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The Whole



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On Moving

Just 150 miles away, a new dog world awaits.

BY NANCY KERNS

The San Francisco Bay Area, where I've lived for the past 10-plus years, just might be the center of the holistic dog-care world. You are more likely to see dogs being walked wearing head halters or front-clip harnesses than choke chains. People trade information about the *best* holistic veterinarians in the area – not just clues on how to find the *only* one in a five-county area. The pet supply stores carry a dozen different brands of top-quality dog foods, and raw frozen diets, too. Most of the health foods stores have pet care sections. Positive puppy socialization classes and daycare facilities abound.

Things are about to get interesting for me, since I'm sort of moving back in time – in terms of dog training and care. This month, right after I ship this issue to the printer, I'm packing up both my home and my home-based office of WDJ and moving 150 miles to the north and east. Oroville is a small northern California town said to contain about 13,000 people; I suspect they have to reach pretty far outside the city limits to come up with a total that high.

My dad lives about 15 miles out of town, and I'm looking forward to being close to him. I'm also really looking forward to life in a much quieter town. Quieter, at least, except for the barking dogs! That's going to take some getting used to (and I suspect I may get involved in a community dog-care education project).

Where I live now, many of my neighbors have a dog; some have two. All of the dogs in my immediate neighborhood spend most of their times indoors when they are not being walked or hanging out with their owners in the yard. But in Oroville, I've noticed, there are many dogs who seem to live outdoors full time,

in yards and chained to trees or porches. Lots of yards contain several dogs – and lots of dogs aren't contained in any way, shape, or form at all! I've never before been in a town where you can spot several loose dogs in any given hour. On one memorable walk, as we scoped out available real estate, my husband and I were confronted on a sidewalk outside a school by a huge, growling, collarless St. Bernard, who was being egged on by a tiny, greasy, collarless Chihuahua-mix. As I said before, it's going to be interesting.

I'll still spend a lot of time in the Bay Area; so many of WDJ's models (canine and human) and friends are here. And I couldn't do what I do without the regular help and support of my holistic vet (Dr. Jenny Taylor, of Creature Comfort Holistic Veterinary Center) and famed positive trainer Sandi Thompson, who has taught thousands of puppy training classes in the Berkeley area.

Please note WDJ's new editorial office addresses (above right). This is the place to send letters to the editor (me!), questions about articles, and product information and samples. As always, inquiries about subscriptions (such as magazines not received, problems with payments, gift subscriptions) should be directed

to the subscription services department. Questions about WDJ's website, online access, and back issues should be directed to our customer service department in Connecticut.



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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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Chill Pills

Behavior-altering drugs can help dogs with phobias or anxiety disorders – but you have to learn which ones work best in each case.

BY MARY STRAUS

Ten years ago, my dog Piglet woke me in the middle of the night, trembling violently and utterly terrified. It took me hours to track the source of her panic to a barely audible high-pitched beep that sounded once every two minutes, coming from a smoke alarm's low battery indicator.

Thus began Piglet's long history of noise phobias. Below is the story of my struggle to help her cope with these phobias and, eventually, generalized anxiety disorder. While I would urge anyone dealing with anxiety issues to first try natural methods of treatment, it is important to know there are medications that can offer your dog quality of life that may not be obtainable in any other way.



Piglet, a Chinese Shar-Pei owned by author Mary Straus, is a normally confident dog. Over the years, however, she has become more and more noise-phobic, to the point of requiring drug therapy to quell her fears enough to enjoy a normal life.

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WHAT YOU CAN DO . . .

- **Try natural remedies first. Anxiety Wraps, DAP diffusers, melatonin, and other natural treatments have helped many dogs with anxiety and noise phobias.**
- **If natural treatments don't work, ask your vet whether medications might make sense, particularly if your dog's anxieties are getting worse or interfering with his quality of life.**
- **Continue to do behavior modification, including counter-conditioning and desensitization, as much as possible while your dog is on medication, which will improve your chances of success.**

A brief history

For years, Piglet reacted only to high-pitched beeping noises, such as cell phones, pagers, the microwave oven, the theme from *The Twilight Zone*, etc. I tried many natural treatments, including T-Touch, an Anxiety Wrap, melatonin, flower remedies, dog appeasing pheromone (DAP) diffusers, counter-conditioning (scary noise = treat), and just about everything else I heard of that can help dogs with anxiety and phobias. Several of these helped a little, but none solved the problem. We dealt with her issues mostly by trying to avoid “scary noises,” including giving up some of my favorite TV shows!

Piglet was normally a confident dog, cautious with people but not fearful, comfortable with other dogs, eager to explore new places. When she was frightened by beeping sounds, she would pant, pace, tremble, try to hide, dig compulsively both indoors and out (to the point of making her

nails bleed), and come to me for attention and comfort, though comforting her did not help. I knew enough not to reinforce her attention-seeking behaviors, but I did try various things, such as distracting her with clicker training (which would work only as long as I could keep it up, then she would go right back to her fearful behaviors), giving long, slow strokes, just putting my arm around her, sitting with her while completely ignoring her; nothing made any difference.

As we could avoid “scary noises” most of the time, her anxiety attacks were not frequent and she was able to live with her phobias pretty well.

This began to change three years ago, when my next-door neighbors completely rebuilt their house. We were out for a walk one day, soon after construction had started, when a stump digger close to us backfired loudly just as we were passing. After that, Piglet became reactive to all of the construction sounds from next door, which gradually

generalized to any loud noise she heard while on our walks.

Sounds that had never before bothered her, such as lawnmowers, leaf blowers, loud trucks, and even the sound of other dogs barking, now frightened her. Most of our walks were spent trying to avoid these noises, and when she did hear them, she wanted to turn around and go home.

Eventually, Piglet was startled on a walk by a loud chirping noise from a ground squirrel. After that, she began waking at dawn, reacting to the sound of birds in my yard. Soon she was spending most of the night awake, pacing, panting, unable to rest and pawing at me to get up as well. Her noise phobias had escalated to generalized anxiety disorder (GAD). Neither of us could live like this. We had to find something to help.

Types of anxiety medications

There are several types of anti-anxiety medications (anxiolytics). Benzodiazepines are fast-acting and can be used on an as-needed basis, or combined with longer-acting drugs for a quicker response and when a little more help is needed. Tricyclic antidepressants (TCAs), selective serotonin reuptake inhibitors (SSRIs), and azapirones must be given continuously, and require several weeks to reach full effectiveness. Dogs with frequent or severe anxiety will benefit from these longer-acting drugs to decrease overall anxiety and reactivity.

All of these are prescription medications. It is important that you work closely with your veterinarian, or with a veterinary behaviorist, when using anxiolytic drugs. It is also important to do behavior modification as well, as drugs alone will rarely resolve a severe anxiety problem by themselves, just as behavior modification alone often will not work without drugs. A dog behaviorist (veterinary or otherwise) can help you with this.

Following is a summary of the different types of anti-anxiety drugs, what they are commonly used for, and what you need to know before using them. With the exception of clomipramine, the FDA has not approved the use of these drugs in dogs, as the drug companies have not submitted the necessary research. However, many of these drugs were tested on animals before use in humans, and they have been used off-label by many vets.

I've found Plumb's *Veterinary Drug Handbook* to have the most current information on drug dosages and interactions. Some of the following is taken from that

source, and some from various papers written by noted veterinary behaviorist Dr. Karen Overall and other veterinarians.

Benzodiazepines (BZs)

Benzodiazepines are fast-acting drugs that can be used on an as-needed basis for dogs that need periodic help with anxiety, such as those afraid of thunder or fireworks. They can also be used in combination with TCAs or SSRIs when first starting treatment to hasten the effects, or on an ongoing basis, either regularly or as needed to prevent or lessen acute anxiety episodes. For example, one might use a benzodiazepine with tricyclic antidepressants for a dog suffering from separation anxiety with a panic component.

The effects of BZs do not last very long, usually only a few hours. When used continuously, they are addictive (create physical dependency).

Benzodiazepines commonly used with dogs include **alprazolam (Xanax)**, **clonazepam (Klonopin)**, and **diazepam (Valium)**. These drugs are used to treat anxiety, noise phobias (including thunder phobia), panic attacks, and separation anxiety. They should be used with caution in fear-aggressive dogs, as they may lower fear-based inhibition and increase the likelihood of the dog biting.

Their safety range is very wide, and they can be combined with most other medications, including TCAs and SSRIs, as well as with pain medications such as tramadol. They can also be used together (with dosage of each reduced). As with all anti-anxiety medications, you should start with a low dose and increase only as needed. "The key to treatment for noise phobias and panic is to give the benzodiazepines early and often," says Dr. Overall.

Alprazolam is Dr. Overall's drug of choice for dogs with storm and noise phobias and dogs who panic. It takes effect very quickly, within 20 minutes of being given, and does not tend to cause sedation. Alprazolam has some effect if given after the dog becomes anxious, but it works far better if given ahead of time. For dogs with thunder phobia, it should be given whenever a storm is expected, rather than waiting

until it arrives, though more can be given at that time, if needed. The recommended dosage range is quite wide, with the highest dose being 10 times the lowest dose.

Clonazepam is used less frequently than alprazolam, as it takes a little longer to be effective, but it is also longer-lasting. There are two recommended dosage levels for clonazepam: one for seizure control, and one for anxiety. It is important to be aware of this, as the dosage for seizure control is much higher than that used for anxiety. I was reassured to realize how high a dose could be given without being dangerous.

Diazepam is more sedating than the other drugs in this class, and may have less anxiolytic effect, so it is generally not recommended for anxiety. It is the shortest-acting of this drug class in dogs, and does not take effect as quickly.

In Piglet's case, benzodiazepines were a lifesaver. I found an article by Dr. Overall that discussed the use of alprazolam for noise phobias (see "References," page 9). I started Piglet at 0.25 mg (0.017 mg/kg), but that had little effect, so I went to 0.50 mg (0.03 mg/kg), which did help. I started by giving Piglet this dosage of alprazolam whenever she would wake me up, which was generally a couple of hours after we went to sleep. She would usually settle down within an hour after getting the medication. It helped, but wasn't enough.

My vet then suggested that I give an increased dosage of alprazolam at bedtime, before Piglet became anxious. Rather than giving her 0.5 mg (barely enough to help) after she had awakened me with her anxious behavior, I began giving her 1 mg (0.07 mg/kg) at bedtime. This made a *huge* difference. The alprazolam did not sedate Piglet; it just relaxed her enough to be able to sleep, without anxiety waking her up during the night. By giving it to her before she became anxious, she was able to sleep through most of the night.

After consulting with a veterinary behaviorist, I started giving Piglet 1 mg alprazolam every eight hours, to try to prevent her from becoming anxious. Her anxiety was under control, but she seemed to be on something of a roller coaster, becoming more reactive each hour after the alprazolam was given. I generally had to get up once during the night to give her a dose, as it was too short-acting for her to be able to make it all the way through the night without waking and becoming anxious.



I decided to switch to clonazepam, as its effects last longer. Because the recommended dosage range of clonazepam for anxiety in dogs is similar to that for alprazolam, I tried giving Piglet the same dosage (1 mg), but quickly found out that was not enough. I increased the dosage to 2 mg (0.13 mg/kg), still well within the recommended range. I gave this amount twice a day, at bedtime and after breakfast. With clonazepam, Piglet was able to sleep through the whole night.

Azapirones

There is only one drug in this class used with dogs: **bupirone (BuSpar)**. Buspirone

is used to treat cats for inappropriate urination, but is now also being used to treat dogs for phobias and other anxiety disorders, including fear aggression, especially if accompanied by signs of poor socialization. It is not helpful for panic disorders, but is effective for more generalized anxiety.

