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The Whole



Dog Journal™

A monthly guide to natural dog care and training

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When All Dogs Were Good

A trip down memory lane sparks reflection.

BY NANCY KERNS

Recently I had the pleasure of driving with a couple of friends through the rural area where I grew up. Short of time and daylight, we made just two stops – one at an art gallery, and one at the end of the driveway of a friend who was not home. Curiously, at both stops, my friends and I were greeted by exceedingly friendly and – I couldn't help but notice – collarless dogs.

The dog at the first stop was a puppy, almost an adolescent. He belonged to the young woman who was staffing the art gallery – and who wasn't terribly quick to chase after him as he galloped out the open door of the gallery and greeted us as we got out of my car. A Pit-mix, the puppy seemed confident and sociable, without any of the overweening cockiness that sometimes foreshadows aggression.

We parked outside the gates of my friend's ranch at our next stop, so we could pet his horses over the fence. As we took in the rural scene, a red female dog trotted down the hill from a neighboring farm, tail wagging furiously. Another mixed-breed, this dog was incredibly affectionate without being overexuberant. When my friend kneeled down to pet her, she gently jumped up and placed her paws on my friend's shoulders, licked her face, and then rested her chin on my friend's head, eyes squinting in joy. (I had to take a picture; check this dog out.)

After we drove away, watching in the mirrors to make sure that our new friend wasn't following my car (she didn't even



hint that she might, but turned back to her home), it struck me that both dogs we met reminded me of the dogs I grew up with, just a mile or two down the road.

Our dogs, like all our neighbors' dogs, were not trained, per se; didn't all have collars; ran loose most of the time; and died in sadly high numbers on the road. There were also far too many of them. Most people didn't spay and neuter, and we had lots of mixed-breed dogs. (When our Lab-mix, Donny, had 10 puppies, and someone asked my mom what kind they were, she answered semi-seriously, "Well, there are four half-Sams, and six half-Buddys.")

But the dogs of my youth were also amazingly friendly and well-adjusted. I never heard of a kid getting bitten, and despite the number of intact males and females around, I don't even remember any dog fights. Separation anxiety? Obsessive/compulsive disorder? Sudden rage syndrome? Are you kidding?

Believe me, I'm not condoning a return to the days when every dog reproduced and every other dog died under the wheels of a car. But sometimes it seems to me that despite all of our educated efforts to breed, raise, and train healthy, genial, biddable canine companions, today's dogs are more prone to behavior problems than the dogs of my youth. Have I romanticized the past? Or is there actually something good for dogs in a freedom-filled environment of (admittedly irresponsible) semi-neglect? I don't have the answer, but looking at the Mona Lisa smile on the face of that red dog in my picture, I can't help but think she does.

NK

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

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Hot Shots

You should decide whether your dog needs that vaccination.

BY NANCY KERNS

Most dog owners are responsible and understand the importance of protecting their companions from preventable disease. That's surely what motivated the dozens of people I observed standing in a long line with their dogs and puppies at a low-cost vaccination clinic offered in a local pet supply store.

In addition to vaccinations, the veterinary business running the clinic also offers flea and tick treatments, heartworm tests and preventive medication, and identification microchip implanting, so at the head of the line, a young man in a white coat and holding a clipboard asked each client what she wants for her pet. Dozens of times, I heard an owner say something like, "Well, we just got him, so I want to get whatever shots he needs." It was a tense moment for me every time I heard this, since I was aware that the clinic had available for sale far more vaccines than the dogs and puppies standing in line were likely to "need."

No universal protocol

Many dog owners are surprised to learn that there is no single, universally accepted canine vaccination schedule. Most trust their veterinarians to give their dogs whatever vaccinations the vet recommends – and many vets recommend more vaccinations than most dogs require in order to be protected from contagious disease.

This can probably only rarely be accurately attributed to opportunism on the part of the vet. Most vets use the vaccination schedules they receive with the vaccinations they buy from drug companies.

Historically, this was a sound choice. For decades after the first veterinary vaccines were developed, veterinarians and government regulators alike trusted the companies that studied, developed, and manufactured the lifesaving vaccines to recommend appropriate schedules for their use. Today, though, they are realizing their trust of the vaccine makers may have been slightly over-extended for a decade or two.

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WHAT YOU CAN DO . . .

- **Understand that annual vaccination does not improve immunity, but it does significantly increase the risk for adverse reactions.**
- **Take your dog to the vet for an annual health examination.**
- **Use vaccine titer tests annually to determine whether your dog's antibody levels are high enough to convey adequate "protection" from the "core" diseases.**
- **Ask your vet to suggest a vaccination schedule tailored for your dog, taking into account the actual risks in your area.**



Which vaccines should your dog receive? It is your responsibility to determine the real risks of the diseases they are supposed to defend your dog against, and weigh the potential benefits of vaccination against the potential harm.

You see, vaccine makers are in the business of selling vaccines. So it follows that most of them recommend that their vaccines be administered annually – despite the fact that independent studies have shown that many vaccines convey immunity from disease for many years, if not the lifetime of the dog.

In a policy statement about vaccines, the American Veterinary Medication Association (AVMA) acknowledges, "The one-year revaccination frequency recommendation found on many vaccine labels is based on historical precedent and United States Department of Agriculture regulation, not on scientific data. Even in those cases where scientific data was submitted to qualify the label claim, the data generated does not resolve the question about average or maximum duration of immunity."

For a long time, the few experts who re-

alized dogs may receive far more vaccines than they needed were not particularly worried. "It can't hurt 'em!" But in the late 1980s, as medical science learned exponentially more about the immune system, proof began to turn up that repeated vaccinations *could* have deleterious effects on companion animals.

Today we know that adverse events may be associated with the disease antigen, the adjuvant (an agent added to increase or aid the effect of the antigen), carrier substance, preservative, or a combination of any of these. The AVMA vaccination policy statement says "Possible adverse events include failure to immunize, anaphylaxis, immunosuppression, autoimmune disorders, transient infections, and/or long-term infected carrier states."

To their credit, when vaccines can be directly linked to specific, reproducible injuries or illnesses, the vaccine makers (and regulators) leap to study the problem, as in the case of vaccination site-associated feline sarcoma. Unfortunately, the problems experienced by dogs that many practitioners and researchers suspect may be linked to overvaccination are all over the map. Some

suspect excessive vaccines are linked to the increased incidences of many diseases, including cancer, epilepsy, severe allergies, thyroiditis, autoimmune hemolytic anemia, Addison's disease, and even behavioral problems such as aggression.

Get information

Fortunately, educated owners can do a number of things to make sure that their dogs are adequately protected against disease, without overvaccinating.

There are canine vaccines for more than two dozen diseases, with many vaccines available in combinations with others. Very few dogs are at risk for all or even most of the diseases. So the first step is to learn about the diseases the vaccines are designed to defend your dog against.

Before agreeing to any vaccination, ask your vet about the disease it prevents. What is its incidence? How is it transmitted? Is it more prevalent in some climates or parts of the country than others? Is the disease treatable, and if so, how many dogs recover? Then you can extrapolate the answers to your dog and locale.

If you learn that the disease kills many

dogs who contract it, and the virus is everywhere, well, you probably authorize that vaccine, right? But if you lived in a city apartment with a Papillon who didn't so much as visit parks, a vaccination for a tick-borne disease like Lyme is really not needed.

Today, most veterinarians discuss vaccines in terms of "core" versus "non-core" products. Core vaccines are those that can protect your dog from the diseases that are widely distributed in your part of the country, virulent, and highly infectious. Think of them as the vaccines with the highest benefit to risk ratio. Non-core vaccines are those that are intended for a minority of dogs in special circumstances. They may target diseases that are of limited risk in your area, or those that present only a low-level threat to your dog's health.

"Core" vaccines

These are the vaccines for diseases that *most* experts agree puppies and dogs should be protected against – diseases that are highly contagious and potentially fatal.

Ronald D. Schultz, PhD, is department chairperson and a professor at the School of Veterinary Medicine, University of Wisconsin in Madison. He's also one of the country's leading experts on veterinary vaccines, having performed research for or with literally every veterinary vaccine company in the U.S. We'll use Dr. Schultz's list of "core" vaccines for dogs:

- Canine parvovirus type 2 (CPV-2)
- Canine distemper virus (CDV)
- Canine adenovirus type 2 (CAV-2)
- Rabies virus (RV)

For what people commonly refer to as "puppy shots," many veterinarians use a combination vaccine that contains antigens for distemper, hepatitis, leptospirosis, parainfluenza, and parvo (referred to by its initials, DHLPP). If you are concerned about overvaccination, ask your veterinarian if she can vaccinate your puppy against just parvo, distemper, and adenovirus (the rabies vaccine is usually given separately later, after the puppy is 16 weeks old). A vet *can* purchase and use individual vaccines, but she may have to buy them in bulk, and won't be happy about it if you are the only one in her practice who wants them.

Most experts agree that puppies should be vaccinated against distemper, parvo, and

Titer Tests: A Terrific Tool

The term "titer" refers to the strength or concentration of a substance in a solution. When testing vaccine titers in dogs, a veterinarian takes a blood sample from a dog and has the blood tested for the presence and strength of the dog's immunological response to a viral disease. If the blood contains satisfactory levels of vaccine titers, the dog is considered sufficiently immune to the disease, or possessing good "immunologic memory," and not in need of further vaccination against the disease at that time.

Titer tests do not distinguish between the immunity generated by vaccination and that generated by natural exposure to disease agents. A dog may have developed immunity to a viral disease by receiving a vaccine against the disease, by being exposed to the disease in the natural environment and conquering it (sometimes without having demonstrated any symptoms of exposure to the disease), or by a combination of the two.

Therefore, titer tests really measure both the "priming of the pump" that comes from vaccines, and the immunity resulting from natural exposure to disease during a dog's lifetime. Only an indoor dog who has been totally sequestered from the natural environment is likely to have developed all of his immunity from vaccinations.

By "titering" annually, a dog owner can assess whether her dog's immune response has fallen below adequate levels. In that event, owners can administer appropriate core vaccines, or non-core vaccines that are of special value to a dog at special risk of a certain disease.

Experts suggest ordering vaccine titer tests only for parvovirus and distemper; it's not necessary to test titer levels for every disease. Measuring the titers for those two core vaccines can offer the dog owner a reliable picture of the dog's immunological status as well as the competence of the dog's immune system. If he has developed adequate antibody levels to those two vaccines, the odds are very good that he has developed adequate antibody levels to any vaccines he has been given.

adenovirus, not before six weeks, and at least once after the age of 12 weeks; the rabies vaccine is given after 16 weeks. About two weeks after the last vaccination with distemper, parvo, and adenovirus, ask for a vaccine titer test to confirm your puppy has been successfully immunized (see “Titer Tests: A Terrific Tool,” page 4).

“Non-core” vaccines

Then there are the non-core vaccines. Some (including Dr. Schultz) refer to all the other vaccines that are available as non-core, suggesting that these be given only to dogs that need them, and only as often as needed. For these vaccines, the ratio of benefits to drawbacks is less weighted toward the benefits – at least for most dogs.

A good example is leptospirosis. The duration of the immunity typically conveyed by the lepto vaccine is generally less than one year, so to convey optimal protection from this disease, it must be given at least twice a year, every year. Also, the vaccine used must contain all four strains of the disease that are currently available to vaccine makers, because the strains do not provide cross-protection. Lepto poses a very minimal risk in many regions of the U.S. And where it *is* more common, there have been recent reports of new strains emerging, for which there are no vaccines yet.

