



Your complete guide to natural dog care and training

# Whole Dog Journal™

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**On page 6. Nice to meet you** – Advice for introductions, whether you bring a new dog into your multi-species family, or acquaint your long-time canine family member to a new pet.



**On page 11. Hear ye, hear ye** – The problems with apps and other products for noise desensitization.



**On page 20. Crime stinks** – And dogs can be trained to use their amazing noses to sniff it out of hiding.

*In the issue*

3

## MEAT AND MEAT MEAL

The most important (and expensive) ingredient in our dogs' food is the source of the animal protein. But do you know what kinds are good, better, and best?

6

## PEACE AMONG SPECIES

Keeping all the members of your multi-species household safe and happy takes effort and care – lives depend on it.

11

## SOUND EFFECTS

A wide assortment of audio products are sold to dog trainers and owners for the purpose of desensitization and counter-conditioning. But many lack the sounds that dogs can hear!

16

## CANINE MASSAGE

Every dog can benefit from therapeutic massage performed by a professional massage practitioner. What to look for when seeking hands-on help for your dog.

20

## PORN-SNIFFING K9s?

Yup! These dogs are trained to detect hidden thumb drives and even tiny microSD cards when police are searching the homes of suspected child pornography traffickers.



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2 Editor's Note  
24 Resources

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# Have a Dog? You Are a Trainer

*Keep up the good work and keep learning!*

I confess: I am absolutely fascinated with animal behavior and “training.” I think about it all the time – so much so, that I even think about most human-human interactions in terms of basic principles of animal behavior and learning theory. I’m not alone; many trainers I know happily describe themselves as “behavior geeks.”

However, I have observed that many dog owners are *not* all that interested in schedules of reinforcement or counter-conditioning; they don’t want to have to review their Psychology 101 textbooks or practice for hours to improve the timing of their marking and reinforcing skills. They don’t *want* to be dog trainers; they just want their dogs to behave better!

But give me two minutes, and I will try to convince any owner that she already *is* a dog trainer! “Look at the behavior you have already taught your dog!” (There must be *something*; almost everyone has taught their dog to at least *sit* on cue.) I’ll say, “Would you feel like a more accomplished trainer if you had taught a duck to sit on cue? Or your cat? And if so, what’s the difference? Why do we get upset or frustrated if we can’t easily teach our dog to do something, but we’d consider it a major accomplishment if we taught our cat or a duck to do the same thing?”

I have a theory: Because we have folded dogs into our lives so thoroughly, because they share our food and beds, we have come to *expect* much more *human* behavior from them. We are often dismayed when they display normal canine behavior such as barking, jumping, foraging for food, wanting to run (not walk) everywhere, etc. Maybe we didn’t mind (or even *notice*) all that doggy behavior 30 years ago, when dogs lived mostly outdoors (or in the garage) and perhaps even roamed freely during the day. But when they act like dogs in our homes – gosh!

Remember, as familiar as your dog is to you, as much as you love him, he’s *not* a human; in fact, he’s a different species of animal, not unlike a cat or duck. Make sure your expectations of his behavior are realistic – that you allow your dog to behave like a dog (at least sometimes) – and give yourself some credit for teaching him the things he has learned so far. You’re a trainer! Don’t resist learning a *bit* more, so you can be an even *better* trainer and enjoy your dog more.

NK

## CORRECTION

We regret that two titles were inadvertently left off our list of recommended DVDs in “How to Reform a Reactionary” in the January 2020 issue. They are:

**Brown, Ali. “Reactive Dog Classes: On the Road to Reality.” Tanacacia Press, 2012.**

**Brown, Ali. “Scaredy Dog! Understanding and Rehabilitating Your Reactive Dog Seminar DVD.” Great Companions, 2005.**





# Meat and Meat Meal

*The most important (and expensive) ingredient in our dogs' food is the source of the animal protein. But do you know what kinds are good, better, and best?*

A few years ago, we added a new column to the chart full of information that we publish in our annual “approved dry dog foods” list in the February issue. The column tabulates how many dog foods made by each company on the list were made with meat only, meat meal only, and/or a combination of meat and meat meal.