Because buspirone has few side effects and does not cause sedation, it is an excellent first choice for treating dogs with aggression or anxiety that is not too severe. It must be given continuously for at least four to six weeks in order to determine whether or not it will help. Again, it's best to start at a low dose and increase if needed. Buspirone can be combined with TCAs or

SSRIs, though it is questionable whether this helps or not.

I learned about buspirone from Amy Cook, a dog trainer in Oakland, California, who has a special interest in fearful dogs. Amy has dealt with fear and anxiety in many dogs, including two of her own, and has learned a lot about the medications used for treatment.

Buspirone helped a number of Amy's clients, as well as the dog of a colleague that had developed noise phobias and was unable to continue her flyball participation because of it. That dog responded wonderfully to Buspirone and was able to return to her flyball team with the help of this medication.

We started Piglet on a low dose (10 mg, or 0.7 mg/kg) twice a day for a month, and then increased to 15 mg (1 mg/kg) twice a day for another month. Unfortunately, it did not help, and I weaned her off it.

Tricyclic antidepressants (TCAs)

Tricyclic antidepressants are used with dogs to treat anxiety, panic, phobias, and obsessive compulsive disorders, such as shadow chasing and lick granulomas. They are also used to treat aggression that is caused by underlying anxiety.

The tricyclic antidepressants most commonly used with dogs are **amitriptyline (Elavil)** and **clomipramine (Clomicalm)**. The general recommendation is to start with a low dose, then increase every two weeks as needed. These drugs do not take effect immediately, and several weeks' treatment may be needed before their effectiveness can be fully ascertained.

The most common side effect of TCAs is sedation. Anorexia (loss of appetite) is also common, but usually goes away after a few days. Giving with food and dividing the dosage between meals may decrease gastric side effects.

My own vet prefers to use **amitriptyline** as a first choice when treating anxiety, not because it's the most effective drug, but because it is inexpensive and he feels it is safer than clomipramine.

Amitriptyline's most common side effects are dry mouth and sedation. It is well suited to dogs with relatively mild anxiety disorders, including anxiety-related aggression and submissive urination. It is not useful for compulsive disorders.

Amitriptyline can relieve chronic pain, and also has some action as an antihistamine.

How to Treat Anxiety Naturally

Whole Dog Journal has published a number of articles on natural ways to help a dog deal with anxiety, before resorting to the use of drugs, including the following:

- **Anxiety Wrap** ("It's a Wrap," December 2002)
- **Dog Appeasing Pheromone Diffusers** ("Please Appease Me," January 2004)
- **Kong Dispenser** ("Help for the Home-Along Dog," September 2005)
- **T-Touch** ("A Touch Should Do It," July 1998)
- **Massage** ("Lay Your Hands On Dogs," July 2004)
- **Calmativ Herbs** ("Stop the Panic," September 2003)
- **Flower Essence Remedies** ("Flower Power," March 1999)
- **Essential Oils** ("Essential Information," January 2005, and "Smell This, You'll Feel Better," December 2004)

Also see the following articles on anxiety:

- **Separation Anxiety** ("Relieving Anxiety," August 2001, and "Learning to Be Alone," July 2001)
- **Noise Phobias** ("When the Thunder Rolls," April 2000, and "Bring In Da Noise," May 2000)

A few more suggestions:

- **Melatonin** (see main text), **SAM-e** (s-adenyl methionine), and **magnesium** are also used to treat anxiety. SAM-e is an antidepressant and is liver-protective. I give it to Piglet to help her liver deal with the other drugs.
- A friend has had good luck treating her dog's thunder phobia with a high dose of **calcium/magnesium** and the **Chinese herbal formula known as "Calm Spirit"** (Modified Ding Xin Wan) from the company Health Concerns, available only through veterinarians.
- When giving tiny pills, I find they sometimes get stuck in my dog's lips. **Wrapping them in a bit of string cheese** has solved that problem for us.

Clomipramine is best suited for situations involving anxiety, including separation anxiety, as opposed to reactivity. Clomipramine is also very effective at treating compulsive disorders.

TCAs can cause bone marrow suppression. It's important to do blood work a couple of weeks after starting this drug (as well as before, for older dogs), then monitor every six months to a year thereafter.

I tried giving Piglet amitriptyline for her noise phobia before she developed generalized anxiety disorder. With my veterinarian's guidance, I started Piglet on 25 mg (1.7 mg/kg) twice a day, then increased it to a very high dosage of 25 mg three times a day after a month.

Piglet tolerated the drug very well, and she did not have problems with sedation or other side effects. However, as time went on, I noticed no improvement in her behavior, even after we increased the dose, so I weaned her off it.

After Piglet's anxiety worsened, my vet and I decided to try **clomipramine (Clomicalm)**. We started at 20 mg (1.3 mg/kg)

twice a day. After two weeks, I increased to 25 mg (1.7 mg/kg) twice a day. Again, Piglet tolerated it well; she had no stomach upset, and her blood work was normal after two weeks. She was on clomipramine for a total of only three weeks before I began weaning her off, as I did not feel it was helping, but in retrospect, I realize that she got much worse when I weaned her off the drug. It is very important not to give up too soon when giving TCAs or SSRIs.

Selective serotonin reuptake inhibitors (SSRIs)

SSRIs are antidepressants and anxiolytics, used to treat aggression, separation anxiety, generalized anxiety, panic disorders, and obsessive-compulsive behaviors. SSRIs are stronger, more effective, and longer-acting than TCAs, and may take longer to fully assess their effects. They are considered safer than TCAs, but they can have side effects, including gastric upset and sedation.

It is important to do blood work before starting, especially for older dogs, and monitor periodically after that. SSRIs can

be combined with TCAs using low-end doses of each, which may help them take effect faster and lessen the chances of side effects.

Fluoxetine (Prozac) is the most commonly used SSRI with dogs, and has the longest half-life in people. Others include **sertraline (Zoloft)** and **paroxetine (Paxil)**, all with similar potential side effects, though paroxetine is more difficult to wean off and may have a shorter half-life, leading to more variation in its effects.

The usual methodology is to start with a low dosage, and then increase if no improvement is seen after three to four weeks. Treatment must continue for at least six to eight weeks before you can know for sure whether it helps.

Fluoxetine is used to treat aggression, obsessive-compulsive disorders, separation anxiety, and panic and avoidance disorders, including post-traumatic stress disorder. Fluoxetine works well for conditions involving reactivity, including some forms of aggression. Paroxetine is used to treat depression, social anxiety, and agitation

Drug Dosages, Interactions, Side Effects, and Contraindications

Dosages below are given in mg (milligrams) per kg (kilogram) of body weight of the dog. A kg is 2.2 lbs, so my 33 lb dog weighs 15 kg. I've given the most commonly recommended dosage range, followed by other ranges I've seen, where applicable. Note that some of these drugs are available in liquid form if smaller doses are needed, or you could use a compounding pharmacy.

Benzodiazepines

- **Alprazolam (Xanax®)**: 0.01 - 0.1 mg/kg as needed (I've seen higher dosages listed in one place, up to 2.2 mg/kg two to four times a day, but most recommendations are within the 0.01 - 0.1 range, two to four times a day)
- **Clonazepam (Klonopin®)**: 0.01 - 0.1 mg/kg as needed or 0.05 - 0.25 mg/kg once or twice a day for phobic or panic attacks. Note that dosage for seizures is 0.1 - 1.0 mg/kg twice a day
- **Diazepam (Valium®)**: 0.5 - 2.2 mg/kg every four to six hours as needed

I have frequently seen a limit of 4 mg/day for alprazolam and clonazepam. This limit apparently comes from human guidelines. However, dosages for dogs are relatively higher than for humans, and dosages for seizure control are higher than this. I have given my 15 kg dog as much as 3 mg/day of alprazolam or 6 mg/day of clonazepam, with no side effects. I believe that a larger dog could handle correspondingly larger doses, based on the ranges given above, without regard to the 4 mg/day limit.

When using benzodiazepines for noise phobias or separation

anxiety, it is best to give them one to two hours before the anticipated noise or stimulus, and then repeat as needed.

Benzodiazepines should not be given with the antifungal medications ketoconazole or itraconazole. Cimetidine (Tagamet), erythromycin, propranolol, and valproic acid will slow the metabolism of these drugs and can create excessive sedation. Antacids decrease absorption and should be given separately, at least two hours apart.

Benzodiazepines should be used with caution in the case of liver or kidney disease, or narrow angle glaucoma.

Side effects such as sedation or increased appetite usually go away with continued usage.

Azapirones

- **Buspirone (BuSpar®)**: 1 mg/kg, one to three times a day for mild anxiety, or 10-15 mg/dog every 8 to 12 hours for more severe anxiety and for thunder phobia (recommendations range from 0.5 - 2 mg/kg two or three times a day)

Buspirone should be used with caution in dogs with severe liver or kidney disease. Side effects are uncommon. Combining buspirone with MAOIs (see below) may cause dangerous hypertension (high blood pressure).



associated with depression. **Sertraline** is useful particularly for generalized anxiety and panic disorder.

After consulting with the veterinary behaviorist, we started Piglet on fluoxetine, at a low dose of 10 mg (0.7 mg/kg) once a day, and then increased to 15 mg (1 mg/kg) after two weeks.

Piglet did have some loss of appetite with this medication. Fortunately, after about a week, this problem went away. It also seemed to sedate her for the first couple of days, but she was normal after that. Her blood work was fine when we rechecked it a couple of weeks after starting the drug.

The fluoxetine helped, but I still felt that she was on edge and overly reactive.

I decided to make one further change and switch her to sertraline instead of fluoxetine. Sertraline is long-acting, similar to fluoxetine, which is desirable. I did discover that it is *much* more expensive, as there was no generic available (a generic version is expected to be released sometime in 2006). We started Piglet on a once-a-day dose of 25 mg (1.67 mg/kg).

Other factors influencing anxiety: chronic pain

Shortly after switching her to sertraline, Piglet underwent surgery to remove a broken carnassial (the largest tooth in the mouth), as well as a small tumor I had discovered between her toes. Because many medications can be dangerous to combine with SSRIs or TCAs, I had to be careful what pain medication was used.

I wanted to use tramadol, an effective prescription pain reliever, but had seen warnings about combining it with SSRIs, due to the risk of serotonin syndrome, though I later learned that this could be done with caution.

Instead, my vet suggested using Buprenex (buprenorphine), which is put into the cheek pouch and absorbed through the mucosal membranes (this works very well with cats; they don't really know how well it works for dogs).

After she recovered from surgery, Piglet's anxiety level reduced. In fact, she became almost normal again. I believe that she must have been experiencing some



Given the facial wrinkles characteristic of her breed, it may not be immediately apparent how this photo of Piglet in an anxious moment differs from the one of her in a relaxed mood (on page 3). But her muscles are tense, and her owner describes her as on edge and reactive.

chronic pain that lowered her anxiety threshold. Although I know for certain that the tooth had *just* broken, it's possible it was cracked and painful for a while before it was removed; she had stopped being an avid chewer some time before that, although my vet could find nothing wrong with her teeth. I also think that the small tumor in her foot may have been bothering her for a long time, though I was unaware of it.

Tricyclic antidepressants (TCAs) and selective serotonin reuptake inhibitors (SSRIs)

These two types of drugs are grouped together here, as they have similar properties and side effects.

TCAs:

Start with a low dose and increase as needed every two weeks up to the maximum dosage. It may take four to six weeks to see improvement.