All of this suggests that administering the vaccine would benefit only those dogs living in an area with a current, high rate of infection – and only if they are properly vaccinated at frequent intervals with all the available strains.

“Not recommended” vaccines

Some experts classify some vaccines in a third category of “not recommended.” These would include any vaccine for which they perceive to be no realistic benefit.

For example, there is now a vaccine against giardia, which is a protozoan intestinal organism that dogs may be exposed to when drinking out of ponds or streams. Many veterinarians feel that despite the marketing efforts behind the vaccine, giardiasis poses little risk to most dogs.

Many experts also doubt the usefulness of the coronavirus vaccine. According to Dr. Schultz, “To date, no one can demonstrate a benefit for coronavirus vaccine.”

Other vaccination tips

When they learn that overvaccination may be harmful to their dogs, many people ask, “Why would my veterinarian suggest doing

Opposed to All Vaccines?

You may have heard about owners or breeders who avoid having their dogs vaccinated altogether, or some who use a very minimal vaccination protocol, out of concern for the unknown effects that vaccines may have on their dogs’ immune systems and long-term health.

Be aware that this strategy should never be casual. People who take this step consciously and responsibly take *other* actions to ensure their dogs are protected from disease. For example, they may vaccinate one puppy in a litter, in hopes that the virus he sheds actually infects his littermates and builds their immunity (see “Protection From Parvovirus,” WDJ June 2002). Then they use titer tests to verify whether the strategy worked.

You should also be aware that skipping a rabies vaccine could have legal consequences. Every state requires dogs and cats to be vaccinated against rabies; some states require the vaccination annually; in others, the requirement is every three years. And to protect public health, if your dog bites someone and does not have proof of a current rabies vaccine, at a minimum, he will be quarantined. Check with your local animal control officers to learn more.

If you decline to have your dog vaccinated, especially against the core diseases, it is incumbent on you to take alternative steps to protect your dog. Make sure you know *all* about the diseases your veterinarian recommends vaccinating against so you can actively avoid exposing your dog to high-risk environments, are alert to the signs of disease, and ready to take fast action to treat a dog who exhibits early signs of an illness. Make sure you establish a relationship with a veterinarian who is comfortable with and will support your protocol; if your dog does end up contracting a core disease, you will need veterinary care, conventional and complementary, to pull your dog through.

something that could hurt my dog?” The fact is, information about the potential risks of overvaccination is fairly new. Veterinary colleges, the AVMA, and the American Animal Hospital Association (AAHA) have changed their suggested vaccination schedules in only the past few years.

A few final vaccination tips:

■ **Use vaccine titer tests** to determine whether your dog is adequately immunized against the core diseases. (For more detailed information, see “Taking the Titer Test,” WDJ December 2002).

■ **Don’t rely on low-cost clinics for your dog’s vaccinations.** These clinics exist to sell vaccines, not to provide full care or detailed advice. They cannot provide the full hands-on exam that your dog should receive at least once a year, and may not take the time to determine whether a vaccination is contraindicated for your dog.

Instead, establish a relationship with a veterinarian who will take the time to examine your dog, ask about his health history, answer questions about the benefits and risks of various vaccines, and recommend an individualized vaccination protocol for your dog that takes your dog’s health, his lifestyle, and his environment into

account.

■ **Do take your dog to your veterinarian at least once a year.** A thorough annual (or better yet, semiannual) health examination and annual titer test is the best way to find problems early, before they are difficult and costly to treat. Your veterinarian can also help you develop a sound preventive health program to keep your dog vital to the very end of a long, happy life.

■ **Vaccinations are contraindicated for dogs who are not healthy.** Do not vaccinate dogs who suffer from chronic or acute health problems, running a high temperature, or who have a history of vaccine reactions. This sounds simple, but many times people go to the vet for an injury, say, an abscess or to remove an embedded foxtail, and the vet notices the dog is “overdue” for vaccinations. The dog is currently battling a local infection! Do not have him vaccinated at that time.

■ **Don’t vaccinate elderly dogs.** If your dog has been vaccinated many times in his younger years, he is probably as well immunized against disease as he will ever be. Plus, his exposure to disease decreases as he ages and travels and exercises less. *Nancy Kerns is Editor of WDJ.*

Oh, Baby!

Expecting a child? Don't wait until she arrives to work with your dog.

BY PAT MILLER

Children have never been a consideration for me, and since neither my husband nor I have children of our own, I'm also not likely to have grandbabies visiting. So why should I care whether my dogs are good with children or not?

Because children exist.

Wherever you go in today's world, there are likely to be young humans. Unless you plan to keep your dog cloistered in your own home, shut away when friends with children visit, you need to help her be comfortable with children. Your dog's very life could depend on it.

At one time, our culture was far more tolerant of dog bites than it is today. When I was a kid, if a dog bit a child, Mom's response was, "So, what did you do to Nipper to make him bite you?" Children were expected to learn how to respect a dog's space,



If your adult dog was not well-socialized to babies and children when *she* was a puppy, start preparing her to live with a baby as soon as you know you are pregnant.

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WHAT YOU CAN DO . . .

- **Enlist the help of friends with children and neighborhood children to socialize your pup during his optimum socialization period up to the age of 14 weeks and beyond.**
- **Find locations (vet's office? groomer's?) where there will be sympathetic, dog-friendly folks willing to help you with remedial socialization for your adult dog.**
- **Make preparations for your new baby well in advance so the experience is as positive and stress-free for your dog as possible.**

and if Johnnie acquired a few nicks from a dog's teeth in the process, so be it. Today, one bite, even a minor nip, can be a death sentence for a dog. Of course, in the "old" days, Mom and Dad didn't risk losing their homeowner's insurance over a minor dog bite or two, either.

According to statistics from the Centers for Disease Control in Atlanta, Georgia, children are the most frequent victims of dog bites in this country. That's no accident. From a dog's perspective, babies and children are weird, unpredictable, noisy, move erratically, make long, hard, direct eye contact, often cause pain, and don't respond appropriately to a dog's appeasement, deference, or self-defense signals.

Since most children aren't allowed to learn by experience that when a dog stiffens, growls, and curls his lip, the next thing that usually happens is a snap or bite, kids tend to be oblivious to the various levels and intensities of a dog's warning signals.

No wonder dogs perceive children as threatening!

Veterinary behaviorist Dr. Ian Dunbar, of Berkeley, California, tells audiences at every opportunity that the best insurance against future dog bites to humans, young *and* old, is puppy socialization. If it's too late for puppy socialization, it's not too late to start playing catch-up with remedial socialization. If you already have a baby, are planning to have one soon, have distant plans for children or, like me, don't ever intend to have human puppies, now's the time to start your personal kid-bite insurance program.

Puppy socialization time

Many young couples acquire a puppy early in the relationship, long before the advent of the first baby. The puppy is a surrogate child, and the couple dotes on him – taking him everywhere, allowing him to sleep on the furniture, even share the marriage bed.

For several years the dog enjoys his status as an only child. The couple tends to socialize with other childless adults, and the dog rarely sees human babies. Then the couple decides it is time to have a baby. Now they have a problem.

Puppies go through a critical learning period in the first few months of their lives. During this time, usually between the ages of four weeks and four months, they learn which things in the world are safe and rewarding, which ones are painful and dangerous and should be avoided, and which have no consequence. Anything not experienced during this critical period tends to automatically fall into the “dangerous” category.

This is an important survival tool for wild animals; if they don’t know for sure that something is harmless, it’s safest for them to behave as though it’s not. Herein lies the problem. If a puppy doesn’t learn that children are “safe and rewarding” during those critical months, he’s likely to assume that they are a threat.

This assumption is often supported by the behavior of many of the children that a dog meets. Human puppies poke fingers into canine ears, prod them with pencils, hit them over the head with wooden blocks, and pull fur in sensitive places. They stare directly into a dog’s eyes (a direct stare is a threat in the canine world). They compete for food, toys, and the attention of grownups. They move erratically – running, tripping, falling, swinging their arms around – and make weird noises. If you stop and think about it, it’s a miracle that dogs tolerate kids at all!

In a perfect world, *every* new puppy would be thoroughly socialized to babies, toddlers, and children while she was in her critical learning period. Unfortunately, many vets recommend that their clients wrap their puppies in cotton wool and keep them strictly at home until they have been fully vaccinated – which won’t occur until weeks after the critical learning period.

It’s vitally important that your puppy have positive experiences with the big wide world during her first four months, long before she’s fully vaccinated. The good news is that you can do this without going against your vet’s recommendation or exposing your puppy to life-threatening diseases. Here’s how:

Invite lots of people – including babies and children, vaccinated healthy puppies, and vaccinated, healthy, *friendly* dogs – over to your house for puppy parties. Give everyone handfuls of really yummy treats to

feed to the puppy. (Tell everyone the puppy has to sit to get her treats and you’ll also be teaching her not to jump up on people at the same time.) Monitor your pup’s interactions with children to be sure they are all positive. Have children of all ages feed your puppy lots of treats and she’ll quickly decide that kids are a good thing, not dangerous.

You can also take your puppy out into the community to safe, canine-friendly locations. Don’t go to busy dog parks and turn her loose to play, but do take her with you to places such as a well-run puppy kindergarten class, where you can monitor her interactions with kids and prevent her exposure to potential disease threats. Teach her that the world, especially the small humans of the world, are a source of pleasure and reward, and you greatly reduce the risk of “Dog Mauls Toddler” headlines in your dog’s future.

Adult dog/kid conditioning

Maybe it’s too late to socialize your dog to babies and children during her critical learning period. That stage of her life has long passed. Is it too late to teach her to live with children? Not necessarily. It’s more difficult, but not impossible.

If your dog’s experiences with children up until now have been neutral and she’s otherwise well-socialized, seek out gentle children and have them feed her treats. Watch her closely. If she seems cheerful and happy, continue to find opportunities for her to have positive experiences with kids.

If your dog is tense or nervous with children, take it more slowly. Let her see babies and kids at a distance, and *you* feed her treats. Select a very special treat, like steak or chicken, and feed it to her only in the presence of children and babies. When she notices a child in the distance, steak starts



If Dad plans to walk the dog while pushing the stroller, have him practice walking with an empty stroller long before he tries it with Baby on board. That way, he can concentrate on the dog, making a positive outcome far more likely.

raining from the heavens – tiny tidbits, non-stop. When the child leaves, the flood of steak stops. Every time a child appears, the steak starts. When the child leaves, the steak stops. You want your dog to think that children and babies, and *only* children and babies, make steak happen.

When your dog looks at you happily for her steak when she sees a child in the distance, you know she’s starting to perceive children as reliable predictors of steak. Your goal is to convince her to like them close up as well, through the continued association with really wonderful food.

Gradually move closer to the children, repeating the exercise, always watching your dog’s body language to be sure she’s comfortable.

This is critical: *Never* punish your dog for showing signs of discomfort or even aggression, such as growling, when children are around. The growl is a critically important warning sign. It’s your dog’s way of telling us she’s not comfortable around kids. If you punish her, she may learn to suppress the warning sign, making her far more likely to bite a child one day, severely and **without warning**.

Think about it: **You can't punish your dog into loving children!** You have to use positive conditioning and reinforcement to convince her that kids are good to have around.

The older your dog is, the longer she's been uncomfortable around children, and the stronger her response to them is, the longer this process (known as counter-conditioning and desensitization or CC&D) will take.

Of course, you'll always supervise her around children, even if she loves them. If your dog is merely tolerant of children, you'll have to supervise much more closely. If she's truly uncomfortable with them, you'll need to confine her in a safe place where children aren't permitted, such as her crate in your bedroom, whenever you cannot actively supervise their interactions.