These tabulations do not constitute a judgment about the products listed; they are simply information for dog owners who understand the differences between the terms and the inferences that one can make from that information. But it has come to our attention that many of you aren't aware of what, exactly, you can infer about a pet food company – or an individual product – from its inclusion of meat, meal, or both on its ingredients panel. So let's clear this up!

## NAMING AND SHAMING

First, though, you need to understand that, for the purposes of *this* article, when we use the generic phrases “meat” and “meat meal,” we are discussing *named* meats: chicken and chicken meal, pork and pork meal, beef and beef meal, etc. We don't include any products on our “approved foods” lists that utilize unspecified protein sources on the ingredients label. When an unnamed animal protein source appears on the ingredients panel, the consumer has no idea of what mammal or type of poultry is in the can or bag.

To repeat: If you see one of the following phrases *on the ingredients list* of a dog food, you won't see that dog food on our “approved foods” lists: meat, meat by-products, meat meal, meat and bone meal, poultry, poultry

by-products, poultry meal, poultry by-products meal.

Each of these words or phrases have legal definitions when they appear on an ingredient panel (see page 5). Lacking a word that indicates the species of animal has contributed the “meat” in question, the buyer has no way of knowing what they might be feeding their dog. Is it beef? Lamb? Pork? Chicken? Whatever leftover animal protein source the manufacturer can buy on sale? There is no way to know.

## MEATY ISSUES

What we are discussing here and now, though, is the difference between named meats and their named meat meal corollaries. What's the difference between chicken and chicken meal, beef and beef meal, etc.?

There is a critical clock ticking when it comes to fresh and frozen meats and meat by-products. Refrigeration is costly – and doesn't hold off degradation of the ingredients for long. Freezing preserves meats longer, but is several factors more costly than refrigeration. Companies that use fresh meats in their

*Some pet food companies have formulated all of their products without meat meals; others tout their “meat first” formulations. As it turns out, neither of these tactics alone ensures a high-quality product.*



pet foods need to get those ingredients into their mixers and extruders quickly; the more time it takes to get from the meat-processing plant to the food-manufacturing plant, the costlier the ingredients become.

If the meat products are *not* refrigerated or frozen, their quality is heavily impacted by the time and distance it takes them to travel to either a rendering company or a pet food manufacturer. The longer it takes them to be cooked in one form or another, the more bacterial decay and enzymatic breakdown will occur, affecting the quality of the protein and fat.

Pet food makers need to test and control a slew of quality-indicated parameters to make sure the meat-based ingredients are of sufficient quality to be safe, nutritious, and palatable. The quality of the product can be determined by the color and smell of the material, as well as analytical values for protein, available lysine, total lysine, methionine, pepsin digestibility (higher values are equated with higher protein content), peroxide value (higher values mean greater rancidity of the fats), OSI value (indicates the oxidative stability of the fats), ash (more on that in a minute), level and type of amino acids they contain.

## MAKE A MEAL OF IT

Meat meals are made through a process called rendering. The process is named “rendering” as it renders volatile, degradable meats into a more stable form. The animal products are subjected to high temperatures, both in order to kill any pathogens and to drive a certain amount of moisture and fat away from the bone and tissue.

Once the product is in a lower-moisture form (around 10%), it will remain relatively stable at room temperatures for months. Meat meals can be shipped and stored for some time, until the pet food producer is ready to make some food.

For these reasons, the smaller the annual sales of a pet food brand, the less frequently it will be made, the more likely it is that the product will be made with meat meals, rather than fresh meats. Meat from exotic species that are in limited supply (perhaps only seasonally) is almost always supplied in the form of a rendered meal.

Competent rendering companies can produce meat meals with a range of fat and “ash” content, and pet food companies will stipulate how much fat and ash they want in the ingredients they buy from the renderer. In general, higher-fat ingredients will cost more than lower-fat ingredients. Lower-ash ingredients cost more than high-ash ingredients.

## MEAT-ONLY FOODS

There are companies that have staked their entire reputations on the fact that they use only meats, never meat meals, in their dry dog foods. Is this truly a sign of higher quality?