- **Amitriptyline** (Elavil®): 1 - 2 mg/kg, twice a day (recommendations range from 0.25 - 6 mg/kg once or twice a day)
- **Clomipramine** (Clomicalm®): 1 - 3 mg/kg, twice a day (one source said dosage could be increased to 4 mg/kg twice a day, if needed to be effective)

SSRIs:

- **Fluoxetine** (Prozac®): 1mg/kg, once or twice a day (recommendations range from 0.5 - 3 mg/kg once a day)
- **Paroxetine** (Paxil®): 0.5 - 1 mg/kg, once a day. Dosages of up to 3 mg/kg once a day may be used for compulsive disorders
- **Sertraline** (Zoloft®): 1 - 3 mg/kg, once a day (recommendations range from 0.25 - 4 mg/kg once a day)

SSRIs must be given a minimum of three to five weeks in order to assess the effects, and may take six to eight weeks to reach full effectiveness. Paroxetine can be particularly difficult

to wean off. In humans, 50 mg Prozac is considered equivalent to 20 mg Zoloft.

Both TCAs and SSRIs may cause side effects, including dry mouth (which may manifest as frequent lip licking), urine retention, heart rate disturbances, constipation, and gastrointestinal effects such as vomiting or inappetence. The most common side effect is sedation. Loss of appetite is also common, but usually goes away after a few days. Giving with food and dividing the dosage between meals may decrease gastric side effects.

TCAs can cause bone marrow suppression and may affect the liver. They may also lower seizure threshold in epileptic patients. These side effects may be more likely with clomipramine.

It is best to check blood work two weeks after starting these drugs to make sure that your dog is not having any adverse effects, then continue to monitor every six months to a year thereafter. They should be used with caution in dogs with liver or kidney impairment, heart problems, or seizure disorders. Older dogs should have blood work done and possibly an ECG to check for cardiac arrhythmias before starting these drugs. The dosage may need to be reduced in dogs with liver or kidney disorders.

TCAs and SSRIs can be dangerous to combine with each other or with other drugs, including antihistamines, anticonvulsants, anesthetics, MAOIs (see below, on page 8), and even herbs such as kava kava or St. John's wort, and l-tryptophan, an amino acid. TCAs can be combined with SSRIs cautiously, using low dosages of each, which may reduce the potential for side effects and speed the time they take to become effective.

The most common risk when combining SSRIs or TCAs with each other or with other drugs is serotonin syndrome, characterized by lethargy or agitation, incoordination, fever, tremors, or

CONTINUED ON NEXT PAGE

For the next few months after the surgery, Piglet did not have a single anxiety attack. She had a few minor episodes, where she became restless, with some pacing and attention-seeking behaviors, but no panting, trying to hide, waking me up at night, etc. These episodes did not last very long, usually only about 20 to 30 minutes, before she was able to settle down again. At this time, I was giving her sertraline (25 mg once a day) and clonazepam (2 mg, twice a day).

Setback

Suddenly, Piglet became progressively worse over several days, culminating in a full-blown anxiety attack; I don't know what caused it. I first suspected a defective batch of clonazepam, which I had just refilled, but when I switched to the name-brand Klonopin, she continued to have problems.

I spent another couple of months trying different things. I took her off Metacam (a prescription arthritis pain reliever), thinking that it might be upsetting her stomach,

but that didn't help. I put her back on Metacam and added tramadol, in case pain was still contributing to her anxiety, but that also did not help. She was not as bad as she had been originally, but she was still having full-blown anxiety attacks periodically, and was on edge most of the time.

After discussion with my veterinarian and veterinary behaviorist, we increased Piglet's clonazepam to 3 mg (0.2 mg/kg), on the high end of the range for anxiety, but still well below the dosage used for seizures. This helped some, but not enough.

I finally decided to increase her SSRIs, though both my vet and the veterinary behaviorist were concerned with this. Because fluoxetine (Prozac) is considered to be two-and-a-half times as effective as sertraline (Zoloft) at the same dosage level in humans, but the dosage ranges given for dogs are similar, I twice tried to switch Piglet from sertraline to fluoxetine, but both times she got much worse and I switched her back. I then increased her sertraline dosage from

25 mg to 37.5 mg (2.5 mg/kg) once a day. Within a few days, she was back to normal.

That was over three months ago, and she has continued to do great since. On the rare occasion that she starts showing signs of anxiety, or if I have to leave her alone for too long, I give her melatonin (3 mg) plus a very small dose of alprazolam (0.25 mg). I am in the process of very slowly reducing her clonazepam dosage (it is addictive, so I am making only small changes every two weeks), and she is continuing to do well with the reduced dosage.

Don't stop too soon

In hindsight, I believe that the SSRIs (fluoxetine and sertraline) and the TCAs (particularly clomipramine) helped more than I realized at first. Because they must be given for a few weeks before they reach full effectiveness, and because Piglet needed the addition of benzodiazepines, which are quicker-acting, I discounted the effect of the other medications.

CONTINUED FROM PREVIOUS PAGE

seizures. Serotonin syndrome can be dangerous, even fatal.

TCAs may lower seizure threshold, and may make glaucoma worse. They may lower thyroid levels, which is not a problem but could lead to a misdiagnosis of hypothyroidism. They can have cardiovascular effects, so care and monitoring is needed during general anesthesia.

The use of cimetidine (Tagamet) may slow the removal of these drugs from the system, allowing them to build to toxic levels. Cyproheptadine (an antihistamine sometimes given for allergies) may decrease or reverse the effects of SSRIs.

Both TCAs and SSRIs have some effect against chronic pain.

Other drugs

MAOIS

Never combine SSRIs, TCAs, or buspirone with monoamine oxidase inhibitors (MAOIs) such as selegiline (Anipryl, used to treat senility [canine cognitive dysfunction] and Cushing's Disease), or amitraz (used in the Preventic and other tick collars, and in Mitaban, which is used to treat demodectic mange).

You should wait at least two weeks after discontinuing MAOIs before starting any SSRI or TCA. Because of the long half-life of drugs such as fluoxetine (Prozac), you should wait at least five weeks after discontinuing use of SSRIs or TCAs before using Anipryl or amitraz. MAOIs may also lead to high blood pressure when combined with buspirone or DLPA (dl-phenylalanine, used to treat chronic pain).

TRAMADOL (ULTRAM)

While I have seen warnings against using the pain medication tramadol with SSRIs or TCAs due to the potential for serotonin syndrome, the veterinary behaviorist I consulted said that her colleagues have used them together with caution, and I have done so with Piglet. It makes sense that if high doses are not being used, the risk of serotonin syndrome should be reduced. Tramadol is safe to combine with benzodiazepines.

MELATONIN

Although no studies have been done, pharmacists have told me it is safe to combine melatonin with any of these other drugs, at least on an occasional basis. Melatonin is a hormone used to treat jet lag in humans. It has been found to be effective in 80 percent of dogs with thunder phobia. Recommended dosage is 3 mg for dogs over 35 lbs, 1.5 mg for smaller dogs, maybe less for really tiny dogs, given no more than once every 8 hours, as needed for short-term use. I am using melatonin with Piglet on occasion when I feel a little extra help is needed.

ACEPROMAZINE

"Ace" should *not* be used to treat anxiety or noise phobias. It is a tranquilizer that makes the dog unable to react but does nothing to decrease his anxiety – and can actually make it worse.

I was advised by both my vet and the behaviorist that Ace could be used for emergencies, to force her to sleep if absolutely nothing else was working, and I did use it once, when she was still up at midnight after being up all the night before, and after giving both alprazolam and melatonin without success, but it is not something I am comfortable using or would recommend. It did knock Piglet out, but she was still groggy and uncoordinated the next day, something I had not seen with any other medication we tried.



I no longer question the impact of these slower-acting drugs. I would encourage anyone who tries TCAs, SSRIs, or buspirone to not give up too soon, keep using them for at least one to two months and preferably longer, before deciding that they're not working and trying something else. If needed, you can combine them with the quicker-acting benzodiazepines to get some relief while waiting for the other drugs to take effect.

Piglet enjoys her walks and explores new

places again, and no longer avoids areas where she might hear loud noises. Although they still disturb her a little, she doesn't try to head for home when she hears them. She sleeps through the night peacefully and is relaxed during the day, even playful again. She is more interested in everything. It's a small miracle, at her age (she is now 14), to see such improvement.

Although only the benzodiazepines are physically addictive, it is important to wean off all anti-anxiety medications slowly, re-

ducing dosage gradually every one to two weeks, rather than stopping abruptly. Stopping SSRIs and TCAs too quickly can result in symptoms returning. Stopping benzodiazepines too quickly can lead to seizures; they must be weaned slowly as they create physical dependence.

Final (I hope!) notes

Piglet's current drug regimen consists of sertraline (37.5 mg/day) and clonazepam (2 mg twice a day, and decreasing).

I have learned that when you find medications that work, you need to continue to give them for some time. A dog must be treated with SSRIs or TCAs for a minimum of three to five weeks before you are able to assess the effects; then, you must maintain treatment until all the dog's symptoms are gone or are at the same low, consistent level, for at least another one to two months. Treatment should be continued after that for at least as long as it took to achieve that level, before even beginning to think about weaning them off. Total length of treatment should be a minimum of four to six months.

One of the mistakes I made was always trying to give the minimal drugs possible; every time I would see improvement, I would try to reduce the amount of drugs she was getting, and then she would get worse again. I have learned that it takes time to overcome anxiety disorders; they do not go away overnight.

If needed, I am prepared to keep Piglet on these drugs for the rest of her life. She is tolerating them well, with no side effects and continued normal blood work, and the improvement in her quality of life is so dramatic that I no longer fear having her on them. I have come to realize that there is no harm in relying on drugs when they are needed.

In hindsight, I wish I had tried using alprazolam for our walks when Piglet's reaction to outside noises first escalated; I think she would not have gotten so bad if I had treated the problem early. I would never recommend anxiety drugs as a first choice, before trying to address anxiety with natural methods, but when a dog's quality of life is at stake, the drugs can perform miracles. They have given Piglet back her life, and for that I am grateful. 🐾

Mary Straus does research on canine health and nutrition topics as an avocation. She is the owner of the DogAware.com website. She lives in the San Francisco Bay Area with Piglet.

Cost Comparison

I found the best drug prices at Costco, where even nonmembers can order online and shipping is only \$2.00. Not all drugs are available there, but the ones I could get were substantially cheaper than from my local pharmacy. For example, when I started the clonazepam, my local pharmacy quoted me a price of over \$85, while Costco charged \$11 for the same prescription. I also learned that I could get 50 mg sertraline for the same price as the 25 mg pills, and simply cut them in half with a pill splitter.

Drug	Prescription Cost	Cost Per Pill	Monthly Cost for Piglet's Highest Dosage
ALPRAZOLAM	\$12.69 for 100 1-mg	\$.13	\$11.42 (1 mg 3x day)
CLONAZEPAM	\$19.79 for 100 2-mg	\$.20	\$17.81 (3 mg 2x day)
AMITRIPTYLINE	\$14.37 for 100 50-mg	\$.14	\$ 6.47 (25 mg 3x day)
CLOMIPRAMINE*	\$54.00 for 100 50-mg	\$.54	\$16.20 (25 mg 2x day)
FLUOXETINE	\$15.57 for 100 10-mg	\$.16	\$14.01 (15 mg 2x day)
SERTRALINE**	\$76.57 for 30 50-mg	\$2.55	\$57.43 (37.5 mg 1x day)
BUSPIRONE*	\$34.95 for 60 10-mg	\$.58	\$52.42 (15 mg 2x day)

* Not available through Costco; you might be able to find a better price

** Generic for sertraline is due out in 2006 and should be much less expensive

References

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"Pharmacology and Behavior: Practical Applications," by Karen L. Overall, MA, VMD, PhD, DACVB, ABS Certified Applied Animal Behaviorist, October 2001.
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Biscuits, Not Rolls

Why you should never use the “alpha roll” (and what to do instead).