When baby makes four

When a baby – and eventually a child – is coming to live at your house, your task is more daunting, *and* more vitally important. As soon as you know Baby's on the way, start helping your dog get ready.

Whatever changes are going to occur in her routine should happen long before Baby arrives, so she won't associate them with

the arrival of the new family member. Ideally, you'll keep her as much of a full-fledged member of the family as she is now, finding ways to incorporate her presence into your daily baby-routine rather than excluding her.

Here are some suggestions for helping the baby's introduction to the family positive for your dog:

■ **The nursery:** If this is now the dog's room, don't wait until the final countdown to repaint and restrict her access to it. Redecorate as far in advance as possible. Put a soft cushion for your dog in one corner of the room and teach her a "Go to your bed" exercise. Whenever you're puttering in the nursery, reinforce her with treats for lying there quietly. You can give her a food-stuffed Kong there. When you're not in the room, use a baby gate across the doorway to keep your dog out.

■ **Restricted access:** If you plan to restrict your dog's access to other rooms after the baby is born, do it now, using baby gates and closed doors, and positive reinforcement to reward her for staying in approved areas. Try to allow her access to as much of the home as possible.

■ **Your dog's routine:** Anticipate any changes in your routine that will change your dog's. If Mom walks her three times a day and Dad will be taking over dog-walking for a while, start making that switch now. If Dad will become your dog's primary caretaker, have him assume those duties as soon as possible. Plan to include Baby's presence in as many of your dog's activities as possible, so she thinks Baby makes all the fun stuff happen.

If you intend to hire a pet-sitter to provide some dog care, integrate him or her into the routine several months before Baby arrives. If Mom plans to walk the dog while pushing the stroller, practice this while Mom is still active and agile, so she can figure out the logistics of managing leash, dog, and stroller without tipping Baby onto the sidewalk. In fact, if your dog doesn't already have good leash manners, start immediately by standing still when she pulls on the leash and consistently rewarding her for walking with you (see "Loosen Up," WDJ November 2000).

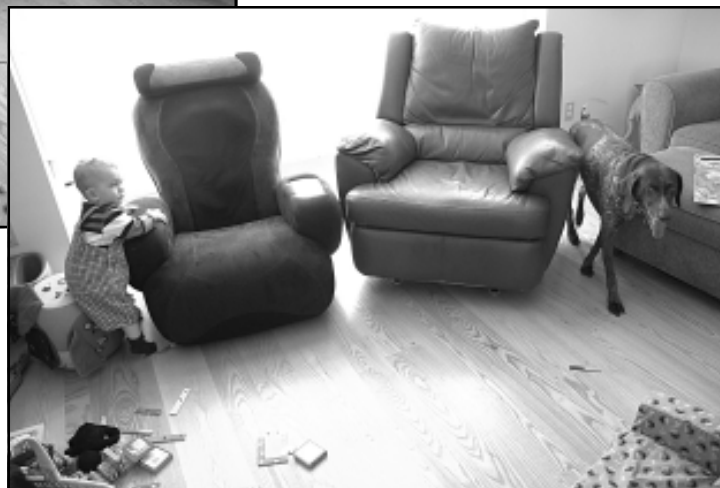
■ **Greetings:** If your dog hasn't already learned how to greet people politely, give yourself several months to teach and reinforce polite greetings. Reward her with treats and attention for sitting in front of you. If she jumps up, turn your back and step away from her. Be consistent! If you sometimes reward her for jumping up, she won't understand that it's inappropriate to jump up when Mom or Dad's arms are full of Baby.

■ **Doorways:** If your dog doesn't already know how to wait before going through a door, there's no time like now to teach her (see "Wait a Bit, Stay a While," May 2001). You don't want her to knock over a pregnant



Make sure your dog has a "safe place" she can go to escape a baby or toddler when she needs time to herself.

Before Ezra could walk, Sally would squeeze between or jump over the chairs when she needed time to herself. As Ezra matures and Sally grows more comfortable around him, she has turned her refuge-seeking into a (parentally supervised) game of "catch me if you can." Always staying just out of his reach, she and Ezra will do a dozen laps of the circuit around the chairs at a time. If Ezra wanders away, Sally approaches and lick the toddler to reengage him!



Mom as she comes and goes, and you certainly don't want to worry about chasing an escaped dog down the street while Baby lies unattended on his blanket on the living room floor.

■ **Stairways:** If you have stairs in your home, your dog may think it's a great game to charge up and down them at your side. It's much safer for your babe-in-arms – or for the very pregnant Mom – to either have the dog wait at the top or send her down the stairs ahead of you. Start this routine now, making it a fun, positive game. You can toss a treat or toy down the stairs for her and have her wait there until you join her, or ask her to “Wait” until you get to the bottom and then invite her to “Come on down!”

■ **Leave it:** Teach your dog a positive “leave it” cue so she'll happily respond (and be rewarded for it) when you ask her to stop kissing the baby, or to drop the pacifier that will inevitably fall on the floor (see “Off Limits,” January 2002).

■ **Escape route:** Before you know it, Baby will be crawling around after your dog on the floor. Even dogs who love kids need a getaway plan. Provide your dog with an escape route, such as a low barrier she can jump over or an elevated surface she can jump on so she can escape from Baby's grasp when she's had enough. Show your dog how to use it, and practice until she's skilled at the maneuver. Dogs who are cornered by small tormenters without a way to escape may feel compelled to bite in self-defense.

Homecoming

When Baby arrives, your dog will be excited to see Mom after she's been away. The day before Mom and Baby come home, have Dad bring home a blanket that's been wrapped around Baby, to pick up his scent. Show the blanket to your dog. Let her sniff it, and feed her yummy treats. Then put the blanket in her bed. When Baby comes home the next day, his scent will already be familiar to your dog.



No matter how well they get along, you must actively supervise your children and dogs when they are together. Dogs can get scared or hurt by even a small child, and reflexively take defensive action.

When you all get home, have Dad hold Baby outside while Mom goes in to greet your dog. If the dog forgets her polite greeting manners in her excitement, she won't hurt Baby, and she won't get yelled at. You don't want her first introduction to Baby to be negative! *Then* have Dad come in with Baby, while Mom has treats ready to reward the dog for greeting Dad and the human puppy nicely.

Rather than banishing the dog to the backyard while everyone settles in, encourage her to lie calmly on her rug, or if necessary, use a tether to keep her out of the midst of chaos until things calm down (see “Tethered to Success,” April 2001). Have Mom sit on the sofa with Baby while Dad rewards the dog's good behavior on her rug with treats, praise, and a Kong stuffed with irresistible goodies.

If you've done your homework well, your dog will soon love Baby as much as you do, and you'll have successfully set the stage for a long and happy relationship between your dog and your child. 🐾

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.

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Not So Fast

Chronic kidney disease doesn't happen overnight; seek another diagnosis.

BY CJ PUOTINEN

This is a quiz. When a laboratory test performed on your dog's blood shows elevated blood urea nitrogen (BUN) and creatinine levels that indicate kidney problems, the most likely cause is:

- A) chronic renal failure (CRF)
- B) a bacterial infection
- C) a tick-borne disease
- D) an endocrine imbalance
- E) a urinary tract infection

If you guessed A, you're not alone. For many conventional veterinarians, this one's a no-brainer. When BUN and creatinine levels are higher than normal, many American vets assume the cause is chronic renal failure (CRF), and often all they prescribe is a low-protein dog food (see "When to Say No to Low Protein," WDJ May 2005).

But the patient may not have chronic renal failure at all. Instead, a bacterial in-

fection like leptospirosis, a tick-borne disease like ehrlichiosis, an endocrine imbalance like Addison's or Cushing's disease, or a urinary tract infection may cause the elevated readings.

If that's the case, time is of the essence. Your dog may need medical treatment **RIGHT NOW**, and every moment you lose to a misdiagnosis can cost him his life.

"Dogs that suddenly go into kidney failure may have an acute disease that is curable," says San Francisco Bay Area canine health researcher Mary Straus. "I hear over and over again about dogs being diagnosed with chronic kidney failure and given nothing but a bag of k/d to take home when in fact they had a serious but treatable illness that caused elevated kidney values. If these dogs had been diagnosed early enough, their veterinarians could have given them appropriate treatment, and their lives might have been saved."

The Whole  Dog Journal™

WHAT YOU CAN DO . . .

- **If your dog suddenly develops symptoms of kidney disease, look for the cause instead of assuming chronic renal failure.**
- **Blood work abnormalities (in addition to elevated creatinine and/or BUN) may be clues. Discuss them with your vet.**
- **Mention all of your dog's abnormal behavior and health to your vet; any clue might further a correct diagnosis.**
- **Get a second opinion or see a specialist if needed.**



Napoleon, a Miniature Dachshund puppy, was misdiagnosed with chronic renal failure. After his owner insisted on a test for a tick-borne disease, Napoleon was correctly diagnosed and successfully treated for ehrlichiosis.

Acute renal failure

Unlike chronic renal failure, which is a progressive illness that can take years to develop, acute renal failure is a crisis involving the sudden loss of kidney function. It can be caused by a number of health disorders, such as infection, toxins or chemicals (including many medications), and any illness that damages the kidneys or interferes with kidney function.

The most common cause of acute renal failure is exposure to a toxin, such as anti-freeze, rat poison, certain antibiotics, heavy metals, nonsteroidal anti-inflammatory drugs (NSAIDs), or ingesting large amounts of grapes or raisins.

Be sure to report any such exposure, or the possibility of exposure, to your veterinarian. The fast and accurate identification of a toxin your dog ingested can make the difference between life and death. It is also important to consider all drugs that your dog

is currently taking, and check the package inserts to see if renal failure is a possible side effect. "Some dogs on NSAIDs develop symptoms of kidney failure without their vets realizing that the drugs should be stopped," says Straus.

Bacterial infection, such as from leptospirosis, can also cause acute renal failure. This type of infection will not show up on a urinalysis or urine culture. But it's still a good idea to do a urinalysis and culture for all dogs with elevated creatinine and BUN levels, says Straus.

"Urinary tract infection can cause elevated kidney values if the infection ascends into the kidneys," she says. "Infections are also common in dogs with chronic renal failure. A urine culture should be done to rule out infection, as approximately 20 percent of urinary tract infections will not show up on a urinalysis alone.

"Any time a dog, especially one that's young or middle-aged, becomes acutely ill or suddenly develops signs of kidney failure, you have to look for the cause. It can be something the dog may have gotten into, a drug he's taking, a simple infection, or an unsuspected illness. It probably isn't chronic renal failure, as the symptoms of that disease develop slowly."

It might be leptospirosis

In the fall of 2003, Texas resident Lew Olson's 15-month-old Rottweiler, Bean, became listless, lost his appetite, urinated often, and had a constant craving for water.

"I took him for routine tests, which included a complete blood panel and urinalysis," Olson says. "Because Bean already had kidney problems, as soon as the tests showed that his kidney values were suddenly quite high, our veterinarian assumed that he would soon die from chronic renal failure and that nothing could be done to save him."

Luckily for Bean, Olson refused to accept this diagnosis. While she searched frantically for answers, Bean began to dehydrate. He lay curled in a ball and had a slight fever. "That's when we started IV fluid therapy," she says. "We also ran a series of lab tests that included a tick disease panel and fungal panels. All came back negative."

Olson searched the Internet for any illness she could find that matched her dog's symptoms. "One thing started popping up over and over, and that was leptospirosis. However, all the sites I found talked about elevated liver enzymes, which did not show up on Bean's blood panel results."



