular activity, muscle necrosis, and possibly ingestion of a meal of cooked meats, may have a small and transient effect on the blood creatinine level, but it is still considered a good indicator for glomerular function.

Creatinine and BUN assays offer an indirect measurement of the glomerular filtration rate (GFR), which in turn is a good assessment for the overall functional capacity of the glomeruli.

Phosphorous retention results from declining function of the glomerulus, and blood phosphorous levels may be extremely high with chronic renal disease. Blood albumin levels may also be low due to inadequate retention of proteins, and the decreased levels of protein may lead to edema and/or malnourishment.

A mild anemia often occurs with severe kidney disease (due to improper production of erythropoietin). Elevated white cell counts may point to infections in the urinary tract. A complete blood count (CBC) can help detect these conditions.

Other diagnostic tests include abdominal X-rays, contrast studies of the urinary tract, ultrasonic exams of the kidneys and bladder, and renal biopsy. Some diseases (diabetes and CHF in particular) may predispose the dog to renal failure, so tests to rule these out may be needed.

See “Passing the Blood Test” (November 2003) for more information on blood chemistry analysis.

Prerenal conditions

These conditions result from reduced blood flow to the kidneys due to such causes as dehydration, congestive heart failure, or shock. They usually resolve completely with appropriate treatment, but they may also progress to renal disease and renal failure.

Renal conditions

Every practitioner will tell you that kidney disease is one of the most common entities seen in vet practices daily.

Acute renal failure usually occurs fol-

lowing a major insult to the kidneys. Potential causes include vascular conditions (such as disseminated intravascular coagulation or DIC), immune mediated conditions (such as lupus), renal infections, and ingestion of toxins (such as heavy metals, aminoglycoside antibiotics, painkillers, and ethylene glycol or antifreeze).

Once the instigating factor(s) is removed with specific therapy, and supportive therapy is instituted (for example, fluids to enhance flow through the nephrons), the kidney typically returns to its normal function. If the disease process is allowed to proceed for a few days to a few weeks, chronic renal disease may ensue.

Chronic renal failure (CRF) presents a far more complex and ever-evolving picture. Therapy often must be adapted to the individual case and its progress over time.

Basic principles of therapy include:

- Determination of the cause of the disease, if at all possible.
- Removal of potential toxins – including drugs that are known to be harmful to the kidneys.
- Restoration of blood flow through the glomeruli. Fluids, given sub-Q, IV, or

orally if possible, can be life-saving. Some dogs with CRF can manage a fairly good quality of life so long as fluids are administered on a routine basis – daily or several times a week.

- Dietary changes to help bring the body and the urinary system back into balance (see nutrition, below).
- Specific treatments to help counter the cause of the disease. Infections, for example, can be treated with antibiotics, herbs, acupuncture, or immune system-enhancing methods.

Primary glomerulopathies are uncommon in dogs. They are often due to an immune-mediated disease that ultimately creates the formation of immune complexes in the glomerular capillary wall. These immune complexes prevent normal glomerular functioning, and the dog is unable to retain protein. The primary symptoms are frequently due to the protein loss: weight loss, edema or ascites, dyspnea (difficulty breathing, due to pleural effusions or pulmonary edema), coagulation disorders, and proteinuria. Severe cases can result in renal failure and uremia.

Drugs are a prevalent cause of renal

Read the Package Insert

Whenever a drug is recommended for your dog, insist on receiving a copy of the drug insert. Your veterinarian should supply you with one, but if he or she does not, you can often find them on the drug manufacturer’s Web site. Sadly, recent studies indicate that almost none of the physicians surveyed looked at *any* drug inserts in the past year; they typically rely on the company reps to fill them in on all the particulars of the drug, including its potential for toxicities – a typical case of the fox guarding the henhouse. I would expect similar results to a survey of veterinarians.

I remember a phone call I once received from a vet who spent what seemed like a half hour hollering at me about “those damned herbs” I’d recommended for one of his clients. He didn’t know anything about them other than the fact that they were almost certainly illegal, illicit, and immoral, and without doubt should be regulated, blah, blah, blah. Evidently he thought that the herbs I had recommended were destroying his patient’s kidneys, because he had just received a blood chemistry report that indicated kidney failure.

When he came up for air, I tried to explain that none of the herbs I’d recommended had any known toxicities to the kidney, and that they had been proven safe on millions of patients . . . but that there is always the possibility for individual hypersensitivities. Then I asked him, “What have you been using to treat the dog?”