BY PAT MILLER

Teddy’s owners were distraught as they explained to me on the phone why they had called. Their veterinarian had told them that their nine-week-old Golden Retriever puppy was “dominant aggressive” because he was biting their hands. He had advised them to alpha-roll the pup every time he tried to bite or otherwise challenge their authority. They’d been following the vet’s instructions for a week, and Teddy’s aggression was getting seriously worse. They feared they would have to euthanize their pup. We made an emergency same-day appointment for a behavior consultation.

I found Teddy to be a somewhat assertive puppy, who enjoyed actively exploring



In a real alpha roll, the dog is physically forced and pinned to the ground until he goes limp and “gives up.” We’ve staged a mock “alpha roll” with a playful dog who was actually enjoying having his belly rubbed; however, note his tense expression when we held him firmly for even just a moment. This is a vulnerable position for a dog.

The Whole  Dog Journal™

WHAT YOU CAN DO . . .

- **Watch dogs who are interacting so you can analyze any “belly up” behavior you might see. Confirm for yourself that it’s usually either offered by the more subordinate dog or performed as part of mutually agreeable play, and if one dog forces another to the ground it’s likely accompanied by strong conflict and tension.**
- **Ask your dog to practice deference behaviors as part of your daily routine together.**
- **Share this article with friends, acquaintances, and animal care professionals who suggest to you that the alpha roll is an appropriate behavior modification tool for your – or any – dog.**

the world with his mouth, as normal puppies do. Like many assertive, excitable pups, Teddy also got increasingly aroused when his owners protested his needle-sharp-toothed explorations on their skin. The more they protested, the more excited (and mouthier) he got. Hence the veterinarian’s all-too-common misdiagnosis of “dominance aggression” and his woefully inappropriate prescription of alpha-rolling the pup to put him in his place.

Rolling the dice

The alpha-roll consists of physically rolling a dog onto his side or back and holding him there until he stops resisting or struggling, supposedly submitting to your superior authority.

Popularized by the monks of New Skete in their dog-training books (such as *How to Be Your Dog’s Best Friend*) in the 1980s, the technique is a truly unfortunate and dan-

gerous interpretation of a normal canine social behavior. When approached by a higher-status dog, a lower-ranking member of the pack may first avert and lower his head and shoulders, then voluntarily lie down on the ground and perhaps roll onto his side or back as an appeasement or deference gesture. Typically, when an appeasement gesture is used, the higher-ranking canine has no need to assert himself by forcibly flattening the lower-ranking dog to the ground; the subordinate is already there!

Job Michael Evans, one of the New Skete monks responsible for writing *How to Be Your Dog’s Best Friend*, later left the order, and subsequently stated he regretted including the now-controversial technique in the book. While he didn’t go as far as to say the alpha roll was ineffective or inappropriate, he did say he felt it wasn’t safe for use by the general public.

Modern behavior professionals who are

well-educated in the science of behavior and learning go much further, denouncing the risky technique along with other methods based in faulty dominance theory.

The most obvious negative consequence of techniques that encourage owners to physically overpower and intimidate their canine companions is the possibility of scaring or coercing the dog into defending himself. He reacts aggressively in return, angering or frightening his owner, who often responds by escalating his own level of violence. Before you know it, the relationship between the two is seriously, sometimes irreparably, damaged.

Despite compelling evidence that physical intimidation does more harm than good, some trainers today (indeed, some very high-profile ones) are stubbornly attached to the forced roll-over, cloaking it in new-age terms and turning a blind eye to the damage done to relationships between dogs and their humans in the process.

Questions of appropriateness aside, it takes someone skilled in handling dogs to be able to alpha-roll a dog without significant risk to human safety – which is at least in part why one television show where the technique is frequently used includes a “Don’t try this at home”-style disclaimer. It’s also why trainers who employ methods such as the alpha roll talk about being bitten as “part of the job,” while those who use more appropriate, nonconfrontational approaches are more likely to keep their skins intact.

Canine as a second language

Again, the alpha roll is supposed to mimic the behavior of the “top dog” in a pack, and send the message, “I’m the boss of you!” But one huge error in alpha-roll logic is the belief that we can successfully pretend to be dogs in our interactions with our canine companions. Dogs know we’re not dogs, and any attempt on our part to mimic their language is doomed to failure.

Dogs are masters at speaking and reading canine body language. Their communications to each other are often subtle and nuanced, a furry ballet designed to keep peace in the pack. Our efforts to use canine body communications are oafish in comparison – and I imagine that our dogs are alternately amused, confused, nonplussed, and terrified by our clumsy attempts to speak their language.

Violence occurs between dogs within established social groups when the communication system breaks down; it’s a sign of an unhealthy pack relationship. Ethology studies from the 1970s and 1980s suggest that canine social structure holds together because appeasement behaviors are *offered* by subordinate members, not because higher-ranking members aggressively demand subservience. Instead, successful pack leaders were observed to calmly control the good stuff – an approach frequently suggested by today’s modern, positive trainers as a much safer, more appropriate, and effective method for creating a harmonious mixed-species social group.

In her book, *Clinical Behavioral Medicine for Small Animals*, Dr. Karen Overall agrees, stating, “The behavior of the lower status individuals, *not* the higher ranking one, is what determines the relative hierarchical rank. Truly high-ranking animals are tolerant of lower-ranking ones.”

Methods that encourage dogs to offer deference behaviors, and then reward them for it, are a much closer approximation of actual pack behavior – and easier for us to emulate successfully – than any application of force. Use biscuits (training treats), not (alpha) rolls!

Establishing leadership

The Monks, and others like them, didn’t have it *all* wrong. It *is* important that your dog perceive his humans as higher-ranking member of your collective multi-species social group. It is far better, safer, and ultimately more effective, however, to accomplish this through offered deference rather than forced dominance.

In his text, *Handbook of Applied Dog Behavior and Training, Volume Two: Etiology and Assessment of Behavior Problems*, Steven R. Lindsay, a dog behavior consultant in Philadelphia, says, “A wise lupine leader avoids unnecessary dominance contests and assertions of authority.”

Lindsay also cites a 1988 study (E. Fonberg, “Dominance and Aggression”), noting that dominance that is established without resorting to aggression appears to be more stable than dominance that is maintained by constant vigilance and displays of strength.

There is a multitude of ways to establish appropriate social hierarchy without resorting to aggression. No, you don’t have to go through all doorways first, nor do you have to eat before your dog does. You can simply wait for and/or encourage your dog to offer deference behaviors in order to make good stuff happen, while at the same time you make sure that pushy behavior doesn’t result in him getting good stuff.

Your dog’s driving ambition in life is to get good stuff. Some owners and trainers express concern that teaching the dog that he can get you to click! and give him a treat by offering certain behaviors elevates his status because *he’s* controlling *you*. In reality, a dog’s psychological response to deference behaviors appears to so hardwired that if a dog repeatedly performs them, he *becomes* deferent. It’s not just a role he’s playing, like an actor. If he *does* deference, he *is* deferent. He can’t help it.



This little dog has not *been* rolled – she *has* rolled over on her own, offering an appeasement behavior in an attempt to forestall her owner’s intent to pick her up and leave the dog park. Some owners might perceive this as resistance and grow angry, but her gentle owner understands she wants to stay and remains good-humored.

Deference behaviors you can use to your relationship advantage include:

■ **Wait at the door.** Dog sits and waits to go through a door, even a wide open one, until you give him permission to move forward (good stuff = go out and have fun).

■ **Wait for your dinner.** Dog sits and waits to eat his meal until you give him permission to eat (good stuff = eat food!).

■ **Wait to get in car.** Dogs sits and waits outside car while door is opened, hatchback is lifted, or tailgate lowered, until you give him permission to jump in (good stuff = go somewhere in the car and have fun).

■ **Wait to get out of the car.** Dog sits and waits in vehicle while car door is opened, hatchback is lifted, or tailgate lowered, until you give him permission to jump out (good stuff = get out of car and have fun).

■ **Wait to get out of kennel, crate, or exercise pen.** (Good stuff = get out of kennel, crate, or pen and get attention and have fun.)

■ **Sit for your leash.** Dog sits calmly to go out for a walk while leash is attached to collar (good stuff = go for walk).

■ **Ask to be petted.** Dog sits and waits politely at your feet to be petted rather than jumping up, pawing, or nudging you for attention (good stuff = petting and attention).

■ **Ask for permission to jump on sofa or bed.** Dog sits and waits to be invited onto furniture instead of jumping up uninvited (good stuff = lying on soft, comfortable surface and getting attention).

In each case, the dog learns to offer deference behavior in order to get the desired “good stuff” result. Appropriate (deference) behavior moves him closer to his goal; inappropriate behavior makes the good stuff go away (see “Oops, You Lose!” below).

Happy endings

That phone call from Teddy’s owners came almost 10 years ago, early in my career as a professional behavior consultant. Although I had handled many aggressive dogs during the 20 years I worked at the Marin Humane Society, I had not yet worked with a lot of aggression-modification cases professionally. I agreed to see Teddy, with the understanding that I would refer him to someone more experienced if I felt I wasn’t capable of handling his case.

He turned out to be one of the simplest aggression cases I’ve ever worked with. He just needed his people to stop frightening him with their unpredictable eruptions of violence so he could stop having to defend himself.

We began training with clicks and treats. Teddy loved the clicker game, and caught on very quickly to the concept that a “click!” equals “treat” – and even better, that he could *make* the click! happen by offering

one of a growing list of desirable behaviors. We used a tether to restrain Teddy during training so if he *did* do inappropriate mouthing we could simply say “Oops!” and step out of reach of his nasty-sharp baby teeth.

In the very first session his arousal and biting lessened noticeably. By the time I returned for the second, the mouthing problem was 95 percent resolved, Teddy’s owners were tearfully grateful, and we happily moved on with his basic training.

Since Teddy, I’ve lost count of the number of “aggression” cases I’ve handled where the alpha roll was the clear and present *cause* of a dog’s increasing aggression. A frightening number of puppy/dog owners are still counseled by their veterinarians, trainers, other animal professionals, and well-intentioned friends to alpha roll their uncooperative canines.

It’s *always* better to get your dog to voluntarily buy into your desired behaviors than to try to force him. That’s the challenge, the joy, and the excitement of positive training. As the supposedly more intelligent species, we should be able to figure out how to get dogs to *want* to do what we want, including being deferent to us, without the use of force. Biscuits, not rolls! 🐾

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

Oops, You Lose!

Just as a “click!” marks the behavior that earned a reward, a marker such as “Oops!” can tell your dog which behavior *lost* him the opportunity for a reward. Often called a “no reward marker” (NRM), “Oops!” means “Too bad! That behavior didn’t earn a reward; try something else!”

In fact, it might be more appropriately (and sometimes is) called a “punishment marker.” When we say, “Oops!” and remove the treat from view, we’re using *negative punishment*, one of the four principles of operant conditioning. Negative punishment is a relatively benign form of punishment – no physical force or harsh corrections – in which the dog’s behavior makes the good stuff go away.

Because dogs want good stuff to *happen*, they tend to avoid doing behaviors that consistently make good stuff go away. Many, if not most, positive trainers use negative punishment as a gentle way to let dogs know when a behavior causes a negative consequence – when the dog has made a “wrong” behavior choice.