Leptospirosis was once called "lamp-post disease" because dogs contracted it through contact (sniffing) the urine of an infected dog. Recently, new strains of the disease have appeared – strains that may not be detected by standard tests.

Then eight-year-old Striker, another of her 16 Rottweilers, became sick with the same symptoms. "I went back to researching leptospirosis and found that there are nine different strains, two of which do not affect the liver but have a delayed reaction in attacking the kidneys."

Olson quickly asked for blood titer tests for leptospirosis. "The test takes several days," she says, "so we went ahead and started both dogs on penicillin, which is the treatment of choice for leptospirosis. We also continued the IV therapy, as keeping an affected dog hydrated is paramount in treatment."

Both Bean and Striker tested positive for leptospirosis. "My veterinarian was shocked," Olson says, "but I was relieved to know that we now had a diagnosis and a protocol for treatment."

Olson posted her dogs' story online to help others understand leptospirosis. "Most veterinarians are familiar with the two most common forms of this disease," she explains, "but the newer strains are often missed and simply seen as CRF."

Olson receives e-mail messages every week from people whose dogs are diagnosed with CRF but show symptoms suggesting leptospirosis. "At least 50 percent of these dogs test positive for leptospirosis," she says, "and many are saved. Lepto is becoming an epidemic, but few veterinarians recognize it or call it anything other than CRF. I know of cases in almost every part

of the United States and some in Canada. It's a shame because of all the illnesses that are confused with chronic renal failure, leptospirosis is the easiest to treat if it's caught in time."

Leptospirosis is spread by squirrels, rats, and other wild and domestic animals, usually through contact with infected urine. One strain, *Leptospira canicola*, used to be called "lamp-post disease" because city dogs, especially males, were said to infect themselves by sniffing around lamp posts soaked with the urine of infected dogs.

Dogs can also be exposed by drinking stagnant water containing infected urine or through close contact with an infected animal. Males, because of their personal habits, and dogs with immune system disorders are most at risk. Surprisingly, younger dogs are more likely to be infected than older dogs, though dogs of all ages and either sex can get the disease.

Leptospirosis is most common in the spring and fall or any rainy season. *Leptospira* bacteria cannot survive when temperatures are below freezing or above about 80°F. The incubation period is 4 to 12 days.

Symptoms vary depending on the infected animal's age and condition as well as the strain involved. Leptospirosis can generate fever, dehydration, loss of appetite, vomiting, thirst, rapid weight loss, fetid breath, red eyes, tenderness or pain in the

abdomen or joints, lack of energy, and depression. Some strains produce elevated liver enzymes and possibly symptoms of jaundice. Progressive kidney failure accompanies the infection, but kidney function can return to normal soon after recovery. Severe leptospiremia produces fevers up to 104° to 105°F, shivering, shock, and death.

Because the leptospirosis titer test is time-consuming and may not be accurate, especially during initial infection, most experts recommend immediately treating the disease based on its symptoms and verifying the diagnosis when results are available. Most dogs show some but not all of the symptoms listed above. Some show only increased drinking and urination, combined with low urine specific gravity. Because leptospirosis is far more common than most people and vets realize, whenever symptoms of kidney disease develop suddenly, presumptive treatment for leptospirosis may be a good idea.

Treatment includes intravenous fluids to prevent dehydration and keep the kidneys functioning well. Both of Lew Olson's dogs were on IV therapy for five to seven days. Penicillin is generally recommended for three weeks, followed by two to three weeks of doxycycline, an antibiotic that stops infecting bacteria from being shed and transmitted in the dog's urine.

Leptospirosis vaccines are available, but they do not cover all strains, and protection only lasts a few months. Even recently vaccinated dogs can become infected with leptospirosis.

It might be ehrlichiosis

Last winter in Washington, DC, Amy Mall's four-year-old mixed breed, Louie, started showing minor symptoms.

"One was that he needed to go out a little earlier in the morning," Mall recalls. "I completely ignored this. Then he started getting very picky about food. This was a 75-pound powerhouse who ate everything in sight. I called my vet and said he was acting finicky, and she said to just keep trying new things, and if he wouldn't eat anything at all to bring him in.

"One morning I saw him shivering, and I took him to the vet straight away. She did blood tests and called me to say his kidneys were failing. She sold me a bag of k/d dog food and said there was nothing else to do for him. Luckily, she also said that if I really wanted to, I could go see a specialist."

The next day, the specialist put Louie on antibiotics and tested him for possible

illnesses. The test for ehrlichia, a tick-borne infection, came back positive.

"I wish the first vet had known that picky eating was a possible symptom," says Mall, "or asked me if I had noticed any other changes, like his needing to go out earlier in the morning. I kick myself for not being more assertive, but I just didn't know. I'm lucky to have access to a specialist, but I think most of my vet's clients would have just taken the k/d and watched their dogs die. Unfortunately, my dog died, too, as I did not catch the ehrlichia early enough."

Courtney Alieksaites of Dallas, Texas, was more fortunate. Last November, her Miniature Dachshund puppy, Napoleon, developed a high fever and was hunched over in pain. "He was diagnosed with a fever of unknown origin, treated with antibiotics, and kept on intravenous fluids for three days," she says. "Finally, the fever broke, and he got better."

In February, the same symptoms returned, though less severely. When Napoleon arrived at the clinic, a new veterinarian reviewed his chart and on the basis of previous blood tests prescribed a low-protein food.

"I was trying to make sense of this," says Alieksaites, "so I went online and started asking questions. When I described Napoleon's symptoms, several people suggested that we have him tested for ehrlichia. The test came back positive. I'm so glad I persevered and looked for answers that went beyond chronic renal failure and k/d dog food. We go to a different clinic now, and since Napoleon was treated for ehrlichia, he's been back to his favorite activities, which are eating all his favorite foods and snuggling on my pillow."

Of the diseases transmitted by tick bites, ehrlichiosis is the most likely to be confused with chronic renal failure. It is caused by *Ehrlichia*, a member of the *rickettsiaceae* family of organisms similar to bacteria. Dogs can become infected with several species of *Ehrlichia*, but *E. canis* is the most common and causes the most severe illness.

The disease was not well understood until ehrlichiosis infected hundreds of military dogs returning from Vietnam, giving it the names "tracker dog disease" and "tropi-

cal canine pancytopenia." German Shepherd Dogs and Doberman Pinschers seem particularly vulnerable. Dogs testing positive for *E. canis* have been identified throughout the U.S., with most concentrated where the brown dog tick is common, such as in the Southwest and along the Gulf coast.



Four-year-old Louis succumbed to ehrlichiosis. Initially diagnosed with kidney disease, he received treatment for the tick-borne disease too late to save his life.

Eight to 20 days after a bite from an infecting tick, a dog experiences the acute phase of ehrlichiosis, which produces fever, swollen lymph nodes, breathing problems, weight loss, bleeding disorders, and in some cases, neurological disturbances. Symptoms can be obvious or so mild that they go unnoticed. This phase usually lasts two to four weeks.

In the subclinical phase of infection, the organism remains present without causing obvious symptoms. If their immune systems are strong enough, dogs may be able to keep the organism in check for months or years before stress, illness, or treatment with steroids weakens the immune system, allowing the infection to become active again. When that happens, dogs enter the chronic stage of infection.

Mild chronic ehrlichiosis causes weight loss and indistinct, elusive indications of illness. Severe chronic ehrlichiosis causes anemia, decreased platelets resulting in bleeding episodes, limping or lameness, eye hemorrhage, neurological problems, swollen legs, severe weight loss, and, eventually, bone marrow failure, an inability to manufacture the blood cells needed to sustain life.

Ehrlichiosis is difficult to diagnose in its earliest stages because antibody tests typically come back negative. It takes the immune system two to three weeks to respond and develop antibodies, which is why

a diagnosis made soon after a tick bite can't be confirmed until the test is repeated weeks later. When tick disease is suspected, presumptive treatment to see if the dog improves can confirm that the treatment is appropriate.

Dogs experiencing severe anemia or bleeding problems may require a blood transfusion. Doxycycline is the drug of treatment, but another tetracycline drug may be used for dogs unable to tolerate doxycycline. Conservative treatment lasts for 10 to 30 days, but veterinarians working in the field prefer to treat with 5 mg doxycycline per pound of body weight every 12 hours for two months, as this protocol results in fewer recurrences of the disease.

"It is very dangerous to give steroids to a dog with tick disease," says Mary Straus, "because steroids suppress the immune system and make the dog more vulnerable to the infection. Steroids are sometimes used when immune mediated hemolytic anemia is present, but they must be given concurrently with antibiotics. If a dog develops symptoms of kidney disease following any treatment with corticosteroids, tick disease should be suspected."

Because tick-borne diseases imitate many illnesses, it's a good idea to test for them whenever treatment for what seems to be the causative factor is ineffective.

It might be Addison's disease

Two years ago, a three-year-old Nova Scotia Duck Tolling Retriever belonging to William Smith in California (names have been changed) showed elevated BUN on routine blood work.

Two months earlier, Dux's diet had been switched from commercial food to a home-prepared raw diet. Smith was told to reduce the diet's protein levels, which he did, but Dux began to experience lethargy, loss of appetite, severe weight loss, and, eventually, vomiting. Repeat blood work showed even higher BUN, along with elevated phosphorus and potassium.

Dux was treated by three veterinarians, all of whom disapproved of his diet. "The holistic vet said to add more vegetables to his food so that he wouldn't eat so much protein," says Smith. "The conventional veterinarian didn't like the raw diet at all and blamed Dux's elevated BUN count on his new food. The third vet said to stay with conventional Western medicine until his condition stabilized."

But what was Dux's condition? Only after Smith pushed for a definite diagnosis

and insisted on an ACTH Stimulation test, based on Dux's elevated potassium and low sodium/potassium ratio, did he learn that his dog had Addison's disease, not chronic renal failure.

In canine Addison's disease (hypoadrenocorticism), the dog's adrenal glands produce too little cortisol. Its main symptoms include loss of appetite, weight loss, lack of energy, weakness, vomiting, diarrhea, and dehydration. Some cases involve blood in the stool or vomit, excessive thirst or urination, hair loss, and shaking or tremors. Most dogs show only some of these symptoms, which may come and go over time. Eventually, the dog may collapse in shock with what is called an Addisonian crisis, which is fatal without treatment.

An estimated 70 to 85 percent of dogs with canine Addison's Disease are female, and most are between four and seven years old. Great Danes, Labrador Retrievers, Nova Scotia Duck Tolling Retrievers, Portuguese Water Spaniels, Rottweilers, Standard Poodles, West Highland White Terriers, and Wheaten Terriers seem to be affected more than other breeds. However, dogs of either sex and of all breeds and ages can develop Addison's disease.

Addison's is treated with hormone medication that supplies what the adrenal glands can no longer produce.

It might be Cushing's disease

Canine Cushing's disease, or hyperadrenocorticism, is often mistaken for the aging process because it usually occurs in older dogs who lose their hair, gain weight, urinate in the house, and seem to experience neurological changes.

Cushing's disease is the opposite of Addison's, for here the body produces too much cortisol. The underlying cause is usually a pituitary or adrenal tumor, although veterinary treatment with steroid drugs can cause similar symptoms.

The average canine Cushing's patient is

10 years old and spayed or neutered. While all breeds are at risk, Poodles, Beagles, Boston Terriers, Boxers, Cocker Spaniels, Dachshunds, German Shepherd Dogs, Golden Retrievers, Labrador Retrievers, Australian Shepherds, and small Terriers are most susceptible.