Actually, there’s something to look out for in those “meat only” (meal-free) dry dog foods: the inclusion (and frequently, the over-representation) of plant-sourced proteins, which have a less desirable amino acid profile than meat (for dogs).

Remember, ingredients are listed on the label in order of pre-processing weight in the food’s formula. Meat contains about 70% moisture and is very heavy, so if it is included in a large enough quantity so as to appear

first or second on the ingredient list, it can’t actually be supplying the majority of the product’s protein. This is because the meats that are used in pet food – which actually contain quite a bit of skin, fat, connective tissue, and bone – may contain as little as 8% protein.

In foods that contain both meat and meat meal high on the ingredients list, it’s the meat *meal* that supplies most of the protein in the product. If there is no meat meal in a dry dog food, it *has* to have some plant protein sources to boost the protein content to adequate levels. We couldn’t say, then, that we feel these meat-only dry dog food formulations are better.

## IMPOSSIBLE TO CONFIRM

We’re sorry to say it, but the factors that *most* affect the quality of the meat ingredients in dog foods are absolutely impossible to confirm. The source of the ingredients, whether they are kept chilled, the distance to the rendering plant or food-production facility, the amount of time it takes for those ingredients to be processed . . . none of these things are verifiable by consumers (or journalists, in case you were wondering).

Giant conglomerate food companies actually have an advantage here, in that many have rendering and/or pet food manufacturing facilities adjacent to their human food processing facilities, sparing the meat and meat by-products a long journey at the local air temperature.

That said, there *must be* smaller companies that have located their manufacturing facilities conveniently close to their animal-protein suppliers. And we know that some pet food makers do keep their meat ingredients chilled all the way between the slaughterhouse to their pet food mixing and extrusion or canning equipment. But these facts are difficult to verify and subject to change at a moment’s notice. Consumers (us included) are stuck with having to trust the reputation of the company and performance of the products themselves. 🐾

## Ash in Your Dog’s Food? Well, Yes!

*The ash content in a pet food corresponds almost entirely to the amount of bone that is included in the product’s animal protein sources; it consists of the minerals that would be left if you burned everything in a food that would burn. Foods with an adequate amount of calcium, phosphorus, and other minerals they need – but no more – may contain as little as 2% ash. Super inexpensive, low-quality foods may contain as much as 10% ash, indicating that they were made with animal protein sources that included a lot of bone. Most dog foods contain between 5% and 8% ash.*

**LEGAL INGREDIENT DEFINITIONS**

*"Slaughtered" is good. It means that (if the law is being followed), the animals were alive (and supposedly well) when they arrived at the slaughterhouse. Note that when an ingredient definition does not include the word "slaughtered," it means that animals that arrive to the slaughterhouse already dead may be included.*

*Interpret this to mean that some of all that stuff is in the food.*

*The limits on the amount of calcium in these descriptions are there to limit the amount of bone that can be included with the product.*