When using “Oops,” remember that it’s simply a cue, intended to give the dog information, not intimidate him into

stopping the behavior. I use “Oops!” because it’s a difficult word to say in an angry tone – it always comes out cheerful and a little silly. Here’s an example of how I might use it:

I’m teaching a dog to “Wait!” until I give him permission to eat his dinner (a good deference behavior!). The dog is on my left side, food bowl is in my right hand. I lower the bowl a few inches, and if he doesn’t get up, I click!, raise the bowl back up, and feed a treat. I just communicated to him that he will be rewarded if he remains in the sit position as his bowl moves closer to the floor.

I lower the bowl again, a few inches more than last time. If he remains sitting, I click!, raise the bowl, and give him a treat. If he gets up, I say “Oops!” the *instant* his doggie rear leaves the ground, and lift up the bowl. I just communicated to him that getting up from the sit position makes the good stuff go away.

I continue this until I can set the bowl on the floor without him moving. After he’s done that several times, I will tell him he can eat, and encourage him to get up and get the good stuff. As the benevolent high-ranking member, I control the good stuff, and out of the goodness of my heart I’ll be happy to share it with appropriately deferent members of my social group.

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Grandmother Nature

A profile of Juliette de Bairaclı Levy, pioneer of natural rearing methods.

BY CJ PUOTINEN

Readers of canine health books and magazines, including this one, can be forgiven for assuming that holistic or natural pet care is a recent breakthrough, something developed during the past two or three decades by a handful of revolutionary veterinarians and researchers.

Not so. Today's holistic pet care movement began over 70 years ago when Juliette de Bairaclı Levy defined "natural rearing." Now in her 90s and living in Switzerland, Levy holds a place of honor in the history of natural pet care.

Born to a wealthy Jewish family (her father was Turkish, her mother Egyptian) and raised in England with chauffeurs, maids, cooks, and gardeners, Levy knew in childhood that she wanted to be a veterinarian. She attended two universities and was in her final year of veterinary school when she decided that conventional medicine had none of the answers she sought, and she embarked on a lifetime of travel and study with nomadic people, first in England, then around the world.

"I realized that if I wanted to learn the traditional ways of healing and caring for animals, I had to be where people still lived close to the land and close to their flocks," she says. "From Berbers, Bedouins, nomads, peasants, and gypsies in England, Israel, Greece, Turkey, Mexico, and Austria, I learned herbal knowledge and the simple laws of health and happiness. I never tired of traveling with my Afghan Hounds, always living with and learning from those around me."

An inexhaustible writer, Levy shared what she learned in letters, travel books, novels, poems, and books about herbs and animals. In the 1930s, she published three canine herbals. *The Cure of Canine Distemper* described protocols she developed for her highly successful distemper clinic in London. *Puppy Rearing by Natural Methods* and *Medicinal Herbs: Their Use in Canine Ailments* were reprinted for a wider



Photo courtesy of Gunter Michaelis

ABOVE: Juliette de Bairaclı Levy and one of her home-bred and holistically raised Turkuman Afghans in the 1960s.



Photo courtesy of Swanie Simon

RIGHT: Juliette with comfrey and cleavers, taken on an herb walk in May '06 by a friend she was visiting in Germany.

audience in London in 1947. All three were soon translated into German and other languages.

Just over 50 years ago, in 1955, she combined these works in *The Complete Herbal Book for the Dog*. Now in its sixth edition and called *The Complete Herbal Handbook for the Dog and Cat*, this is the book that brought Levy's natural rearing philosophy to breeders, trainers, and dog owners throughout the world.

Five rules of natural rearing

Levy's basic rules of natural rearing for dogs require:

- 1) a correct natural diet of raw foods;
- 2) abundant sunlight and fresh air;
- 3) at least two hours of exercise daily, in-

cluding plenty of running exercise outside any kennel enclosures;

4) hygienic kenneling, with the use of earth, grass, or gravel runs, never concrete; and

5) herbs, fasting, and other natural methods in place of vaccinations and conventional symptom-suppressing drugs.

Levy's first rule has gained acceptance over the years. Many holistic veterinarians recommend feeding a home-prepared diet of raw foods, including meat and bones. Some use the diet of wild wolves as a model. Levy and her followers feed a variety of foods, including raw meat, dairy, eggs, minced herbs, and small quantities of fruit, vegetables, powdered seaweed, and grains

such as oats soaked overnight in raw goat milk or yogurt.

"I introduced seaweed to the veterinary world when a student in the early '30s," she says. "It was scorned then, but now it is very popular worldwide." She credits kelp and other sea vegetables with giving dark pigment to eyes, noses, and nails, stimulating hair growth, and developing strong bones.

In addition to providing ample quantities of pure water at all times, Levy recommends one meatless day and one fasting day (no food, just water) per week for adult dogs. Where raw bones are concerned, Levy recommends feeding them after the day's main meal, on a full stomach, so that the bone is cushioned by food, and with a small amount of soaked bran, shredded coconut, or other fiber to help sweep bone fragments from the digestive tract.

All of Levy's dietary recommendations are accompanied by traditional herbal formulas for everything from daily health maintenance to birthing aids and weaning foods, disinfecting herbs that help protect dogs from harmful viruses, bacteria, and parasites, and herbal first-aid for dozens of conditions and illnesses.

Researchers who study the connection between natural light and the endocrine system agree with Levy's recommendation that dogs spend as much time as possible outdoors. They blame malillumination, the lack of unfiltered natural light, for a host of chronic illnesses. Glass windows prevent the transmission of full-spectrum natural light, but open windows and doorways provide it.

Daily outdoor exercise, including running and play, does more than burn calories; it stimulates lymph circulation, strengthens bones, improves immunity, and keeps dogs happy as well as healthy.

Levy's advice about kenneling dogs in close contact with earth or grass rather than concrete is interesting in light of research cited by cell biologist James Oschman, PhD, in his book *Energy Medicine: The Scientific Basis of Bioenergy Therapies*. Dr. Oschman links modern health problems to our insulation from the natural supply of free electrons that reside on the surface of the earth. Barefoot contact with the earth, he says, supplies free electrons in abundance.

As San Diego health researcher Dale Teplitz explains, "Animals know that, and when given a chance they will choose to be in contact with the earth. This barefoot contact can improve sleep, reduce inflammation that causes pain, balance hormones, enhance circulatory and neurological function, and much more."



Now in her nineties, Juliette still loves foreign travel and meeting people and their naturally reared dogs.

As one would expect, Levy has no use for pesticides, weed killers, or other lawn chemicals, and she recommends feeding dogs organically raised and pasture-fed ingredients.

Levy considers vaccinations unnecessary and inappropriate, both because natural methods treat illnesses successfully and because vaccines disrupt the body's immune system.

"You cannot discount the hundreds of canine distemper cures that Juliette and her students achieved," says Marina Zacharias, who has studied natural rearing for over 20 years. "And I have witnessed her parvovirus treatments first-hand with great success. When you know that these ailments can be successfully treated with natural methods, it removes the fear that has been instilled in us. I know that in my case she definitely empowered me to take an active and preventive role in my animals' health care. Our society does not teach you that.

"Juliette encourages you to think for yourself and not blindly follow established methods just because you are told to. Her attitude is rare, especially today. She has witnessed almost an entire century, and through all the technological breakthroughs of modern science, she still advocates natural rearing methods, as they continue to prove themselves effective."

Fasting for healing

To most of us, fasting – depriving a dog of food – seems unnatural. Surely the right thing to do is to encourage a dog to eat at

every mealtime. But fasting is Levy's choice of treatment for all animals, including humans, who are ill.

Well-known author and trainer Wendy Volhard learned about fasting and natural rearing 39 years ago when these methods saved her dog's life and started her on a fascinating new career.

In 1967, Volhard traveled from New York to Germany, where she met 17- and 18-year-old Landseer Newfoundlands. It's also where she acquired Heidi, an exceptionally healthy young female, as the foundation of her breeding kennel.

"I was in my early 20s then," says Volhard, "and I wanted to do everything in the most scientific manner. I talked and worked with veterinarians at every opportunity, so I knew the importance of vaccinating every dog for everything and, of course, feeding the finest quality commercial dog food. That was the only way to go."

But instead of thriving, Heidi declined, and at age five, she was given a month to live. "She had total deterioration," says Volhard. "Her kidneys, liver, and heart were failing, and she had skeletal problems. Her whole body was falling apart."

In desperation, Volhard returned to Germany and asked for help. She learned that



Heidi (Henna von Schartenberg, UD), the dog who started Wendy Volhard on the natural rearing track.

Heidi's long-lived, healthy relatives were fed raw, natural foods, nothing out of a box or can, and none were vaccinated. The English breeders she visited on her way home used the same methods, and they gave her as a parting gift Levy's *Complete Herbal Handbook for the Dog*.

Volhard read the book on her return flight to New York and laughed heartily at

Levy's advice to fast sick animals and build them up with herbs and natural foods. But at home with her dying dog, she thought, "What else can I do?" The finest veterinary medicine wasn't helping.

Over the strong objections of her husband, who thought Heidi should enjoy a steak every day for whatever time she had left, Volhard fasted the dog for three weeks, feeding her only fluids, honey, and herbs. "I followed Juliette's guidelines absolutely," she says. "I had nowhere else to go. And every day that my dog didn't eat, she got better. At the end of three weeks, we started her on a natural diet, and she regained her strength, recovered completely, got her Utility title, and lived an active, happy life until she died seven years later at age 12."

At the time, Volhard was a *Wall Street Journal* reporter, with one foot in the scientific "prove it" community. She decided to compare Levy's natural rearing diet, with its a-little-of-this-and-a-little-of-that approach, to the National Science Foundation's nutritional guidelines for dog food, the only scientifically tested pet food standard at the time.

"It took me 12 years and many interviews with experts," she says. "Then my

veterinarian helped with final adjustments, which we made as the result of hundreds of blood tests."

In 1984 Volhard published her diet, and the book that resulted, *Holistic Guide for a Healthy Dog*, is now in its second edition.

Several years later, she met Levy at a seminar. "I thought, Oh my, if I were in her shoes and met a woman who had taken my work and fiddled with it and then published it, how would I feel? With trepidation, I finally met her, and she said, 'I've been waiting to meet you for years. You've done a fabulous job. Thank you for taking my work and carrying on.' She was incredibly gracious."

Volhard adjusted the ratio of calcium, magnesium, and phosphorus in Levy's diet, but she calls the natural rearing philosophy as important and effective today as it was when Levy first proposed it. "Juliette did the very best she could with the knowledge available at the time," says Volhard. "She did a magnificent job. She is truly the grandmother of the entire holistic animal care movement. She's like Adele Davis in the

human health food movement. She started it up."

Herbal wisdom

Traditional herbal medicine had all but disappeared in the United States when, in the 1960s, a new generation began turning away from conventional therapies and looking for alternatives. Rosemary Gladstar, now one of America's leading herbalists, was part of that movement.

"Juliette has done amazing things for dogs, cats, and farm animals, but she has also done wonderful things for people," says Gladstar. "Her early books had an extraordinary influence on herbalists everywhere. She single-handedly rescued a body of knowledge that would otherwise have been lost or ignored, and she put it directly into the hands of her readers."

As valuable as Levy's recipes and instructions were to her and other herbalists, Gladstar recalls that it was Levy's ability to inspire her readers that changed their lives. "There is no doubt about it," she says. "She sparked and awakened something in me, just as she did in hundreds of others, far more than any other herbalist at the time. I think it was because she was so connected to the earth and to plants, and she was able to transmit and pass on that feeling of connection. Juliette made herbal medicine fully accessible to everyone."



Rosemary Gladstar, Juliette, and Lynn Vaughan at Gladstar's holistic pet care conference in 2004.