Increased or excessive water consumption and urination, urinary accidents in house-trained dogs, increased or excessive appetite, a sagging or bloated appearance, lethargy, hind-leg weakness, excessive panting, hair loss or a dull, dry coat, and easily damaged skin are a few of the most common symptoms. Treatment depends on the underlying cause of the illness as well as the patient's overall health.

It might be nothing at all

Some dogs are diagnosed with kidney disease based on nothing other than a slightly elevated BUN. Mildly elevated BUN can be caused by a recent meal or by minor dehydration. If your dog's creatinine and urine specific gravity are normal, your dog does not have kidney disease. It is best to do blood work after fasting your dog for at least 12 hours and to test urine specific gravity with the first catch of the day for accurate results.

Any unusual blood test results can be frightening, but knowledge is power. Learning about leptospirosis, ehrlichiosis, Addison's disease, Cushing's disease, and urinary tract infections can help you notice and keep track of important symptoms, ask the right questions, request the right tests, avoid misdiagnosis, and obtain the right treatment to keep your best friend happy and healthy for years to come. 🐾

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). See "Resources," page 24 for information.

For More Information

Mary Straus – dogaware.com
K9Nutrition online forum: <http://groups.yahoo.com/group/K9Nutrition>

Lew Olson – b-naturals.com; leptospirosis article: b-naturals.com/Feb2005.php

Jasper's Canine Tick-Borne Disease Information Page
<http://users2.ev1.net/~vintage/tick.htm>

Addison's Disease – k9addisons.com

Cushing's Disease – veterinarypartner.com

Girl Talk

Anatomy and physiology of the female dog's reproductive system.

BY RANDY KIDD, DVM, PHD

The female dog's reproductive system is the "nest" that nurtures a simple union of two single cells into a weave of billions of intercommunicating cells, which then form into organ systems and ultimately unify into the whole organism we call "dog." We're talking about the act of creation, the production of entire litters of living, breathing, best friends of mankind. It's an amazing, powerful, complex system. And as with the male dog's reproductive system, very small alterations in the balance of any one of the female functions involved with reproduction can produce profound results throughout her body.

Anatomy and physiology of the female dog

The **vaginal vestibule**, a short entryway into the vagina, is oriented at a 60-degree angle to the horizontal (upward, toward the spine, and forward, toward the head). Thus, to pass a speculum or catheter into the vagina requires that it be initially oriented at this upward angle, and if a female needs assistance expelling a puppy from the pelvic canal, best results are obtained when gen-

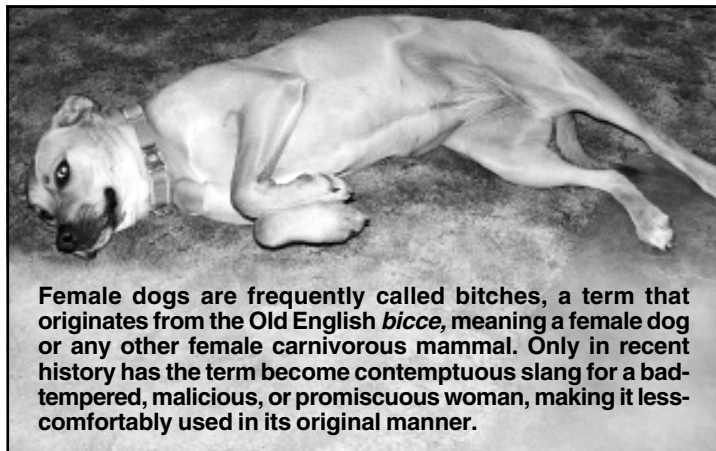
tly pulling in this mostly-downward direction.

Just cranial to the vestibule lies the **vagina**, which is oriented horizontally in the standing female. The vagina terminates at the cervix, an organ that separates the vagina from the uterus, which is a Y-shaped organ in the bitch. In a normal pregnancy one or more fetuses will develop in each of the uterine horns.

Each horn of the uterus terminates in a tortuous uterine tube (**oviduct**), which then expands into a bursa that completely enfolds the **ovary**. The ovary is the site for production of the ovum and a variety of hormones including the estrogenic compounds (primarily estradiol-17 Beta) and progesterone; other hormones, including testosterone, are also produced in the ovary.

In last month's article on the male dog reproductive system ("All Male Review"), we discussed the vomeronasal organ and its ability to sense the sex-related pheromones that are emitted by an animal in heat. The vomeronasal organ in most species (including the human species) is composed of two short tubes with tiny, slit-like openings into the nares, tucked away just below the floor of the nose. They are processing centers for pheromones.

Females also have the vomeronasal organ, and while pheromones don't seem to have the profound driving effect that they have on the male of the species, they are still an important component of the breeding cycle. In many species the females in the herd or colony will come into heat only in the presence of a male (or in the presence of something that is redolent with his



Female dogs are frequently called bitches, a term that originates from the Old English *bicce*, meaning a female dog or any other female carnivorous mammal. Only in recent history has the term become contemptuous slang for a bad-tempered, malicious, or promiscuous woman, making it less-comfortably used in its original manner.

male odor). Some bitches will not display any outward signs of heat until a male dog, along with his male pheromones, is actually present.

The ovarian or estrus cycle

The dog reaches sexual maturity at from 5 to 24 months of age – earlier in smaller breeds; later in larger breeds. Dogs are what is termed unseasonally monestrous, meaning that their heat cycle is an isolated event that occurs at any time of the year.

While traditional lore has it that bitches tend to cycle in the spring and fall, actual observations have indicated that for most breeds heat cycles occur randomly throughout the year. The time between cycles varies with the individual from 3 ½ to 13 months, and the estrus cycle lasts from 2-21 days (6 to 12 days on average).

Proestrus and estrus are stages of obvious sexual activity. Estrus (from the Greek *oistros*, meaning mad, frenzied, any vehement desire), is defined as the period of sexual receptivity in female mammals, and proestrus is the period of heightened follicular activity prior to estrus.

The dog's ovarian cycle is divided into four phases – anestrus, proestrus, estrus, and diestrus. For breeding purposes there are various ways to interpret the changes that occur during these different phases, includ-

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WHAT YOU CAN DO . . .

- **Make sure that your intact female is examined at least yearly for mammary tumors.**
- **Don't rely on neutering alone to prevent or stop all behavior problems in a male dog.**
- **Ask your holistic vet about giving your spayed female an herbal supplement that contains estrogenic steroid precursors.**

ing monitoring blood hormone levels, microscopically observing vaginal cells, visualizing the vaginal cell walls with an endoscope, and observation of behavioral characteristics.

A dog breeder would refer to the combined two stages of proestrus and estrus as “heat” or “season,” with the first day of heat being the first day of proestrus, the last day of heat being the last day of estrus. A horse or cow breeder would use the term “heat” to mean only the period of sexual receptivity or estrus.

■ **Anestrus** (65 to 281 days, mean 150.3 days). Anestrus is the quiescent period of the reproductive cycle, behaviorally characterized by sexual inactivity. Microscopic, endoscopic, and hormonal evaluations all reflect a general lack of activity.

While there may be hormonal changes during anestrus, these changes are not consistent among individuals. The hormonal concentrations – especially of leutenizing hormone (LH) – often surge in episodic fashion, creating peaks and valleys of blood level concentrations throughout anestrus.

■ **Proestrus** (6 to 11 days, mean 9.1 days). This phase is the period when the bitch is sexually attractive yet rejects the male’s ad-

Human vs. Dog Cycles

In the dog, proestrus is marked by bleeding, but it should be remembered that this bleeding is not the same as menstruation that occurs in humans and some other primates.

Human menstruation is a discharge of blood and mucosal tissues from the non-pregnant uterus; it occurs periodically (about every four weeks). Ovulation in the human female occurs about midway between menstrual cycles. Thus bleeding in the human and the dog occur at almost exactly opposite times during the ovarian cycle.



vances. Behavioral clues for this stage are often indistinct, however, and most folks mark the first day of proestrus at the time when a vaginal discharge appears that is yellowish or straw colored, or tinged with pink or red (serosanguineous).

During this phase of the cycle, the vulva gradually enlarges and becomes quite edematous and firm by the last third of proestrus. Vaginal discharge and vulvar swelling are both variable, and observers may miss them completely, especially if the female frequently licks and cleans her vulva throughout all stages of her cycle. Signs of estrus and proestrus are often indistinct and

especially difficult to detect in young females.

Microscopic examination of vaginal cells at this stage will reveal red blood cells along with a gradual increase in cornified epithelial cells, until they are the predominant cell at about one or two days before the actual serum estradiol peak.

■ **Estrus** (7 to 9 days, mean 10.4 days). *Behavioral* estrus begins when the female allows the male to mount and stands with her tail cocked to the side (flags) when he attempts intromission (insertion). Estrus ends with her refusal of the male’s advances. Ovulation usually occurs about the 11th day of heat (day 2 of estrus).

At ovulation, vaginal epithelial cells are almost totally cornified (hardened), so successive microscopic evaluations of slides taken from vaginal swabs are a fairly accurate way to predict the time of ovulation.

During estrus, endoscopic examination of the vagina by an experienced evaluator may also be helpful for pinpointing the time of ovulation. It is important to realize, however, that an examiner can’t tell early estrus from late estrus from a single cellular cytology or vaginal endoscopic exam; sequential evaluations are needed to truly evaluate timing of the cycle.

Some females may have a “silent heat,” a heat cycle that is not associated with bleeding. Some of these bitches will have vulvar swelling, but this is often difficult to detect. Most bitches undergoing silent heat will accept a male at the time of ovulation; however, determining this time may be difficult, especially if the male is not on the premises.

■ **Diestrus** (56 to 58 days pregnant, 60 to 75 days nonpregnant). This phase can be precisely defined by observing changes in vaginal epithelial cells; a less precise way

Hormonal Changes During the Estrus Cycle

Sexual activity is governed in all mammals by the observed effects of a variety of hormones on several target organs. The hormonal portion of the ovarian cycle is generally divided into three phases: follicular, luteal, and quiescent.

During the **follicular** phase, the hormone estradiol-17 β is produced at an increasing rate by cells that reside within follicles of the ovary. The anterior pituitary produces an amount of leutenizing hormone (LH) that helps the follicle mature; ovulation is stimulated by a surge of LH.

After ovulation, the follicular cells change their function and begin producing progesterone. At this stage the follicle is now known as a corpus luteum, and this phase of the ovarian cycle, dominated by progesterone, is the **luteal** phase.

Progesterone and LH assays are available to help determine the exact time of ovulation. The progesterone assay is combined with microscopic observations of vaginal cells; as estrogen levels increase during proestrus, vaginal epithelial cells become increasingly cornified (hardened). Daily progesterone monitoring is begun when about 60 percent of the cells are cornified.

Both serum progesterone and LH levels surge about two days before ovulation, and maximal litter size is achieved when the bitch is bred two days after ovulation. Breeders who want to maximize their chances for a successful breeding will monitor serum progesterone levels from mid-proestrus on and confirm the progesterone surge by cross-checking it with the expected LH rise. (Since the LH rise is of such short duration, it could be missed if it were the only analysis used.)

In the **quiescent** period of the reproductive cycle, microscopic, endoscopic, and hormonal evaluations all reflect a general lack of activity. Vaginal secretions are minimal or absent.

to identify it is by noting the first time the female refuses the male. This usually occurs at the same time she is no longer attractive to males. Diestrus is completely dominated by progesterone; other hormones are essentially at baseline levels.

Breeding tips

■ Be certain the female has reached puberty.

■ Expect that the female's ability to accept the male and her breeding efficiency will increase with age and experience. (The male dog's libido and efficiency will also increase with time and experience, until old age changes begin to take effect.)