- **Meat:** The clean flesh derived from **slaughtered** mammals, limited to that part of the striate muscle that is skeletal or that is found in the tongue, diaphragm, heart, or esophagus; with or without the accompanying and overlying fat and the portions of the skin, sinew, nerve, and blood vessels which normally accompany the flesh. If it bears a name descriptive of its kind, it must correspond thereto (e.g., "beef" must consist of meat from slaughtered cattle).
- **Meat By-Products:** The non-rendered, clean parts, **other than meat**, derived from **slaughtered** mammals. It **includes, but is not limited to, lungs, spleen, kidneys, brain, livers, blood, bone, partially defatted low temperature fatty tissue, and stomachs and intestines freed of their contents.** It does not contain hair, horns, teeth, and hooves.
- **Meat Meal:** The rendered product from mammal tissues, exclusive of any **added** blood, hair, hoof, horn, hide trimmings, manure, stomach and rumen contents **except in such amounts as may occur unavoidably in good processing practices.** It shall not contain added extraneous materials not provided for by this definition. **The calcium level shall not exceed the actual level of phosphorus by more than 2.2 times.** It shall **not contain more than 12% pepsin indigestible residue and no more than 9% of the crude protein in the product shall be pepsin indigestible.**
- **Meat and Bone Meal:** The rendered product from mammal tissues, including bone, exclusive of any **added** blood, hair, hoof, horn, hide trimmings, manure, stomach and rumen contents **except in such amounts as may occur unavoidably in good processing practices.** It shall not contain added extraneous materials not provided for by this definition. **The calcium level shall not exceed the actual level of phosphorus by more than 2.2 times.** It shall **not contain more than 12% pepsin indigestible residue and no more than 9% of the crude protein in the product shall be pepsin indigestible.**
- **Poultry:** The clean combination of flesh and skin with or without accompanying bone, derived from the parts or whole carcasses of **slaughtered** poultry or a combination thereof, exclusive of feathers, heads, feet, and entrails. If it bears a name descriptive of its kind, it must correspond thereto (e.g., "chicken" must consist of meat from chickens).
- **Poultry By-Products:** Nonrendered clean parts of poultry, such as heads, feet, viscera, and whole carcasses, free of foreign matter except in such trace amounts as might occur unavoidably in good processing practices.
- **Poultry Meal:** The wet rendered or dry rendered product from a combination of clean flesh and skin with or without accompanying bone, derived from the parts of whole carcasses of **slaughtered** poultry or a combination thereof, exclusive of feathers, heads, feet, and entrails. If it bears a name descriptive of its kind, it must correspond thereto (e.g., "chicken" must consist of meat from chickens). **The calcium level shall not exceed the actual level of phosphorus by more than 2.2 times.**
- **Poultry By-Product Meal:** The ground, rendered clean parts of the carcass poultry, such as heads, feet, undeveloped eggs, viscera, and whole carcasses, exclusive of added feathers, except in such amounts as might occur unavoidably in good processing practices. **The calcium level shall not exceed the actual level of phosphorus by more than 2.2 times.**

*Nutritious? Sure. Appealing? Not so much. Quality varies, depending on price and supplier. When you see super inexpensive food, keep this definition in mind.*

*Pepsin is the main digestive enzyme that breaks down proteins in the digestive tract. This maximum level limits the amount of non-protein-containing animal tissues that the ingredient supplier is not supposed to add.*



# Peace Among Species

*Keeping all the members of your multi-species household safe and happy takes effort and care – lives depend on it.*



*The photo that launched an Instagram career! Bob the Golden Retriever and a number of his little bird friends were photographed by their owner, Luiz Higa, Jr., of São Paulo, Brazil. Higa raised Bob (and his next Golden Retriever, Marley) from young pups in the presence of a variety of birds, as well as a Guinea pig and hamster. Photo courtesy of @bob\_marley\_goldenretriever.*

When you think about it, it's a bit of a miracle that animals who would be predator and prey in many environments are often able to live peacefully together in our homes. How does this happen?

Sometimes it just happens, thanks to good luck, but more often it's a result of careful planning and introduction. Throw in some good behavior modification, and we can improve the odds of a peaceful coexistence well beyond mere chance.

## THE CHALLENGE

We know that our dogs are predators – and some certainly seem to be more predatory than others. This is a nature/nurture thing – partly due to genetics and partly due to environment.

Some dog breeds have been genetically programmed to find predatory behavior

highly reinforcing. Think of all the various terriers, bred to kill rats and other vermin on a farm. Think of the hounds, bred to chase and kill a variety of different species for the hunter who follows. Then there are the spaniels, setters, and retrievers, bred to locate, indicate, and flush game for the hunter, and retrieve that game gently, with a very soft mouth after it has been killed by the hunter. The herding breeds are supposed to utilize the stalking piece of the predatory sequence but are never supposed to kill the stock they are herding.

Still, there are Jack Russell Terriers who live in harmony with cats and parakeets. Just because a dog has a genetic propensity to find a behavior reinforcing doesn't mean he will actually engage in the behavior. The terrier who has never been given the opportunity to chase and kill small animals has probably

never had the behavior reinforced. If he was well-managed since puppyhood and grew up learning how to behave appropriately around cats and birds in his home, he would never learn that it was fun to chase and kill small animals, so he doesn't. (It also helps if the cats and birds in his house have grown up with and are calm around dogs, so they don't offer behaviors that might trigger a chase response in typical Jack Russells.)