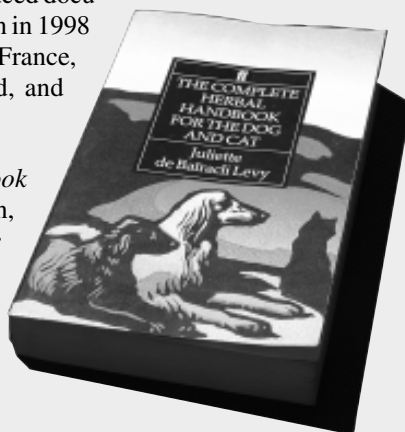
Resources

BOOKS BY JULIETTE DE BAIRA CLI LEVY

Nature's Children (natural childrearing), *Traveler's Joy* (finding the wild bounty in simple living), and *Common Herbs for Natural Health* (lore and uses for 200 herbs) have recently been reprinted by Ash Tree Publishing, Woodstock, NY; (845) 246-8081; ashtreepublishing.com

The same publisher distributes (on video and DVD) *Juliette of the Herbs*, a beautifully produced documentary filmed by Trish Streeten in 1998 on location in Greece, Spain, France, Portugal, Switzerland, England, and the United States.

The Complete Herbal Handbook for the Dog and Cat (6th edition, Faber & Faber, 1992) and *The Complete Herbal Handbook for Farm and Stable* (4th edition, Faber & Faber, 1991) describe natural rearing and are available from all book-sellers.



EXPERTS

Marina Zacharias, Natural Rearing
Jacksonville, OR; (541) 899-2080;
naturalrearing.com

Rosemary Gladstar
Sage Mountain Herbs
East Barre, VT
(802) 479-9825;
sagemountain.com

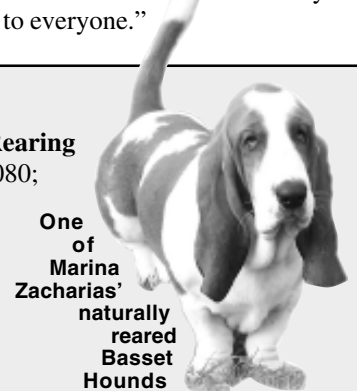
Wendy Volhard and Volhard Top Dog Training and Nutrition, Culpeper, VA; volhard.com

OTHER RESOURCES

Holistic Guide for a Healthy Dog, by Wendy Volhard and Kerry R. Brown, DVM (2nd edition, Howell Books, 1995)

Energy Medicine: The Scientific Basis of Bioenergy Therapies, by James Oschman, PhD (Churchill Livingstone, 2000)

Barefoot Connections, Dale Teplitz. (800) 620-9912



Gladstar has followed Levy's nutritional recommendations for all of her dogs, including Deva, a Bernese Mountain Dog.

"Deva came to me with all kinds of problems," she says. "She had major personality disorders, which I think stemmed in part from her body being so uncomfortable from mange and hot spots. Her coat was in terrible shape, with huge bald areas and weeping eczema. She looked really awful, and she was so unhappy. Deva is now over nine years old, which for a Berner is elderly, and for years her health problems have been about 99 percent gone. She has a wonderful personality and a wonderful life, thanks to natural rearing."

Gladstar began a correspondence with Levy in the 1970s after reading *A Gypsy in New York* and *Traveler's Joy*. "Though these were not really herb books," she says, "I loved them and wrote to the author in care of her publisher. To my surprise, she wrote back, and we became pen pals."

In the 1980s, Gladstar organized an herbal tour that visited Levy in Greece, where she lived on a small island. "I decided then and there that I wanted to bring her to the United States so that people who used medicinal plants and raised their animals with the help of her books would have a chance to meet her."

Gladstar listed Levy as the keynote speaker at the first International Herb Symposium, which was held in 1988 in Framingham, Massachusetts. "The response was overwhelming," she says. "We had a huge audience. It was especially exciting for Juliette because this was the first time in her elder years that she was able to see and meet people whose lives had been affected by her books. She started spending more time in the U.S. and in fact lived here for long stretches of time, and her books began to sell again."

One of Levy's West Coast disciples was Marina Zacharias, who imported her NR (Natural Rearing) brand of herbal supplements from England and sold her books. By the late 1980s, Levy's London publisher, Faber & Faber, had run out of *The Complete Herbal Handbook for the Dog and Cat* but planned not to reprint the book until a sufficient number of orders arrived. The delay could be lengthy, so Zacharias ordered



Photo courtesy of Swanie Simon

Juliette's love for dogs (and theirs for her!) comes through in every photo. In Germany, she snuggles with Cosmina, a dog rescued from the streets of Romania. Cosmina's owner says the dog watches over Juliette like a hawk.

2,000 copies and kept the book in print.

Like Gladstar, Zacharias organized a large seminar featuring Juliette de Bairacli Levy, this one in Seattle. "People flew in from all over the country," she says. "They came not only to hear her speak but to actually meet her in person and hear her stories. I think every one of us that day walked away knowing that we had touched history and that we had been very fortunate to meet such a master herbalist and animal advocate."

Zacharias first read Levy's book in the mid-1980s when she was preparing to bring home her first show-quality Basset Hound puppy. At the time, she had two mixed-breed toy dogs who seemed to have every possible canine disorder.

"When I read Juliette's book," she says, "it was as though someone hit me over the head with a brick. With great certainty I knew this was what I needed to do for my dogs. Her logic regarding natural rearing combined with her clinical experience was impressive. I immediately switched my dogs from Purina chow to raw food and never looked back."

Zacharias values Levy's advice because it has stood the test of time. "She will tell you that these methods are not 'her' diet and

herbal inventions but rather foods and medicinal plants as they have been used for generations and centuries," she says. "Juliette is an herbal historian."

Juliette's legacy

When we asked Levy what she would most like to be remembered for, she replied, "My Turkuman Afghan Hounds became famous for their vitality and speed, and I still prize the *Time* magazine photograph of one of my hounds after he won Best in Show at Westminster, with the simple caption 'Best hound in all of America.' I would like to go to my grave or fly to heaven breeding Afghans.

"Another thing I would like to be remembered for is curing canine distemper, which became my specialty. Indeed, the veterinarians of the King of England sent me their important cases to cure during World War II at my distemper clinic in London.

"I would also like to be remembered for curing 3,000 condemned sheep by herbal methods in England in 1947, clearing their diarrhea and other symptoms with green plants and molasses while vast numbers of sheep in neighboring fields received conventional care and died. Saving the sheep remains one of my proudest moments."

To her fans and friends in the United States and around the world, and especially to their dogs, she sends appreciation and best wishes.

Levy, who lives with her daughter in Switzerland, is still a traveler. As this article went to press Levy was in Germany visiting her remaining Afghan Hound, Malika (Shirini Shades of Velvet), who

lives on a friend's farm. She welcomes e-mail messages, which can be sent to her at info@michaelis.ch, but regrets that she will not be able to send individual replies. 🐾

A long-time contributor to WDJ and author of The Encyclopedia of Natural Pet Care, Natural Remedies for Dogs & Cats, and other books, CJ Puotinen lives in New York with her husband, a Lab, and a tabby cat.



Photo by Rosemary Gladstar

Author CJ Puotinen and Juliette in August 2004.

Gotta Detox

Herbs can help your dog's body detoxify naturally.

BY GREGORY TILFORD

Mick, a five-year-old Labrador Retriever, has flaky skin and smells more “doggy” than usual.

Katrina, a two-year-old mixed-breed, has goopy eyes and oily fur. She has been eating a lot of grass and vomiting almost every day. Lately her stool has been covered with mucus.

Joe, a 12-year-old Beagle, has a fatty tumor on his right side. He also has a cyst behind his left ear.

All of these individuals share something in common: their bodies are working to push toxins and waste materials out by a natural process called *detoxification*.

In mainstream medicine the mechanisms of detoxification are often viewed as unpleasant symptoms of illness that need to be remedied. Eye drops are administered for goopy eyes, dandruff shampoos for flaky skin, surgery for removal of cysts, and so forth.

However, when taken into a more holistic perspective, such measures only amount to removal of outward signs of an underlying state of imbalance. Detoxification, as unpleasant as this natural process may appear to the onlooker, is seen as a natural part of the healing process that should be supported, not suppressed.

In essence, the primary goal of the holistic healer is to help the body in its natural abilities to heal itself and remain healthy.

The Whole  Dog Journal™

WHAT YOU CAN DO . . .

- **Minimize your dog's exposure to toxins, including cigarettes, pesticides, and food additives.**
- **Use an herbal supplement occasionally to help him clear toxins from his tissues.**



Eyes that are oozing with a thick discharge, in addition to pus-filled ears, are obvious signs that this poor dog's body is trying to rid itself of toxic waste products. Simply administering ear and eye drops won't heal this animal.

Rather than ignore the causes of disease in favor of eliminating only symptoms, as many conventional drug or surgical interventions do, the natural care provider works in concert with the body's efforts of correcting itself.

Natural detoxification

The body's detoxification system, being extremely complex and very efficient, has the job of eliminating anything that may be harmful to the body, by whatever means necessary.

Routine detoxification is ordinarily handled by waste removal mechanisms in the digestive tract and liver, the filtering activities of the lymph system, and at immune system levels—where a complex army of antibodies, toxin-scavenging cells, and special chemicals weed out, destroy, and eliminate toxic waste.

However, if any of these systems become overburdened with too much waste or toxic overloads, or are rendered dysfunc-

tional in any way by injury or disease, the body may resort to other, less effective means of elimination. The body will try to push potentially harmful excesses out, any way it can.

If pushed through the skin we see the eruption of rashes, dandruff, an oily coat, or pustules. If the body attempts to push excess waste through mucous membranes we see runny eyes or nose, diarrhea, or mucus discharge at the rectum or urethra.

If these last-ditch efforts fail, the potentially harmful waste compounds that the body is trying to eliminate may accumulate to cause any number of disease problems—ranging from urinary tract disease, dry nose, conjunctivitis, arthritis, chronic allergy and inflammation, skin conditions, to even cancer.

Looking at the big picture

From a holistic perspective, such occurrences bring to mind two questions: First, what may be causing or contributing to the

underlying dysfunction or imbalance? Second, what can be done to help the body detoxify and correct itself?

Finding answers to each of these questions begins by simplifying the body's job of keeping itself clean.

First and foremost, your companion's food should be comprised of good quality, highly digestible meats and vegetables. The diet should be free of artificial preservatives, colorings, and flavorings. Cheap fillers, such as soy, corn, and grain by-products should be removed from the food dish, as should excess sugar and salt. These ingredients do not serve positive roles in canine nutrition. In fact, they may be contributing, in large part, to the excess waste that is the burden of an already overworked detoxification system.

Second, take a hard, critical look at your dog's living environment. Toxic lawn chemicals and household cleaners may also be contributing to your companion's toxicity issues, as might secondhand cigarette smoke, mold and mildew, air pollution, or even potentially allergenic weeds in the backyard. Anything that presents the potential of causing toxic excess in the body should be removed from the scenario, whenever possible.

Digestive enzymes and probiotic supplements should be added to the food, as these will help with digestion and elimination of waste. Green foods, such as spirulina, wheatgrass, or barley grass may also be beneficial, as they are rich with antioxidants and help feed digestive flora that are necessary in the breakdown of waste in the intestine.

To help expedite elimination of waste, fasting may be indicated as well; talk with your holistic vet to find out what type of fasting may be appropriate for your pet.

Provide plenty of clean water

Water is essential in the process of detoxification. Encourage your companion to drink copious amounts of clean, filtered water. Avoid water that contains chlorine, fluoride, chemical residues, harmful bacteria, or parasites (i.e., avoid ditch or stream water).