■ Realize that each female is an individual, and each will have her own way of expressing her heat cycle. Some will bleed profusely and show prominent vulvar swelling; others will have a silent or near-silent heat cycle; some will readily accept any male; others may accept for only a few days (or hours) and then only if the male is deemed "acceptable."

■ Be certain that the bitch is truly in

standing heat (the most common cause of breeding failure is that the female is not truly in estrous). To be sure, use a combination of hormonal, cytological, endoscopic, and behavioral evaluations, especially for the difficult-to-breed female.

■ When possible, stay out of the way. The second-most common cause of breeding failure is interference from well-meaning folks, disrupting the "ambiance" necessary for good reproductive contact.

■ Realize that sometimes the mating was simply not meant to be – either the bitch or the male, for whatever the reason, may not be attracted to the other, and they may never be able to "hit it off."

■ Poor thyroid function is known to adversely affect libido and breeding soundness in animals, and other organ systems will likely be shown in the future to have intimate connections to the reproductive system.

A complete breeding soundness exam will certainly include an evaluation of thyroid function, and an evaluation of other organ systems may also be indicated.

Disorders of the canine female reproductive tract

There are several common disorders of the female canine reproductive tract that deserve mention.

If a female continues to show signs of **proestrus or estrus (heat) for a prolonged period** (more than 21 days of standing heat or more than 40 days of attracting males along with vaginal bleeding and vulvar swelling), suspect the possibility of follicular cysts. Cysts are fluid-filled sacks that result in a prolonged secretion of estrogen, leading to the signs of heat. The treatment of choice for this condition, if it recurs, is ovariectomy.

False pregnancy (pseudopregnancy, pseudocyesis) is fairly common. As the name suggests, it is a condition where the female appears to be pregnant, but she is not. Dogs in false pregnancy may demonstrate swelling of the mammary glands, lactation, nesting, or other "mothering" signs, without the presence of fetuses. Other than the possible need for tranquilizers (herbal or otherwise) for the overly distraught "mother," no treatment is necessary, as the problem usually resolves itself in one to three weeks. Conventional medicine

The Wonderful World of Science

There is now a scientifically based reason to believe practitioners when they claim that they see positive results when they use herbal remedies that contain estrogenic-like compounds (phytoestrogens). Western medicine has long argued that the phytoestrogens could not possibly work, because they could not prove the mechanism of their action – a typical case of "You'll see it when you believe it."

For years scientists have thought there was one receptor for the naturally occurring estrogenic compounds (estradiol, estrone, and estriol). Recently, however, they have "discovered" another receptor, and this receptor has forced them to reevaluate how estrogenic compounds work and especially how the phytoestrogens work.

Estrogenic receptors occur in many of the body's cells, which explains the profound effects the estrogens have on bone metabolism, cardiovascular disease, and brain function, in addition to their role in reproductive function. The importance of the discovery of the second estrogenic receptor is twofold. First, the newly discovered receptor "receives" different forms of estrogenic compounds than does the first receptor. Second, it occurs (or predominates) in different cell lines than does the first type of receptor we knew about. Bottom line: The two different receptors have very different abilities to affect very different cells in the body.

It happens that this second receptor is a primary receiver point for phytoestrogens, and it also just so happens that the test used to quantify the activity of estrogenic compounds tests cells that are not sensitive to phytoestrogens. The Allen Doisy test

has been the gold standard for evaluating estrogenic activity. It evaluates the cornification (hardening) of vaginal epithelial cells, cells that are not primarily controlled by the "new" phytoestrogen-active receptor.

So, when scientists analyzed the actions of estrogens by looking at only the activities that involve the first receptor site, they often missed the fact that phytoestrogens, in addition to the naturally occurring estrogens, were also active.

This illustrates two points that herbalists have been making for years: 1) Plants contain dozens of bioactive ingredients, and the interactions of these, along with their ability to affect cells in different ways, may be more important than the activity of any single ingredient. 2) Natural herbal biochemicals may (and in this case, do) interact with the body in ways that are entirely different from the way a single-entity, manufactured drug acts.



Use products with whole (not extracted) herbs whenever possible.

sometimes suggests hormonal therapy, but the approved medications often lead to pyometra. The only long-term therapy proven to prevent recurrent false pregnancies is ovariectomy.

Difficulty during breeding attempts or whelping may lead to **metritis**, an infection of the uterus. A variety of organisms may be involved in producing clinical signs of purulent vulvar discharge, often accompanied with fever, lethargy, and refusal to eat. Also, the mother may neglect her puppies. Some bitches may need stabilizing supportive therapy such as fluids; most cases of metritis respond to antibiotics coupled with treatments (oxytocin or prostaglandins) aimed at evacuating the uterine contents.

Pyometra, a hormonally mediated disorder that occurs after estrus, is a serious and potentially life-threatening condition that typically occurs in older females. It can be caused by infections during or after breeding. Or it may be associated with the administration of hormones, such as progesterone compounds given to delay or suppress heat, or estrogens administered to females after an unintended and unwanted mating.

There may be an evident mucopurulent vulvar discharge; if the cervix is closed, however, the purulent material may remain in the uterus and enlarge it to the point where abdominal swelling is evident.

Bitches with pyometra often become dehydrated, and they are typically lethargic and refuse to eat. They may also drink and urinate excessively (polyuria and polydipsia), and they may vomit. Further signs such as fever or a change in the WBC count are variable; x-rays or ultrasonic exams may be indicated for a final diagnosis. Cases of pyometra often do not respond well to antibiotic therapy, and this is only attempted when there is a definite need to salvage the reproductive potential of the female. Ovariectomy is the treatment of choice.

Vaginitis, inflammation of the vagina, is usually due to a bacterial infection, but viruses, conformational abnormalities, foreign bodies, or therapeutic use of steroids may also be involved. There is usually a vulvar discharge, which the female may constantly lick, and she may attract male dogs. Bacterial infections usually respond to local treatments (vaginal douches) using antibiotics or herbs with antibiotic activity. Systemic antibiotic therapy may be necessary in some cases. If it is a young female, the condition almost always resolves itself after her first estrus cycle.

The reproductive tract typically has a normal flora of bacteria, often comprised of several different species. Care should be exercised when diagnosing vaginitis based solely on the finding of bacteria; a profound overgrowth of one species of bacteria may be a more important indicator.

Abortion can be caused by a variety of organisms, hormonal imbalances, and physical factors such as trauma, malnutrition, or severe stress. **Brucellosis** deserves special mention as an infection that causes resorption of the fetuses early in gestation or sudden abortion during the last trimester of pregnancy without any previous symptoms. It is a highly contagious disease that can spread rapidly through a kennel by contact with infected fetuses, vaginal discharge, or occasionally by venereal means.

Brucellosis can be diagnosed by isolation of the organism; however, a serologic test is usually more practical. Whenever breeding problems occur in a kennel, the entire kennel should be tested.

Mammary tumors will be discussed more fully in an upcoming article on pregnancy and lactation. For now, I'll just say that their exact cause is unknown, but if a female is spayed before her first heat cycle, her chances of developing mammary tumors is near zero.

Transmissible venereal tumors (TVT)s occur frequently in some geographic areas and rarely in others. They are almost always located on the dog's genitalia (male or female) and are spread by dog-to-dog direct contact. They typically spread to regional lymph nodes and sometimes to other tissues.

Other tumors of the lower urinary tract are relatively common in dogs. Neoplasia may also involve any of the other tissues of the reproductive tract. Tumors vary in their potential for growth and in their propensity to spread (metastasize) to other tissues. They are treated via Western medicine by the usual means: surgical excision, and/or some form of chemo- or radiation-therapy. Alternative therapies for tumors of any type include homeopathy or acupuncture; nutritional supplements and herbal remedies may be included to support the primary therapy of choice.

I discussed **urinary incontinence** in "All Male Review" (WDJ May 2005) and much of what was said there especially applies to females, since the incidence of incontinence is somewhat higher in females than in males. Some feel that estrogen-type compounds are more effective for treating incontinence in bitches. In my mind, this

makes the phytoestrogens (estrogens from plants) a good option for treatment.

To spay or not to spay

Castration is the correct term for removal or destruction of the gonads, whether the subject is male or female. (In the male, the procedure is most accurately called bilateral orchiectomy – removal of both testes; in the female, it's called a bilateral oophorectomy – removal of both ovaries.) However, common usage in animals generally refers to female castration as "spaying," and in the male the procedure is called either castration or neutering.

Most veterinarians, when they perform a "spay" are actually performing an ovariectomy – removal of both ovaries along with the removal of both horns of the uterus to the cervix (hysterectomy).

I discussed my opinions last month about spaying and neutering in "All Male Review." For this article, suffice it to say that I feel that castration (of both male and female dogs) is a positive step to take to help alleviate our overpopulation problem, even at the possible expense to our dogs of the benefits of normal hormone levels. I suggest that all castrated animals receive herbal (phytoestrogens) and nutritional supplements to help the body replace its lost hormones.

Some plants that provide estrogenic steroidal precursors include wild yam (*Dioscorea villosa*), black cohosh (*Cimicifuga racemosa*), feverfew (*Tanacetum parthenium*), lion's ear or lion's tail (*Leonotis leonurus*), and pleurisy root or butterfly weed (*Asclepias tuberosa*). Check with an herbalist experienced with using herbs for treating animals for proper dosages and delivery methods.

Providing the female with pain relief immediately after spay surgery is fortunately becoming more common. My suggestion is the homeopathic remedy Arnica (available in health food stores). I recommend giving the female a 30c dose every hour or so, for a few doses after surgery, then maybe twice daily for a few days. Also consider a mind-calming herb or flower essence. 🐾

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

Help for Hypothyroidism

Mood swings and unexplained aggression can be caused by low thyroid.

BY SHANNON WILKINSON

Many people are aware that hypothyroidism (low thyroid function) is a medical condition that can cause an afflicted dog to become lethargic, dull, and fat. But far too few dog owners are aware of the *behavioral* symptoms that hypothyroid can cause. This is unfortunate, since these symptoms include unexplainable aggression, so-called “rage syndrome,” severe phobias, and cognitive disorders. Lacking an explanation for the sudden onset of these serious behaviors, and gaining no improvement through training, many owners tragically opt to euthanize these troubled dogs.

If an afflicted dog is very lucky, however, his owner will ask a veterinarian to order blood tests that can confirm a diagnosis of hypothyroidism; the treatment is simple and not expensive.

It’s important to ask, however, since not many veterinarians are aware of the prevalence of hypothyroid’s behavioral signs.

Vets in the know

Hannibal, a seven-year-old Rottweiler, who was adopted by Whitney Pressler, DVM, of Salem, New York, when he was about two and a half years old, was one of the lucky hypothyroid dogs. “Hannibal is normally a very mushy dog, in your face, asking to be petted and cuddled – a very interactive personality,” Dr. Pressler says. But in September of 2004, Hannibal’s personality changed drastically. In the space of a week, he went after two dogs, grabbing them by the scruff, and nipping at the gloves of a runner passing by.

Dr. Pressler had never seen Hannibal exhibit behavior like that before. As she pondered the behavior change, she realized that during the preceding few months, Hannibal had been more quiet and nervous, even a bit disoriented at times, than he was in his earlier years.

Fortunately for Hannibal, Dr. Pressler was aware of the possibility that her dog’s



Dogs who suddenly become aggressive should be tested for low thyroid. Unaware the behavior may be linked to a medical problem, some owners turn to training methods. This may help, but can’t solve the underlying problem. Other owners may give up.

The Whole  Dog Journal™

WHAT YOU CAN DO . . .