He seemed happy to inform me that for several weeks, he had been using an antibiotic – gentamicin – and that he had used the scientific method of culture and sensitivity to select it as the one most appropriate for the dog’s condition. What he failed to include in his continuing diatribe was that gentamicin is a well-known kidney toxin, and the package insert plainly explains this toxicity – and even recommends that renal function tests be performed on any patient being treated with it.

So, I asked him, “Doctor, have you ever read the package insert on gentamicin?” And he promptly hung up on me.

disease, and there are many that have been implicated. Aminoglycoside antibiotics are the second most common cause of acute renal disease in dogs (behind only antifreeze toxicity), and the frequency of toxicities seems to be increasing every year. Although their spectrum of toxic severity varies, *all* antibiotics in the aminoglycoside classification are nephrotoxic. Aminoglycoside antibiotics include neomycin, kanamycin, gentamicin, amikacin, and streptomycin.

Many painkillers (including nonsteroidal anti-inflammatory drugs or NSAIDs), chemotherapy agents, and many other drugs have been reported to be nephrotoxic. Some herbs have also been cited as potentially nephrotoxic, including wormwood (*Artemisia absinthium*); saffron (*Sassafras albidum*); horse chestnut (*Aesculus hippocastanum*); chaparral (*Larrea spp.*); and periwinkle (*Vinca minor*).

Bottom line: Ask about the potential renal toxicities for any drug or therapy your practitioner recommends.

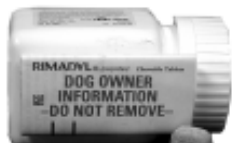
Postrenal conditions

There are several potential causes of partial or complete obstruction of the outflow vessels of the urinary tract, including tumors, enlarged prostate in the male dog, trauma that causes blood clots or eventual scarring, and uroliths or stones. Of these, stones are the most common.

Generalized symptoms of constriction of the urinary tract include nonproductive straining to urinate, increased frequency of urination (without an increased volume), and blood in the urine. Symptoms may be present for a period, followed by periods of apparently normal function.

Uroliths (also known as urinary calculi or stones) are crystalline concretions, found in the urinary tract, that contain mostly inorganic crystalloids, along with a small amount of organic matrix. Almost any mineral substance that passes through the kidneys could form one of these precipitates, and under favorable conditions, a hardened concretion could develop.

Stones are named according to the predominant crystal found within. The most common stones found in dogs are struvite and calcium oxalate. Typically, when a dog has uroliths, crystals are seen in urine sediment. Depending on the stone's size and mineral composition, X-rays can be used for detection; however, some uroliths don't



NSAIDs have their place, but you must read the package insert.

show up well on X-ray films. Laboratory analysis of the stones is needed to positive identify the minerals they contain.

Some breeds are predisposed to forming uroliths, and some breeds are especially prone to forming a specific type of urolith. For example, due to a genetic defect in uric acid metabolism, Dalmatians are predisposed to urate calculi formation.

With each type of urolith, there are predisposing factors that tend to precipitate the problem, and each of these factors is specific for the type of urolith formed. For example, oxalate crystals form in acidic urine, struvite crystals tend to form in alkaline urine. Check with your vet for these specifics, to help formulate a plan for treatment and prevention.

Symptoms vary with the location and the size of the urolith. They include frequent attempts to urinate, straining or inability to urinate, hematuria, overdistended bladder, or signs of uremia. Uroliths may also be totally or periodically asymptomatic. They often cause secondary irritation and result in infections.

Struvite is composed of magnesium ammonium phosphate, in varying ratios and degrees of purity. Struvite uroliths form in alkaline, concentrated urine, and there is a genetic predisposition for their formation. Medical management may be helpful and may even dissolve the stones. A medical protocol would include enhancing urine flow (diuresis along with plenty of water intake), production of acidic urine, and dietary means to reduce magnesium and phosphorous and (perhaps) to reduce protein. (For more on protein, see nutrition section, below.)

Calcium oxalate uroliths, in contrast, must be removed surgically, since attempts to dislodge them by nutritional means alone have not proven successful.

An **acute urinary obstruction** is an emergency condition that requires immediate care. Urine backup creates a toxic level of urea in the body which may, within hours, cause neurological signs and eventually lead to death. Your veterinarian may need to use anesthesia to pass a catheter to dislodge the stone(s) for immediate relief.

Other urinary tract diseases

Infections of the urinary tract include **cystitis** (infection of the bladder), **pyelonephritis** (kidney infection), and urethral infections. Infections can be caused

by a variety of microorganisms, and they are conventionally treated with antibiotics or alternatively with herbs or other methods.

Clinical symptoms include the list of urinary dysfunctions: hematuria, difficulty and increased frequency of urination, etc. Infections are usually easily diagnosed by examining the urine sediment for the presence of bacteria and/or blood cells. Culture and sensitivity can also be performed to determine the antibiotic of choice; herbal remedies typically have a broad range of activity, although their potency may not be quite as strong.