Depending on circumstances, it may be wise to provide distilled water for a few days. Because distilled water is virtually void of the minerals that are naturally found in most water, it tends to pull minerals, including some metals, and chemicals away from the body before it exits in the form of urine. This can be very beneficial in cases

where metal toxicity or chemical poisoning is suspected. However, keep in mind that long-term consumption of distilled water may deplete your companion's body of some of the trace minerals it needs.

Detoxify with herbs

A variety of herbs may be useful in supporting the detoxification process.

Herbs that strengthen liver functions, such as dandelion root (*Taraxacum officinale*), nettle leaf (*Urtica spp.*), yellow dock root (*Rumex crispus*), Oregon grape root (*Mahonia aquifolium*), or turmeric (*Curcuma longa*) may help improve digestion and the body's abilities to remove toxins from the blood.

Lymphatic herbs, such as red clover (*Trifolium pratense*), cleavers (*Gallium aparine*), or red root (*Ceanothus velutinous*) may help support the lymph system clear toxins from the tissues.

To help with the removal of intestinal mucus and the toxins it collects, ground flax seed, or perhaps a mild dose of senna or another herbal laxative, is in order.

These and many other herbs stand as viable options in support of your companion's detoxification. To find out which herbs are best for your companion and her needs, consult a veterinary practitioner who is versed in the use of herbal medicines.

Among the many formulas used by holistic vets is Detox Blend by Animals' Apawthecary. [Editor's note: This is the company headed by author Greg Tilford.] This is a sweet-tasting liquid combination (in a glycerin base) of dandelion root, burdock root, red clover, licorice, and other herbs that help to safely support the liver in its job of filtering waste from the body.

Most importantly, remember that detoxification is, and should remain, a perfectly natural part of the healing process. Although the circumstances that trigger detoxification may warrant the attention of your veterinarian, the means by which your companion's body eliminates toxins should be supported, not suppressed. That all begins with cleaning that pup up – from inside out! 🐾

Greg Tilford is a well-known expert on herbal medicine for animals. An international lecturer and teacher of veterinarians and pet owners alike, Greg has authored or co-authored four books on herbs, including All You Ever Wanted to Know About Herbs for Pets (Bowie Press, 1999).

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A MONTHLY GUIDE TO NATURAL DOG CARE & TRAINING

Deaf-Instinctively Trainable

Training hearing-impaired dogs is not difficult, it's just a little different.

By Susan Friedman

Everyone has many memories of those dogs who seem to have a special ability. They are often the dogs who seem to have a special ability. They are often the dogs who seem to have a special ability. They are often the dogs who seem to have a special ability.

It's hard to see the dog, but you can see the dog's eyes. It's hard to see the dog, but you can see the dog's eyes. It's hard to see the dog, but you can see the dog's eyes.

Yo Adrenals!

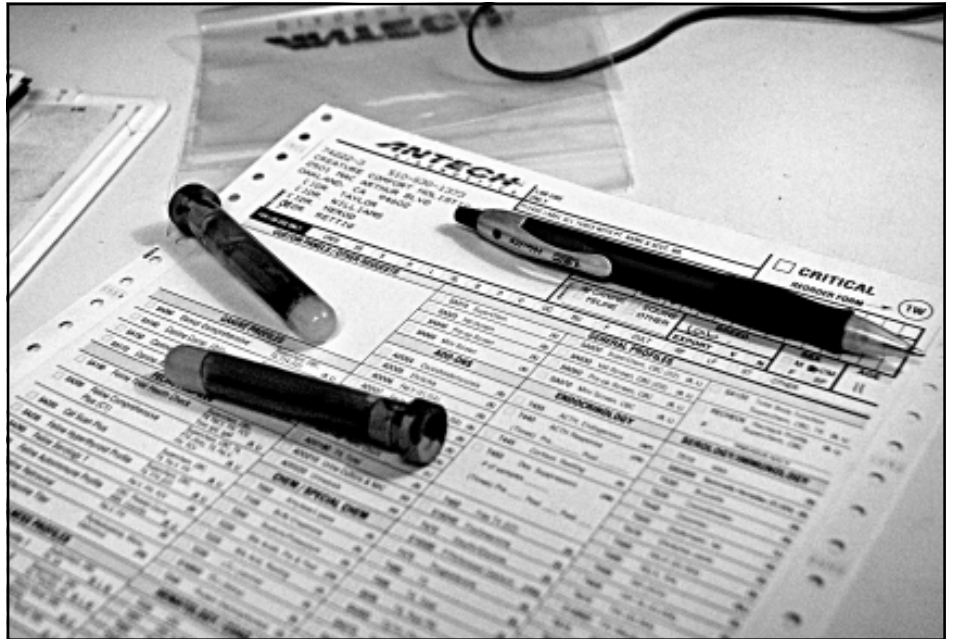
These tiny glands exert a huge influence on your dog and his health.

BY RANDY KIDD, DVM, PHD

The adrenals are small glands located just forward of the kidneys. They are so small, in fact, they were virtually ignored by early anatomists for centuries. Although small in size, they are extremely important in the overall hormonal balance of the body and its ability to maintain homeostasis.

The adrenal glands also interact with the hypothalamus and pituitary gland; the collaboration of the three glands is known as the hypothalamic-pituitary-adrenal axis (HPA axis). Their joint activities help control the body's reactions to stress, whether it is physical or psychological. They also help regulate body processes such as digestion, the immune system, and energy usage.

The adrenals consist of two distinct parts: the outer cortex and the inner medulla. These two areas are entirely different in their function, their cellular structure, and their embryological origin, so it's odd (at least in terms of our current understanding of the



Most disorders involving the adrenal glands are difficult to diagnose; in many cases, it can be even more difficult to determine the cause of the disorder. Laboratory tests of your dog's blood will be necessary for a diagnosis and thus proper treatment.

The Whole  Dog Journal™

WHAT YOU CAN DO . . .

- **If symptoms such as hair loss, lethargy, weight loss, and sudden onset of excessive thirst and urination are seen, get the dog to your vet ASAP.**
- **Avoid giving your dog corticosteroids for chronic conditions or long-term use. Steroidal drugs are a prime cause of Cushing's disease.**
- **Give licorice root to any dog with Addison's disease or adrenal fatigue. The herb's activity actually helps balance the adrenals.**

complex gland) that they are “built” into the same structure.

Adrenal medulla

The center of the adrenal gland, the **adrenal medulla**, produces two important hormones that are secreted in times of acute and severe stress, in what is known as the “fight or flight” mechanism.

The first, **epinephrine** (commonly known as **adrenaline**), plays a central role in short-term stress reactions. It increases the heart rate and force of heart contractions, facilitates blood flow to the muscles and brain, decreases stomach and intestinal activity, and helps with conversion of glycogen to glucose in the liver – all actions that would promote a lifesaving fight or flight.

The second hormone produced by the adrenal medulla is **norepinephrine**, also known as noradrenaline. Norepinephrine's primary action is to increase blood pressure.

Adrenal cortex

Whereas a dog could survive the surgical excision of his adrenal medulla, the **adrenal cortex** is essential to life. The cortex is divided into three layers or zones. The **zona glomerulosa**, the outer zone, is responsible for the secretion of mineralocorticoid hormones. The **zona fasciculata**, the middle and largest zone (about 70 percent of the cortex), is composed of cells that secrete the glucocorticoid hormones. The **zona reticularis**, the inner zone, is responsible for secretion of sex hormones.

The secretions of the adrenal cortex (and the commercially available drugs that mimic them) are often lumped into one category – corticosteroids, or simply, steroids – but they perform separate functions.

The **mineralocorticoids** (from the outer, zona glomerulosa) comprise a small portion of the overall mix of corticosteroids in the body, but play an important role. Their principle effect is on the transport of important

ions such as sodium and potassium across cell walls. Aldosterone is the most potent mineralocorticoid, and is responsible for accelerating the secretion of potassium and retention of sodium from the tubules of the kidney, which in turn helps maintain the body's water balance by increasing resorption of water. Sweat glands are also under the control of the ion-pumping action of mineralocorticoids.

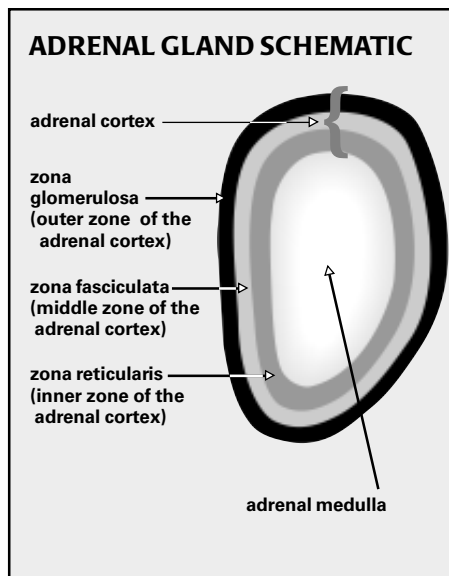
A lack of mineralocorticoids (Addison's disease) may result in a loss of sodium and retention of potassium, a condition that, in its extreme, may prove to be fatal.

The zona fasciculata, or middle zone of the cortex, secretes two **glucocorticoid hormones: cortisol and corticosterone**. The glucocorticoids have a wide range of physiological activity in the body, whether they are present as natural hormones or as commercially produced drugs. As prescribed drugs, they are used for a wide variety of diseases and conditions – and are the most overused and abused drugs in the conventional veterinarian's pharmacy. Most holistic vets, on the other hand, try to limit prescribing of glucocorticoids to an absolute minimum.

Glucocorticoids have an especially profound impact on the immune system and the metabolism of carbohydrates, proteins, and lipids. The metabolic action of the glucocorticoids is to enhance the production of glucose (the body's primary energy sugar from digestion), which results in a tendency toward hyperglycemia (increased blood sugar levels). In addition, glucocorticoids decrease fat production and increase the breakdown of fatty tissues, which results in the release of glycerol and fatty acids, readily available sources of energy.

Glucocorticoids suppress both inflammatory and immunologic responses. By suppressing inflammation, they may inhibit tissue destruction and fibroplasia (scarring). However, glucocorticoids also reduce resistance to bacteria, viruses, and fungi, which in turn favors the spread of infection. And they have a profoundly negative effect on healing.

The third type of hormones originating from the adrenal cortex are the **adrenal sex hormones**. Secreted in relatively small amounts by the zona reticularis (inner zone of the adrenal cortex), these include progesterone, estrogens, and androgens. The effect of the adrenal sex hormones is usually masked by the hormones from the testes and ovaries, but may take on more significance in the spayed or neutered animal.



Synergistic steroids

As I just explained, all the adrenal "steroids" have specific functions. Complicating the picture is the fact that they *also* perform some overlapping functions. Their activities are all-pervasive, affecting a multitude of organs in a complex manner. What's more, dogs may have a wide range of responses to steroids, depending on a number of factors. Practitioners can only guess what any individual dog's response will be to any dose of steroid they choose to prescribe.

This means that any steroidal drug that is prescribed by a veterinarian with the intention of having one effect may well have other unpredictable and unwanted effects. This is why drugs that are supposedly

strictly glucocorticoid in action may well cause a dog to experience excessive thirst and urination (a mineralocorticoid-effect). Because of the functional overlap of these steroids, there is no way to separate their beneficial effects from their potentially harmful ones, no matter how hard the drug companies try to convince us otherwise.

Let's say, to give an example, that you have chosen to treat your dog's skin condition with a prescribed steroidal product (likely a glucocorticoid), because it has potent activity as an anti-inflammatory agent. Unfortunately, that same steroid will have an adverse effect on the immune system, slowing your dog's normal immune response and retarding healing. He may also experience increased thirst and urination.