- **If your dog suddenly begins exhibiting odd behavior changes (especially aggression), ask your vet to order a complete thyroid panel on your dog’s blood, as part of a thorough physical examination.**
- **Compare the results with the chart of normal values for a similar dog (see page 20), developed by Dr. W. Jean Dodds.**
- **Ask your vet to prescribe thyroid medication for your dog if the test results are even marginally low. The medication is inexpensive, and positive results, if they are going to occur, will occur fairly quickly – within weeks.**

scary new behavior may have a biological origin. She took a sample of Hannibal’s blood and sent it to W. Jean Dodds, DVM, of Hemopet in Southern California, for testing (including a full thyroid panel) and interpretation.

Dr. Dodds, a leading researcher with a special interest in thyroid-related issues in dogs, found Hannibal’s thyroid levels to be “incredibly low,” says Dr. Pressler, and recommended that Hannibal be started on supplemental thyroid medication immediately. “He was 100 percent his normal self within a week,” says Dr. Pressler.

Dr. Pressler’s experience with Hannibal is not unusual, says Dr. Dodds. She has seen many dogs with low thyroid who behave as if they have an attention deficit disorder. “It’s like they’re not home,” she explains.

This abnormal behavior can be intermittent and erratic, escalating to aggression such as Hannibal exhibited.

In most cases, these behavioral symptoms *precede* physical symptoms, particularly those generally recognized by most veterinarians as being associated with hypothyroidism, such as weight gain and coat changes. Hannibal's case was no different. "His coat was a little bit dull, but certainly not what I see in my patients in an exam when I think the dog is definitely hypothyroid," says Dr. Pressler.

What thyroid does

Part of the endocrine system, the thyroid is a butterfly shaped gland located in the neck, just below the larynx, and partially wrapped around the trachea. It secretes two major hormones, thyroxine (T4), and to a lesser degree, triiodothyronine (T3). These hormones play an important role in controlling metabolism, affect the heart, regulate cholesterol synthesis and degradation, and stimulate the development of red blood cells (erythropoiesis). Thyroid hormones are also essential for the normal growth and development of neurologic and skeletal systems, in addition to other roles.

Dogs may suffer from low thyroid due to a number of causes. Owners should be aware that it is an inheritable trait; Dr. Dodds has observed numerous cases of hypothyroid running in certain families in certain breeds – something breeders of affected animals would rather not hear.

Canine hypothyroidism is most frequently due to autoimmune thyroiditis – where the immune system fails to recognize the thyroid and attacks its cells. This condition is diagnosed by testing the dog's blood for the presence of autoantibodies developed in response to the immune system attack on the thyroid hormones. The immune system attack on the thyroid renders the gland incapable of producing the amount of hormones the body needs for optimal function.

"We believe that if you biopsy the thyroid gland, at least 80 percent of all hypothyroid dogs will be seen to have lymphocytes (white blood cells) in the thyroid gland," says Dr. Dodds. The lymphocytes indicate that an autoimmune process is at work, destroying the gland.

Less than 10 percent of canine hypothyroid cases are secondary, that is due to deficiency of thyroid stimulating hormone (TSH). TSH deficiencies are generally a result of a problem with the pituitary gland.

Low thyroid and behavior

The way that low thyroid function negatively affects behavior, says Dr. Dodds, is "mechanistically unclear." One theory links hypothyroidism with problems with the hypothalamic-pituitary-adrenal (HPA) axis, a major part of the neuroendocrine system that controls reactions to stress. Some hypothyroid patients have chronically elevated levels of cortisol, the "stress" hormone, which would chemically mimic a state of constant stress. Chronic stress is linked to depression and impaired mental function, as well as other issues.

The continual high level of cortisol could suppress pituitary function and decrease the production of thyroid stimulating hormone (TSH), resulting in reduced production of thyroid hormones.

Range of behavior problems

Dr. Dodds and other veterinarians and researchers have been linking changes in behavior to hypothyroidism for more than a dozen years. The various types of abnormal behavior can be grouped into three categories: aggression, extreme shyness, or seizure-like activity.

The cases involving aggression are often similar to Hannibal's. A previously even-tempered animal lashes out at another animal or human without any warning. One such dog under the care of Dr. Dodds was

successfully participating in performance events. One day the dog's behavior changed radically and he "would go berserk" every time he saw people he didn't know. Soon he was banned from the training facility because his aggressive behavior had escalated to dangerous levels. Sadly, it's not unusual for dogs with untreated hypothyroidism to become so aggressive that their owners are no longer able to manage them.

On the other end of the behavioral spectrum are the dogs that become very shy and fearful due to hypothyroidism. While not a threat to humans, extreme manifestations of this kind of behavior still render the dog difficult, if not impossible to keep as a family pet. In addition, these animals are unlikely to be able to continue any activities such as obedience, showing, or working.

The final type of behavioral aberrations seen with hypothyroidism is sudden onset of seizure activity. According to Dr. Dodds, these dogs "appear perfectly healthy outwardly, have normal hair coats and energy, but suddenly have a seizure for no apparent reason." The seizures may be infrequent, and may include aggressive behavior immediately before or after the seizures.

Which dogs are most at risk?

It used to be that the stereotypical dog with hypothyroidism was middle-aged and a mid- to large-sized breed. Today, says Dr.

Breeds Most at Risk of Hypothyroidism

More than 70 percent of the 140 breeds recognized by the American Kennel Club recognize hypothyroidism as a major health concern. Below is a list, in order, of the top 30 breeds most affected, according to Michigan State University. Remember, however, that breed alone should not rule out hypothyroidism as a possible diagnosis. Dogs of all breeds *can* be affected. The complete list of the 100 most affected breeds can be viewed at <http://www.offa.org/thystatbreed.html?view=2>

1. English Setter
2. Polish Lowland Sheepdog (PON)
3. Havanese
4. Old English Sheepdog
5. Boxer
6. American Pit Bull Terrier
7. German Wirehaired Pointer
8. Tibetan Terrier
9. Nova Scotia Duck Tolling Retriever
10. English Pointer
11. Maltese
12. Beagle
13. Dalmatian
14. Giant Schnauzer
15. Cocker Spaniel
16. Kuvasz
17. Rhodesian Ridgeback
18. Walker Hound
19. American Staffordshire Terrier
20. Welsh Springer Spaniel
21. Golden Retriever
22. Husky
23. Shetland Sheepdog
24. Pointer
25. Chesapeake Bay Retriever
26. Irish Setter
27. Brittany
28. Siberian Husky
29. English Cocker Spaniel
30. Gordon Setter

Dodds, “the majority of dogs diagnosed with hypothyroidism are young adults. They’re one and a half, not four or five like we used to see.”

And there no longer seems to be a link between size and thyroid dysfunction. The top 20 most-affected breeds range in size from Rhodesian Ridgebacks to Maltese.

Hypothyroidism is becoming a particular problem with rare breeds, says Dr. Dodds, because of the increasing concentration of the inheritance of the problem within inbred breeds. About 70 percent of the 140 breeds recognized by the American Kennel Club (AKC) recognize hypothyroidism as a major concern in their breeds.

Dr. Dodds also notes that environmental and chemical stresses, better diagnostics, and more awareness of the problem (with resultant testing) increase the reported incidence of hypothyroidism.

Dr. Dodds feels that dogs with autoimmune thyroiditis should not be bred, and relatives should be screened annually for thyroid dysfunction once they reach puberty.

Diagnosis requires a full panel

Any time a dog presents with a behavior problem, particularly one of sudden onset, it is recommended that the owner take the dog to a veterinarian for a full physical exam, complete thyroid panel, blood chemistry/CBC, and urinalysis. After all, a dog can have something as simple as a urinary tract infection and be in horrible pain, causing the unusual behavior.

You have to be particular about the thyroid test, however. Insist on having your dog’s blood sent to a reputable laboratory and tested for all the thyroid hormones and autoantibodies to those hormones. In-office thyroid tests, or simple tests of your dog’s “total” T4 levels, are inadequate for diagnosing hypothyroidism.

Research done at Auburn University indicates that in-house T4 tests are unreliable and inaccurate about 52 percent of the time in dogs. “Having treated lots of animals for hypothyroidism, the most important thing I can recommend is the panel versus the total T4. Every time I think that you can tell something from doing just a total T4, I’m mistaken,” says Dr. Pressler.

In addition to the possibility of inaccurate readings, the total T4 can be in the “standard” reference range, but too low for a particular dog’s age, breed, or size. And the other levels found in a full thyroid panel give a much clearer picture about how the thyroid is functioning. A complete thyroid

panel tests these six levels, plus TgAA:

- Total levels of thyroid hormones thyroxine (T4), and
- Triiodothyronine (T3);
- The availability of T4, as indicated by “Free T4” (FT4);
- The availability of T3, as indicated by “Free T3” (FT3);
- The autoantibody levels of T4 (T4AA), and
- T3 (T3AA).

If the test is being performed as a genetic screening for breeding stock or for breeds at high risk, Dr. Dodds also recommends checking the thyroglobulin autoantibodies (TgAA). Thyroid stimulating hormone (TSH) may also be tested, but it isn’t nearly as reliable for dogs as it is in identifying hypothyroidism in people.

Dr. Dodds says that testing for autoantibodies is particularly important, because elevated levels of autoantibodies indicate thyroiditis, regardless of T4 or T3 levels. “Those animals are having inflammatory immune-mediated lymphocytes attack and damage the thyroid gland,” she explains. It’s important to proactively treat these dogs, she adds, because when you’re dealing with

behavior issues, the dog could end up with serious aggression before the total T4 ever tests too low.

Don’t let recent “normal” tests keep you from suspecting thyroid issues, should your dog’s behavior change suddenly. Hannibal had a full blood panel in July, which included T4, which came in at 1.4. At that point, he was acting normally. His behavior started to change subtly until he had the three incidences of aggression, and he was diagnosed as hypothyroid in November.

Hannibal’s case illustrates another point: Results that are in the normal levels as dictated by the lab aren’t necessarily normal for your dog. Dr. Dodds has fine-tuned the optimal levels for different ages and breed types. Generally speaking, younger dogs *should* have higher thyroid levels (in the top half of the “normal” range). Geriatric and large- or giant-breed dogs have “normal” levels that are closer to the bottom part of the normal range. Sighthounds normally have very low basal thyroid levels.

Many vets believe that if a dog is on medications such as phenobarbital or steroids, the thyroid test results won’t be accurate. That’s not true, according to Dr. Dodds. You simply have to take into account the impact the medications will have on the thyroid results; those medications reduce the thyroid values by 20 to 25 percent. If this is taken into account, you can still properly diagnose a dog with hypothyroidism and other concurrent health issues.

Optimal Thyroid Levels

Values per W. Jean Dodds, DVM, as developed through patented research. Results from your lab may be expressed in international units and need to be converted to resemble these ranges.

Minimal expectations for a healthy performance adult are at least 1.5 micrograms per deciliter for T4 (1.5 mcg/dl T4) and 1.0 nanogram per deciliter (1.0 ng/dl) for FT4. Minimal expectations for a healthy performance youngster are at least 1.75 mcg/dl for T4 and 1.0 ng/dl for FT4. Minimal expectations for a healthy geriatric dog are at least 1.5 mcg/dl for T4 and 0.85 ng/dl for FT4. For a healthy adult large breed dog, minimal expectations are at least 1.5 mcg/dl for T4 and 0.85 ng/dl for FT4. For a healthy adult sighthound, the minimal expectations are at least 0.85 mcg/dl for T4 and 0.4 ng/dl for FT4.