Meanwhile, there are Australian Shepherds – dogs who have been genetically programmed to gather and keep track of cattle and sheep without hurting one – who will eagerly chase and kill bunnies.

As you go forward with a plan to integrate your household with a variety of animal species, keep in mind that, even though they share your sofa and Starbucks habit, deep down, dogs are still predators. If given the opportunity to learn that killing bunnies or

cats is fun, many of them will enjoy doing it, even if they don't have a strong genetic propensity to find the behavior reinforcing.

All else being equal, it will likely be easier to convince your Aussie to live peacefully with small animals than your JRT, but both breeds (and representatives of every other breed) can learn to do it, too.

## GREAT STARTS

The easiest way to create interspecies household harmony is to start with a puppy and carefully manage her interactions with other animals as she matures. If she is consistently reinforced for calm behavior in their presence and not allowed to play roughly with them (rough play can turn deadly), she will come to see them as family members and learn to be calm with them.

In theory, it's simple, yet it can take a lot of management and training for some pups to reach maturity with a "small animals are my friends" world view. Until she learns impulse control, your pup needs to be on-leash in the presence of other small animals in your household, so she doesn't have the opportunity to perceive them as animated stuffed toys.

If, despite your precautions, it appears your pup has an unhealthy interest in the creatures around her, you'll need to pursue some of the behavior modification protocols that

follow, and if necessary, seek the assistance of a qualified force-free professional.

From the other side, it is just as useful to start young with your "other" species, introducing them to dogs early in their lives, and making sure they have good experiences with canines of various shapes and sizes. A positive association with dogs from early on will reduce stress and make adjustment easier for them when you bring a new predator into the home.

## INTRODUCING A NEW DOG

Whether you're bringing a new puppy, an adolescent, or an adult dog into your multi-species home, it behooves you to orchestrate careful introductions to set the stage for a future peaceful co-existence.

■ **Ask for information, but take it with a grain of salt.** It helps if you have any history about your adopted adolescent or adult dog's prior relationships with other species – but don't *rely* on the information. Several years ago, some of my clients were assured by a rescue group that the adult German Shepherd Dog they were adopting had lived compatibly with cats. The dog's ability to do so in their home, however, required several months of dedicated management and behavior modification work (see "Transformation: Predator to Pal," WDJ July 2013). Even shelters

that include dog-dog and/or dog-cat introductions during their assessment processes can't guarantee that your newly adopted dog will behave the same with other animals in your home as she did at the shelter.

■ **Set up for success.** Before you first bring your new family member into the house, shut away all your other animal companions. Your new dog will likely be stressed from the journey – and remember, even happy excitement causes physiological stress. Give her time to settle down before upsetting her appletart again.

If she seems excessively stressed by the change in her life fortunes, don't even attempt any introductions on the first day. You don't need to add *that* level of stress to the early relationship-building process. If, on the other hand, she seems cool, calm, and collected, then you can proceed after a reasonable cool-down period of maybe an hour or two.

■ **Don't mistake stressed, shut-down behavior for calm.** If you aren't skilled at assessing canine body language, have someone who has more dog experience with you (see "Listen By Looking," August 2011). Either way, you'll want to have a second person with you for the introductions, to manage the other animals, and in case things go wrong and you need help separating animals.

■ **Keep contained.** With one of you safely holding the new dog on leash, bring in one other animal, also safely contained in some manner – in a cage or carrier, or on leash – and watch your new dog's body language very closely. Your dog's ideal response is interested and calm.

*New dog, who 'dis? This large, calm cat can probably hold his own against a new puppy smaller than himself – but this isn't the point! If the pup suddenly decided to chase the cat, he risks learning that such a chase is super fun! Simply leashing the pup prevents that behavior from being reinforced. So leash up!*



■ **Go slow!** For this first encounter, your goal is for the two animals to be in each other's presence without either one getting overly stressed or excited. Keep them as far apart as necessary to accomplish this, and feed treats if necessary, to help each calm down or be less stressed. **Even if things go well, do not** try to bring them nose-to-nose on the first meeting. Err on the side of caution. You've got plenty of time to help them be best buddies – or at least to live in peace.