While symptoms of urinary infections or obstruction may wax and wane, depending on the degree of obstruction and/or the amount of irritation to the urinary tract, you can often predict an event by observing precursor symptoms such increased attempts to urinate (with poor results), straining to urinate, or blood-stained urine.

At the onset of these symptoms, I've had excellent results with dandelion root (*Taraxacum officinale*) and Oregon grape root (*Berberis aquifolium*), perhaps along with echinacea (*Echinacea spp.*) to enhance the immune system. Of course, make sure the dog drinks plenty of water and continues to be able to urinate freely. Dandelion acts as a diuretic and Oregon grape root has antibiotic activity; the combination is often enough to ward off further development of disease while we try to correct the problem nutritionally or with other medications.

There are two problems of the urinary tract – **urinary incontinence** and conditions of the **prostate** – that deserve more discussion, but since they are more related to the reproductive tract, I'll cover them in the next installation of the Tour of the Dog.

The urinary system is also affected with a long list of **physical anomalies**, many of which have a familial tendency. Included in this list are renal dysplasia and hypoplasia, renal agenesis, polycystic kidneys, renal cysts, and some of the glomerulopathies.

Neoplastic diseases also occur along the length of the urinary tract, and their diagnosis and treatment are the same as for neoplasias affecting other sites.

Western and other therapies

Western medical therapies for treating urinary system diseases are aimed at the following: removing or discontinuing instigating factors (infections, for example, or nephrotoxic drugs); improving hydration so that urine flow through the tract is optimal; providing nutritional support that minimizes

stress to the kidney while it helps return the body back to balance; and using specific medications that apply to the ongoing condition of the patient.

Alternative medicines can be helpful for treating many of the common conditions that affect the urinary system. Alternative medicines may prove even more beneficial for maintaining a balance of the “extra” functions of the kidney – the functions that help the animal maintain homeostasis.

“Alternative” or “holistic” practitioners will try to create the same benefits that their Western colleagues expect, typically by using a more natural approach – with home-prepared foods rather than commercial “prescription” diets, as one example. A holistic practitioner will also likely employ one of the alternative methods to try to re-establish homeostasis.

Nutrition will likely be the mainstay for the holistic practitioner treating renal disease. Holistic treatments will vary according to individual patient needs and will likely change as the healing process progresses.

Nutrition

Nutritional approaches to treating urinary tract diseases are fairly common now, especially since the dog food companies have seen the potential for increased sales. It’s important to remember that each type of urinary tract disease requires an individualized nutritional approach. With this in

mind, there are some basics that may help you when you devise a diet for your dog.

It is important to maintain fluid flow through the kidney, so the dog’s diet should either be moist or should encourage drinking lots of water. Some diets include salt to enhance thirst, but salt encourages fluid retention, which is not good for the heart.

Excess phosphorous may speed the progression of renal conditions. Low-phosphorus diets are difficult to formulate, so most commercial foods contain “phosphorous binders” – substances that contain ingredients that remove phosphorous from the blood.

Some diets or therapeutic regimes use potassium citrate, an alkalinizing agent that helps maintain potassium levels in the body and helps with the management of calcium oxalate uroliths.

Antioxidants (such as Omega-3 and -6 fatty acids) can speed the repair of renal damage from disease. Vitamins A, C, and E can be used for their antioxidant effects, but these vitamins *can* affect the pH of the dog’s urine. If your dog has a history of or predisposition to stones, work with your vet to monitor the pH of the dog’s urine when you feed these supplements. B vitamin supplements can be beneficial, especially if diuretics are used to enhance urine flow.

One of the most controversial topics in canine nutrition has to do with proteins in the diet of kidney-compromised dogs. Stud-

ies have produced conflicting results. In years past, we thought that we helped compromised kidney function by providing a low-protein diet. Not all current research supports this, however. Recent studies indicate that a low-protein diet (less than about 10 percent) may actually be detrimental when treating kidney disease.

What seems to be the consensus now is that a diet moderately high in protein (30 to 35 percent), provided in *high quality*, readily assimilated proteins, is most supportive for long-term care of the kidney-compromised dog.

What none of the studies shows is what most interests a holistic practitioner: How much “vitality” is contained in the food. Processed foods have almost no healthy “energy.” Raw, home-prepared foods have the dietary vitality that dogs evolved with, foods that retain their natural capacity to provide overall health and vigor. I have no scientific data to support this, but my guess is that an unprocessed diet that approximates the high protein diet of the wild canine will ultimately prove to be the best one for preventing renal disease.