Optimal Levels For:	T4	FT4	T4AA	T3	FT3	T3AA
Adults	2-4 mcg/dl	1-3 ng/dl	< 2.0	50-150 ng/dl	3-8 pg/dl	< 2.0
Puppies/ Adolescents	2-4 mcg/dl	1-3 ng/dl	< 2.0	50-150 ng/dl	3-8 pg/dl	< 2.0
Geriatrics	1.5-3 mcg/dl	0.85-1.5 ng/dl	< 2.0	50-150 ng/dl	3-8 pg/dl	< 2.0
Large Breeds	1.5-3 mcg/dl	0.85-2 ng/dl	< 2.0	50-150 ng/dl	3-8 pg/dl	< 2.0
Sighthounds	1-3 mcg/dl	0.5-1.2 ng/dl	< 2.0	50-150 ng/dl	3-8 pg/dl	< 2.0

Treatment suggestions

The standard treatment for hypothyroidism is hormone replacement with a synthetic T4 compound, L-thyroxine, often called by the brand name Soloxine. Depending on the dosage, a month's supply for an average-sized dog costs between \$5 and \$10. Once diagnosed, Dr. Dodds starts treatment. The standard dose is 0.1 mg per 12-15 lbs of optimum bodyweight twice daily.

"The half life is 12-16 hours, so we don't recommend putting them on once a day ever," says Dr. Dodds, despite some people's experience that their dogs do "fine" on once a day dosing, and some medication labels give once per day dosing instructions.

Dr. Dodds cites a study published by the British Endocrine Society to back up her experience and recommendations. In the study, comparisons were made between animals given medication twice daily and once daily. The blood levels of thyroid in dogs who were given hormone replacement just once daily exhibited a roller coaster ride of a high peak and a deep valley. Twice daily dosing sends a better message to the rest of the endocrine system. "If you're trying to regulate the pituitary gland so that the animal doesn't put lymphocytes in its thyroid gland, you want to do it in concert with the half-life," explains Dr. Dodds.

Interestingly, giving thyroid medication to a dog with normal T4 and T3 results doesn't cause the levels to go too high. "We treat in this situation to inhibit the pituitary gland so it doesn't stimulate the thyroid gland anymore," says Dr. Dodds. When the thyroid gland isn't being stimulated with thyroid stimulating hormone (TSH) by the pituitary, the lymphocytes leave the tissue, the body can heal itself, and you're replacing the needed thyroid hormones.

Finally, Dr. Dodds suggests that thyroid medication be given to the dog directly by mouth, rather than in the food bowl. Owners who feed their dogs home-prepared diets are warned not to give the medication within a half-hour of a calcium-rich meal, such as meaty bones or a dairy-rich food, as it will interfere with absorption of the medication.

Additional treatments

In addition to thyroid medication, Dr. Dodds recommends certain supplements and remedies for dogs with hypothyroidism and behavior issues in particular. "We use flower essences to calm agitated dogs. Give them Rescue Remedy before or during high-stress situations," she suggests.

Test Results . . . Plus Interpretation

Any reputable veterinary laboratory can perform a complete thyroid panel. But there are several advantages in sending your dog's blood to Dr. W. Jean Dodds for testing. First and most important, Dr. Dodds reviews and offers interpretive comments on each of the thyroid panel results conducted through her office. Dr. Dodds records and uses data from the bloodwork in her research studies; your dog's results will help further this patented research. She has been studying canine thyroid problems for 25 years and has a wealth of information she can share in a consultation with your veterinarian if needed. Also, because of the volume of tests ordered through her office, she is able to offer the tests at a discounted price.

You can read Dr. Dodds' complete instructions for having blood taken from your dog and sent to her office at www.itsfortheanimals.com/HEMOPET.HTM. Alternatively, your veterinarian can call and ask for instructions. On Monday, Tuesday, and Friday, call (310) 828-4804; on Wednesday and Thursday, call (714) 891-2022. Hours are 8 am to 5 pm, Pacific Time.

Glandular supplements are an obvious choice for dogs with endocrine dysfunction (see "Grand Glands," WDJ March 2003). But when you're dealing with a risky behavior case, medication is the right place to start, says Dr. Dodds. She's had patients who are reluctant to use any kind of drug.

"I can understand where they're coming from; they want to use glandulars, but they keep shoveling them in and they don't work. That's no good, especially if you have a behavior case, where you can't take a chance."

However, once the case is under control on medication, and the dog's behavior has returned to normal, if the owner wants to, glandular supplements can be added to the regime. "We have quite a few cases that take thyroxine *and* glandulars. Sometimes when we do that we can reduce the amount of drug we have to give," explains Dr. Dodds.

Ask your holistic vet to help you choose a glandular supplement for a dog with immune-mediated hypothyroidism. While standard thyroid glandular supplements may be beneficial, a multiple glandular, or one that contains thymic gland, may be harmful. Immune support and modulation can be provided by plant sterols and sterolins, which help control immune-mediated and autoimmune disease processes. Sterols occur naturally in fruits, vegetables, seeds, and other sources. They are also available as concentrated supplements.

When choosing commercial foods, Dr. Dodds recommends types that contain only natural preservatives, such as mixed tocopherols (vitamin E), citric acid (vitamin C), and rosemary extract. She also suggests that all of her patients receive regular supplementation with vitamin E, Ester-C, echinacea, and garlic.

What to expect of treatment

Most of the cases that Dr. Dodds sees have responses like Hannibal's. "I would say at least 80 percent of the cases have a remarkable improvement; it's unusual to have them *not* improve."

Even more gratifying, the improvement is often quick. Most animals show improvement from two days to two weeks after starting treatment; some may take up to 30 days. Interestingly, a collaborative study between Dr. Dodds and Tufts University has shown many dogs experiencing aggression issues, as a symptom of hypothyroidism, show a favorable response to thyroid replacement therapy within the first week of treatment, even when it took about three weeks to correct the metabolic deficit.

Follow-up blood work should be performed six to eight weeks after medication is started. Blood should be drawn four to six hours after dosing to monitor the dog's response. Dr. Dodds considers results that are between the upper third of the lab's "normal" reference range to 25 percent above that to be optimal.

She also recommends a complete thyroid profile at the time of the recheck. "It is essential for animals with autoimmune thyroiditis to determine if the autoantibodies are waning," she explains.

In most dogs, the autoantibodies begin to decline after treatment starts. This is significant in that it indicates that the autoimmune destruction of the gland is declining or even stopping. But it doesn't mean the dog is cured. It's important to maintain the dog's medication to keep a recurrence of the thyroiditis at bay. 🐾

Shannon Wilkinson, a writer, life coach, and TTouch practitioner, lives in Portland, OR.

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Straight Poop on Bags

Some “biodegradable” plastics are more degradable than others . . .

BY NANCY KERNS

What’s the most environmentally responsible thing to do about dog poop? Home composting systems solve the problem at home; we reviewed one in June 2000, and still use it today. But when you’re out in the world with your dog, you have to use something to pick it up and carry it to a trash receptacle. (Of course, carrying the poop to a composting facility, rather than a trash can, is the *most* environmentally friendly thing to do; however, few people are motivated enough to do this.)

Many dog owners save plastic bags for picking up and disposing poop. From an environmental standpoint, however, use of all “regular” plastic bags is bad. Using a plastic bag twice still requires its manufacture (with petrochemical products) and landfill disposal. If people used canvas or other re-

usable bags, it would eliminate untold millions of pounds of waste in our landfills – not to mention visual blight and a hazard to fish and wildlife.

Some people carry a rolled-up newspaper when they walk their dogs, and use that for picking up poop. Newspaper breaks down quickly in landfill, so this seems like a good idea.

But most people like the convenience of a plastic-type bag when they are on the trail, for containing even a sloppy poop – and its smell! Fortunately, there are now bags on the market that offer the convenience of plastic, *and* the ability to break down in landfill. Of course, they’re not free!

The difference between them

Two types of these “environmental” plastic bags currently exist; one is much more

earth-friendly than the other. The first products on the market were described as “biodegradable,” and indeed exhibited the ability to break down physically.

Unfortunately, these polyethylene-based bags fail to break down *chemically*, and leave a residue of small poly pellets or fragments that can build up in the environment (and are doing just that in our oceans). So, while they don’t have as much potential for causing visual blight or taking up space in landfills as “regular” plastic bags, they aren’t completely benign, either.

Today’s newest “ecopolymers” exhibit the characteristics of total biological degradation, resulting in the total mineralization of the substance into carbon dioxide or methane, water, and humic residues – and *no* toxic or poly residues in the soil. This is what was defined by the ASTM in 1999 as “compostable” (per ASTM 6400).

We vastly prefer compostable products.

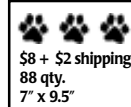
Our highest (four-paw) rating goes to the one



compostable bag we found; our lower rating goes to degradable products that cannot make the compostable claim.

It’s best to support local health food stores or independent pet supply stores; look for these products there, first. We’ve supplied sources for online or phone purchase, be aware that most charge for shipping. 🐾

Oops . . . I Pooped does not meet the ASTM 6400 standard as compostable, but its maker seems to feel this is an injustice, and claims on the product label that its bags will degrade in landfill and leave no harmful residues. Label claims are one thing; we’ll reserve our top rating for those that pass the tests.



OOPS . . . I POOPED
Can be purchased from
oopsipooped.net, (888) 811-8804

One of our former top picks due to its thickness (double that of most bags), we have downgraded **Mutt Mitts** in favor of compostable bags.



MUTT MITTS
Mfg: Finny Pet Products
Can be purchased from Intelligent
Products, Inc., pickupmitts.com,
(800) 697-6084

The Kyjen Company’s **Cornstarch Pooch Pickup Bags**: Good product, a good size, a good price . . . but not compostable.



**CORNSTARCH POOCH
PICKUP BAGS**
Can be purchased from Silver Pet
Products, silverpet.com (800) 567-
9033

Our top pick carries the seal indicating it has passed ASTM 6400 testing for a compostable bag. We found **BioBags** at an online store that does not charge for shipping – and also sells compostable bags for household use (kitchen, lawn and leaf, etc.). Here’s an important caveat: These bags are less durable than the others. Double-bagging may be necessary.



BIOBAG (DOG)
Made in Norway
Can be purchased from
dirtworks.net,
(800) 769-3856

WHOLE DOG JOURNAL'S 0-4 PAWS PRODUCT RATING:

🐾🐾🐾🐾 As good as it gets. We enjoy & approve of the product.

🐾🐾🐾 A good product, but with one or two significant flaws.

🐾🐾 The product has Some value, but it also has some serious flaws; buyer beware.

🐾 We are including The product only because of its potential for improvement.

The product has no redeeming value – at least, none that wdj can appreciate.

RESOURCES

BOOKS

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

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

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

Shannon Wilkinson, life coach and certified Tellington TTouch Practitioner, Portland, OR. Learn gentle methods to positively influence your dog's behavior, health, and performance. Private sessions, group lessons, demonstrations, full- and half-day workshops. Shannon@shannonwilkinson.com or (503) 234-6361

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

WHAT'S AHEAD

How to Choose the Best Diet for YOUR Dog

Confused about foods? Not sure how to tell which "good" food would be best for your dog? We'll teach you how to answer the question for yourself.

Dinnertime Rules

The no begging, no fighting, no guarding method for feeding your dog.

Preventing Misdiagnosis of Kidney Failure

What tests to ask for, and what test results to look for to ensure you receive the most accurate diagnosis.

Savvy Salves

Recipes for making your own safe, effective, healing ointments and salves.

Success Story:

How a committed owner turned her scary, "reactive" Bulldog into a solid, good citizen.

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