Gradually, over a period of days, weeks, or even months, bring them closer together and allow more intimate contact, while still using uber-management to make sure only good things happen. If you have several other animals, use your good judgment about how often and how many introductions you do at any given time or in any given period.

Depending on your results, you may be able to relax management fairly quickly, or you may need to keep some management in place forever. Dog and cats frequently be-

come compatible housemates with no management needed. Other small companion animals may need more protection from your canine predator, especially when you aren't present. Provide multiple escape routes for your small pets, whatever your ultimate level of management.

### INTRODUCING A NEW PET TO YOUR "OLD" DOG

Perhaps your dog is a long-term family member, and the new family member in your home is another type of animal. You probably have a better idea of what your dog's response is likely to be (calm and non-predatory, we hope!), but you still want to give your new pet plenty of time and space to adjust to the idea of living with a predator. Your introduction will be similar to that described above, but in this case, you'll be paying even more attention to the newcomer, gauging his reaction to his new life situation.

If you are not already familiar with the body-language communication of the new species, be sure to

research it well in advance. The less domesticated/more exotic the species, the more likely they are to do a freeze/shut-down response in the presence of a predator, and the easier it is to make a tragic mistake and misinterpret this as calm and relaxed.

### INTRODUCING LARGE COMPANION ANIMALS

We tend to think of small animals when we talk about introducing our dogs to new family members, but there are plenty of canines who share their living spaces (indoors and out) with large animals such as pigs, goats, sheep, llamas, emus, horses, and more.

Introductions to these animals, whether the dog is new or the other species is new, is every bit as important as the small pets. Keep in mind that your *dog* might be the more vulnerable species in some of these relationships (since a horse's kick or stomp can easily kill a dog, and even a cranky pet pig or llama can hurt an unwary pup).

Your introduction process is much the same as described above – moving more quickly through the procedure if things go smoothly, more slowly if not, and doing behavior modification if necessary.

Consider additional factors inherent with large animals; management alone might be realistic for a dog who doesn't do well with horses – maybe you just never take her to the barn. However, if you have a miniature house-pig, or a miniature horse working as your service animal, you'll need to do the work to get them all comfortable and well-behaved together.

### BEHAVIOR MODIFICATION

If the challenge looks surmountable and you're willing to do the work, get started immediately.

■ **Have the whole family participate in the discussion and agree on the rules for management.** Consider padlocks for doors if there are small children in the home who will have difficulty complying despite

## Not-So-Great Introductions?

*In a perfect world, the lion really would lie down with the lamb (or the wolf with the rabbit), but our world isn't perfect, and introductions don't always go as smoothly as we might hope.*

*If either party displays a strong arousal response or strong fear/stress response, you'll need to incorporate more significant behavior modification protocols into your introduction scenario. The careful introduction process described in the main article will prevent any disasters, but if you see significant distress or arousal behaviors from either animal, abort the introduction and rethink your position:*

- *Am I truly committed to making the effort that will be necessary for this new animal companion to live safely and happily in my family?*
- *If so, are all members of this family also in agreement and willing and able to do the behavior modification and management necessary to accomplish this?*
- *If behavior modification is not successful, are we prepared to very carefully manage this environment for the remainder of our animals' lives?*

*If the answer to any of these questions is no, then the prospective new family member is probably better off returning from whence she came, or being uber-managed until you can rehome her, if she came from a neglected or otherwise undesirable situation.*





their good intentions. Develop communications systems so it is clear which companion animals are where and when. No “oops” allowed; someone’s life may depend on it.

■ **Discuss and agree on which behavior modification protocols will be used.** My first choice is usually counter-conditioning and desensitization (CC&D; see next page for step-by-step instructions). Constructional Aggression Treatment (CAT) and/or Behavior Adjustment Training (BAT) are other protocols that can be useful. (For more information about both protocols, see “Fear Aggression in Dogs,” WDJ August 2016.) Seriously consider bringing in a qualified force-free professional to help you with these, especially if you are not familiar and experienced with the protocols.