(Editor’s note: WDJ will publish an article on diets for kidney-compromised dogs in a few months.)

Herbal therapies

The list of herbs that may be helpful for aiding urinary problems is extensive. For

Traditional Chinese Medicine: Another View of the Urinary System

Perhaps the most fascinating of the alternative ways to view the urinary system comes from the beliefs of Traditional Chinese Medicine (TCM). In TCM thinking, the kidneys store the *Jing*, the substance most closely associated with life itself.

While all this may sound a mite esoteric, further evaluation of how TCM views the kidneys seems to follow our own Western medicine concepts. For example, the Chinese say that the kidneys “rule the bone.” Insufficient Kidney *Jing* may result in soft bones – a condition that can occur when diseased kidneys allow for an excess of circulating phosphorous, resulting in a softening of the bones.

In TCM, the kidneys are considered to be responsible for producing bone marrow, the source of red blood cells. In the language of Western medicine, the kidney produces a hormone that is directly responsible for enhancing red cell production.

In the East the kidneys are also associated with fear and fright. Great fear can make Kidney *Qi* descend, even to the point of causing a dog (or person) to lose control of urination – something that most of us have seen in a frightened or nervous puppy.

I’m fascinated by the correlations between medical theories. Especially impressive to me is that the Chinese derived these

concepts some 4,000 or 5,000 years ago, about the time we Westerners were deciding whether we should come out of our caves.

There are other Chinese concepts that don’t correlate as well with our Western models (perhaps we need to be more assiduous in our observations), but these concepts have proven to be beneficial when using acupuncture to treat animals.

For example, TCM says that the Kidneys open into the ear. Hearing loss (especially poor hearing in the elderly, which is thought to be a consequence of weakened Kidney *Jing*) may benefit from acupuncture along the Kidney Meridian. Additionally, since the Kidneys rule the “grasping of *Qi*,” proper breathing depends on kidney health; disharmony of the kidneys may produce respiratory problems, especially chronic asthma – a condition treated by balancing the Kidney Meridian.

Chinese medicine ties the “yin” Kidney Meridian and its functions into the “yang” Bladder Meridian. Treatment for many urinary tract diseases will use one or both of these meridians.

You can simulate some of this activity simply by massaging along the appropriate meridians. See “Resources,” page 24, for books that will help you locate and massage the Kidney and Bladder Meridians.

starters, many herbs are diuretic, with a range of activity varying from slight to profound. Most conditions of the urinary tract benefit from an increased flow of urine, so almost any herb will be helpful in this regard. Further herbal selection depends on the specific condition – for example, one herb that has been used to treat kidney stones is bearberry or uva-ursi (*Arctostaphylos uva-ursi*).

My favorite herbal combination for non-specific urinary tract conditions, especially the recurring types that may be related to low grade infections, are dandelion root and Oregon grape root.

Go, team!

As I consider the various and sundry functions of the urinary system and how to best keep all its aspects healthy and functioning and in accord with other body systems, I can't help but think that this is a prime example where a team approach may be the most beneficial.

To be most effective, we need the diagnostic acumen of Western medicine, the services of a good, holistic dietitian (to help us provide the best balance by using whole foods), and an herbalist who is well informed on potential kidney toxicities as well as the benefits of the herbs.

Finally, to provide the most beneficial treatment for a specific kidney disease, there will be occasions when Western medicine is simply more prudent and better than any of the alternatives available. 🐾

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"ON TRIAL" CONTINUED FROM PAGE 6

Metabolic studies require a dog to be kept, for a minimum of five days, in a cage with a slatted metal floor. This floor allows the lab staff to collect every bit of the dogs' urine and feces for analysis. The total amount of metabolizable energy in the food can then be determined by tracking the dog's food intake to calculate the gross energy consumed and subtracting the energy in the waste products.

Life in a lab

Now for the bad news. PETA is right about one thing: Life in a cage sucks for any animal. This is not quite the same thing as saying life in a cage is inherently cruel. But dogs are pack animals, and a solitary existence, devoid of physical contact with other dogs or other enrichment or socialization does not meet what we would consider a required minimum mental health standard.

And, while any individual feeding trial is just six months, and metabolic studies are just five days in duration, the "time served" by most lab dogs is at least several times those numbers. This is because labs tend to use the same animals over and over again in back-to-back trials. Lab directors defend this recycling, saying it's surely better to reuse a small population of dogs for a lifetime of trials than to subject a larger number of dogs to just one or a few of the tests.