In addition, glucocorticoid hormones (either naturally produced or from prescribed medications) stimulate the adrenal medulla. There are several potential results of this low-level adrenal stimulation: the increased load on the heart may cause heart failure; the chronic excess blood glucose may lead to diabetes mellitus; and the persistent stimulation of the adrenals may lead to "adrenal fatigue" or ultimately to adrenal failure (Addison's disease).

Diseases of the adrenals

There are two major diseases of the adrenal glands. One involves a *hypersecretion* of the hormones of the gland (Cushing's disease, or hyperadrenocorticism). The other, Addison's disease or *hypoadrenocorticism*, is the result of a *hyposecretion*.

The Pituitary Gland Connection

The pituitary gland is mentioned here because it is a prime regulator of adrenal secretions, as well as providing regulatory functions for many other endocrine glands.

The pituitary is a very small endocrine gland located on the underside of the brain. It is attached to the hypothalamus, a portion of the brain that collects and integrates information from all parts of the body, which is then used to regulate the secretion of hormones produced in the pituitary.

For such a small gland, the pituitary secretes a veritable plethora of hormones, many of which are the prime instigators/initiators for the secretion of other hormones from endocrine glands located in other areas of the body. It is almost as if the pituitary is the on/off switch for many of the body's hormones.

While the connections between the pituitary and the adrenals are directly evident, the adrenals and their secretions are also secondarily involved in many other glands and functions of the body. For example, DHEA, an androgenic hormone produced by the adrenals, may be involved with obesity and aging. And the functioning capabilities of the thyroid may be indirectly linked to adrenal function. And let's not forget that all forms of hormones, including those produced by the adrenals, act in the central nervous system as neurotransmitters or neuromodulators – further evidence for the importance of the mind/body link.

Cushing's disease

Hyperadrenocorticism (Cushing's) may be the most frequent endocrinopathy in adult to aged dogs. The lesions and clinical signs associated with the disease result primarily from chronic excess of cortisol. Animals can exhibit any number of a wide variety of clinical signs, making proper diagnosis a challenge, even after evaluating a number of appropriate laboratory tests. The disease tends to be insidiously, slowly progressive.

There are three primary ways increased cortisol levels can create a "Cushinoid" reaction in dogs: tumors of the pituitary, functional tumors of the adrenals, and long-term administration of corticosteroids.

Pituitary tumors affect the adrenocorticotrophic (ACTH) - containing cells of the pituitary; this form of the disease is referred to as pituitary-dependent hyperadrenocorticism. Functional adrenal tumors are a far less common cause of the disease in dogs; the ratio of pituitary-dependent to primary-adrenal disease is about 80 percent to 20 percent. Many of us in the veterinary business worry that the most common cause of Cushing's is drug-induced – excessive corticosteroid therapy given over a prolonged period.

Clinical signs of Cushing's, no matter its primary cause, may include one or most of the following:

- Polyuria (increased frequency of urination), polydipsia (increased thirst), and polyphagia (increased, ravenous hunger).
- Weakening and atrophy of the muscles of the extremities and abdomen, resulting in gradual abdominal enlargement, lordosis (sway back), muscle trembling, and weakness.
- Weight loss. While most dogs appear fat, they may actually lose weight due to the loss of muscle mass.
- Fat deposits in the liver, resulting in diminished liver function.
- Skin lesions are common and are often the most recognizable symptoms of the disease. The skin may thin, or mineral deposits



Keeshonds (seen here), Pomeranians, Samoyeds, Chow Chows, and toy Poodles have a genetic predisposition to a syndrome that resembles Cushing's disease.

may occur within the skin, especially along the dorsal midline. The dog may also exhibit hair loss in a non-itchy "hormonal pattern" (bilateral and symmetrical hair loss, not patchy as typically seen with allergies, and often associated with thinning of hair and poor regrowth, rather than a complete loss of hair). This hair loss may be concentrated over the body, groin, and flanks, and spare the head and extremities. In chronic hormonal conditions the hair thinning may be associated with a thickening and a black discoloration of the abdominal skin called acanthosis.

- Behavior changes: lethargy, sleep-wake cycle disturbances, panting, and decreased interaction with owners.

A tentative diagnosis may be inferred from the clinical signs, but positive diagnosis requires laboratory confirmation. Differentiating pituitary-dependent from primary-adrenal Cushing's is impossible without lab tests.

Cushing's syndrome due to the administration of corticosteroids is easy to diagnose by asking the question: "Is your

dog being treated with corticosteroids?" This form of the disease is easy to treat by discontinuing the drug. Note that glucocorticoids come under many brand names, and each type of glucocorticoid drug supposedly has its own specific activities, potency (compared to naturally occurring hormones), onset and duration of action. Also, the mineralocorticoid potential of all of these are affected by the individual animals' responses to the drug.

A recently described condition called "adrenal hyperplasia-like syndrome," mimics Cushing's in the way its symptoms appear, but is likely due to a congenital imbalance in either the dog's growth hormone or its sex hormones. (All of this offers further evidence for the interconnectedness of all the adrenal/pituitary hormones.) To date this disease has been well defined in a line of Pomeranians, and has also occurred in Samoyeds, Chow Chows, toy Poodles, and Keeshonds.

In most cases, the dog's clinical signs have led the practitioner to suspect Cushing's, and initial testing may help to differentiate this from diseases that present in a similar

fashion.

Almost any hormonal condition may produce skin lesions similar to the Cushinoid dog, and increased thirst and urination may be due to a variety of diseases such as diabetes mellitus, diabetes insipidus, or renal failure. Also, normally aging animals may have many of the same symptoms as Cushing's.

After other differential diagnoses have been ruled out, there are several tests available to help ascertain the cause of the syndrome – pituitary-related or adrenal. Your vet may need to run a series of tests to help understand the causal pathway of the disease.

For example, tests are available to evaluate the functional capability of the steroid-secreting cells of the adrenal, to evaluate the effect ACTH has on the secreting ability of the gland, and to measure plasma concentrations of circulating steroids and ACTH under certain conditions. Radiographs, ultrasound, or computerized tomography (CT), or magnetic resonance imaging (MRI) may also be helpful.

The conventional medical treatment for Cushing's is aimed at attempting to shut

down the excess production of hormones. There are several drugs that are specific for destroying the functional capacity of the particular cells from the area of the pituitary or the zone of the adrenal that is affected. In some cases, surgery may be used to remove the affected cells.

In all cases, the drugs will be effective *only* against certain cell lines (thus the need to ascertain which cells are the culprits). Furthermore, all drugs that have been used to date have a wicked list of adverse side effects – *user beware!* Surgery is also a difficult option; cutting into the pituitary that lies on the base of the brain is not an operation for the novice, and tumors of the adrenal tend to be microscopic in size and scattered throughout the gland.

Addison's disease

Hypoadrenocorticism, better known as **Addison's disease**, is uncommon in young to middle-aged dogs. Unlike Cushing's, which is a more insidious and chronic disease, Addison's can have rapid and fatal consequences.

Many of the ongoing symptoms of Addison's disease are not specific; they are more into the category of the ADR patient (Ain't Doing Right): slowly progressive loss of body condition, failure to respond to stress, and recurrent episodes of digestive problems (gastroenteritis). The dog may lose weight (often an excessive amount), urinate more frequently, refuse to eat, and suffer bouts of vomiting and/or diarrhea.

As the disease progresses, though, a lack of aldosterone, the principal mineralocorticoid, results in marked changes in blood serum levels of potassium, sodium, and chloride. These alterations in electrolytes may lead to an excess of serum potassium, which then causes a decrease in the dog's heart rate (bradycardia), and this, in turn, predisposes to weakness or circulatory collapse after even light exercise. The diminished circulation may be severe enough to trigger renal failure.

The condition may progress to complete failure (true Addison's syndrome), and the dog may collapse. Without treatment, these dogs may die.

Diagnosis is often presumed from the dog's history and clinical signs, and laboratory results may be used to confirm the condition. Changes may be seen in the blood picture, electrocardiogram (ECG), and sodium:potassium ratio.

An adrenal crisis is an acute medical emergency. The dog will need fluids, emer-

gency doses of glucose and perhaps glucocorticoids, and supportive immediate therapy. Long-term therapy will likely be indicated; you need to consult with your holistic vet for alternatives to the corticoid drugs that will likely be recommended by a conventional vet.

Other adrenal diseases

Diseases of the inner zone of the cortex, the zona reticularis, are relatively rare. They are generally associated with neoplasia (tumors) and as a rule they create an excess secretion of hormones associated with the specific cells involved with the tumor. Depending on which steroid is secreted in excess, the dog's sex, and his or her age at onset, the affected animal may exhibit virilism (the development of masculine traits in the female), precocious sexual development, or feminization.

Because the primary hormones secreted by the adrenal medulla (epinephrine and norepinephrine) are related to stress, its primary disease is usually related to a chronic overstimulation, which in turn might create adrenal fatigue and/or lead to other conditions, such as diabetes mellitus or heart failure. One type of tumor of the medulla, the pheochromocytoma, while uncommon, has been occasionally reported. Because the tumor increases the secretion of hormones, its symptoms include increased heart rate, edema, and an enlarged heart.

Alternative therapies for conditions of the adrenals

It should be obvious from the discussion of the adrenals that they are an integral part of a complex of interacting organ systems, all with independent, but overlapping functions. Put all this together and you've got a real challenge for trying to select the best therapeutic regime. On the other hand, since they typically work with entire body systems, alternative medicines may offer the best approach to overall and long-term healing.

Note that an Addisonian crisis (see above) is a medical emergency and requires immediate veterinary attention.

A general approach to treatment for either Cushing's (hyperadrenocorticism) or adrenal fatigue (hypoadrenocorticism) might include the following:

■ **Discontinue chronic use of glucocorticoids** if at all possible. The number one cause of Cushing's syndrome in dogs is the prolonged use of corticosteroids. Find a

good holistic vet to help you *slowly wean* your dog from steroidal drugs.

■ **Proper nutrition.** Use of a fresh, healthy, balanced diet will assure proper organ system functioning. Natural, fresh foods won't contain toxins that compromise the functions of organs.

■ **Minimize life's stressors.** Important components include proper exercise, correct weight for the breed, socialized behavior to live at ease with humans and other animals, and a well-defined place in the hierarchy of the family's relationship. Most of all, let your dog *be* a dog.

■ **Minimize exposure to toxins.** Plastics, pesticides, and herbicides have been shown to affect sex hormones. Preservatives and other artificial additives in foods and vaccines may adversely affect hormonal output.

■ When indicated, use **whole-body therapies.** Acupuncture and homeopathy are examples of techniques that, when used properly, offer balance to the whole body.

■ **Licorice root** (*Glycyrrhiza glabra*) is specific for the adrenal glands, especially for fortifying them after Addison's or adrenal fatigue. Since the herb's activity actually helps balance the adrenals (as well as most other organ systems), I often recommend it for any condition that might stress those glands. Check with a qualified herbalist for dosages and best uses of the herb.

■ Finally, **avoid the temptation to "chase symptoms."** Conventional medicine is notorious for "take-a-shot-and-run" treatments that address current symptoms and do little for the long-term health of the individual. With diseases of an organ system as complex as the adrenals, this approach may be satisfying for the short term, but may never result in a complete resolution of the disease. Have your holistic vet come up with a long-range plan of action that both of you are comfortable with, and follow the plan until you see some results. 🐾

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).



RESOURCES

BOOKS

WDJ Training Editor Pat Miller is author of two books: *The Power of Positive Dog Training* and *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.

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

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