The good news is that dogs in feeding trials don't *have* to live in cages. They *can* be kept in runs that have access to fresh air and time outdoors, in compatible groups or pairs, and have opportunities to participate in social playtime. Of course, as any kennel operator knows, this sort of facility is far more expensive to staff and maintain. Only pet food makers that really care about its

test subjects (or at least, the opinions of consumers) will allocate the extra money for their test dogs to live in an adequately enriched and pleasant environment.

Under pressure from consumers – which can be at least partly attributed to PETA's media campaign – both the pet food companies and the contract labs they sometimes use are beginning to discuss and consider improving the living conditions for the dogs in their feeding trials.

There have been a number of articles in *Pet Food Industry* about the industry's need to improve the welfare of its test subjects. Several pet food industry conventions have presented speakers who made recommendations for lab animal socialization and enrichment programs. And most major pet food makers have published (or made available upon request) a description of their test animal welfare programs and goals.

Reform still needed

Unfortunately, this is not to suggest that everything is fine, now. Even the companies that advertise that they provide the very best living quarters, enrichment programs, and provisions for retirement or adoption of their old test dogs don't invite confirmation of their claims.

For example, one contract lab, Summit Ridge Farms in Pennsylvania, has taken out ads and sent press releases to pet food industry publications, announcing the construction of a huge "puppy playground" and other innovations constituting "the beginning of a long-term environmental enrichment expansion" at its facility. A press release published in *Pet Food Industry* quoted Mike Panasevich, president of the company, as saying, "We are extremely

happy and proud of our facility and the enrichment programs currently in place."

However, this same executive wouldn't return our repeated calls or e-mail messages to discuss these positive developments with us – not what you'd expect from someone who had genuine innovations to show off.

This opaqueness makes it appear that the industry still has a lot to hide. And, unfortunately, PETA's infiltration of a contract lab has now afforded the entire industry with a convenient excuse to hide its work, citing security risks.

Throwing down a gauntlet

It seems to us that it would be in the best interests of pet food companies and contract labs to keep their test subjects as happy and comfortable as possible. We imagine this would help the foods produce and maintain health in the test dogs, so the products pass with flying colors.

But the companies would also be wise to do the right thing by their test animals as a marketing technique. For our part, we'd be thrilled to promote a pet food made by a company that could and *would* prove that its labs provide the best possible living conditions for its test subjects, with comfortable living quarters, plenty of socialization and exercise, and attentive veterinary and behavioral care.

One would think that a policy of openness and full disclosure at a facility that was truly doing everything right for the test dogs and cats would be a fantastic selling point for a pet food maker. But we haven't found a company that's willing (or able?) to take that challenge. 🐾

Nancy Kerns is WDJ's editor.



product news and reviews

- MAR '05 – Gluten-Free Diets
- FEB '05 – Head Halter or Front-Clip Harness? • Annual Dry Food Review
- JAN '05 – Skip This Peanut Butter
- DEC '04 – Best Canned Foods • Aromatherapy Products • Gear of the Year
- NOV '04 – Anesthesia-Free Teeth Cleaning
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- AUG '04 – Identification Microchips • De-Skunking Treatments
- JULY '04 – Dog Food Pre-Mixes • “Light” Flea Traps
- JUNE '04 – Sweet Treats • Yucca Root Supplements
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BOOKS

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

The Encyclopedia of Natural Pet Care and *Natural Remedies for Dogs and Cats*, by WDJ contributor CJ Puotinen, are available from DogWise, (800) 776-2665 or dogwise.com. Puotinen is also author of several books about human health including *Natural Relief from Aches and Pains*, available from your favorite bookseller.

TRAINING AND INSTRUCTION

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

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

HOLISTIC VETERINARIANS

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

TCM INFO FOR KIDNEYS

The following books can help you locate and massage the Kidney and Bladder Meridians: *Four Paws, Five Directions*, by Dr. Cheryl Schwartz; *Veterinary Acupuncture*, by Dr. Allen Schoen, and *The Well Connected Dog: A Guide to Canine Acupressure*, by Nancy Zidonis and Amy Snow. Available from DogWise (dogwise.com or 800-776-2665) or your local bookseller.

ASSISTANCE DOG TRAINING

Blue Ridge Assistance Dogs, Manassas, VA
blueridgeassistancedogs.org; (703) 369-5878

Assistance Dogs of America, Swanton, OH
adaai.org; (419) 825-3622

My Wonderful Dog, Portland, ME
wonderfuldogs.org; (207) 780-9792

National Education for Assistance Dogs Services, Boston, MA. neads.org; (978) 422-9064

St. Francis of Assisi Service Dog Foundation, Roanoke, VA. saintfrancisdogs.org; (540) 342-DOGS

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