■ **Basic training.** Every dog should be the graduate of at least one basic good manners class (and of course, puppies should go to puppy kindergarten!). The communication and relationship achieved between dog and human through training will be invaluable in sorting out your inter-species relationships.



**WORTH THE EFFORT**

Whether it takes days, weeks or months to accomplish a reasonable degree of inter-species tranquility, it can be well worth the effort. I know how greatly my own life has been enriched by sharing my home and my heart with well over a dozen different species of animals over the years, for many years more than 20 animal companions at a time. It wasn’t always easy, but it was always worth it. 🐾

*Author Pat Miller, CBCC-KA, CPDT-KA, of Fairplay, Maryland, is WDJ’s Training Editor. Miller is also the author of many books on positive training. See page 24 for information on her classes for dog owners and trainers and book purchasing details.*

**Life at Peaceable Paws**

As a lifelong animal lover and the owner of a dog-training and horse-boarding facility, I’ve had countless opportunities to practice multi-species introductions – including many in just the past two years!

About two years ago, my husband and I acquired a Pomeranian/American Eskimo Dog-mix, Sunny. We were told that his previous adopters kept him for only three days because they were afraid he was going to kill their cats. We have two indoor-only cats in our family, but we adopted him anyway. We used gates that have cat-escape doors built into them and kept Sunny on leash for several days. Fortunately, our dog-savvy cats didn’t run from him, so he didn’t chase. It only took a few days of managed encounters and some counter-conditioning to convince him he had better things to do than harass the cats.

Given Sunny’s very strong chase arousal when he sees squirrels outside, however, I have no doubt he would give chase if he encountered an *outdoor* cat. It is very common for dogs to live in peace with their indoor cats and still chase and even kill an outdoor cat that runs from them.

We weren’t sure what to expect from Sunny when we adopted our pot-bellied pig, Dexter, four months after Sunny joined the family. Our Kelpie, Kai, had lived peaceably with a pig before, so we weren’t worried about his reaction to Dexter’s arrival; for his part, Dexter had lived with dogs before, so we figured those two would be fine. We did our first Sunny-Dexter introduction with Sunny on leash, and discovered that, other than being fascinated with Dexter’s rear end, Sunny was fine with a pig.

We had our biggest interspecies challenge five years ago, when we first brought home Kai, then just one year old. A herding breed, he was quite interested in our full-sized horses, but confined his herding behavior to trotting back and forth at their heels. The horses were accustomed to dogs, so I wasn’t worried about him getting kicked. Also, he kept careful watch on the horses’ hooves. For some reason, though, we had to put a lot more effort into teaching Kai to be calm around our *miniature* horse, Olivia. Kai barked at and tried to herd her when we led her from the barn – not acceptable. We found an easy fix: We taught Kai to “station” (get up onto, sit, and stay) on a mounting block while we led Olivia to and from her paddock. Eventually Kai’s barking diminished, and stationing was no longer needed.

These were all relatively easy fixes. It takes a lot more work and time to reprogram a dog who has a very strong predatory interest in an other-species family member – or even just a very high level of arousal in the presence of another species.



# Counter-Conditioning and Desensitization (CC&D)

Counter-conditioning and desensitization (CC&D) involves changing your dog's association with an aversive or arousing stimulus – in this case, another animal – from negative to positive.

The easiest way to give most dogs a positive association with something is with very high-value, really yummy treats. I like to use chicken – frozen strips (thawed), canned, baked, or boiled, since most dogs love chicken and it's a nutritious, low-fat food.

Here's how you would use the CC&D process to change your dog's association with an animal he found aversive or arousing. Make sure the other animal is in a cage, crate, or on a leash, so you can control his movement.

Let's imagine that we are working with a dog and a cat in a carrier.

**1** Determine the distance at which your leashed dog can be alert and even wary in the presence of the cat but not extremely fearful or aroused. This is called the "threshold distance."

**2** With you holding your dog's leash, have a helper present the cat in the carrier at your dog's threshold distance. The instant your dog sees the cat, start feeding bits of chicken to your dog. Pause, let him look at the cat again, feed him again. Repeat as long as the cat is present.

**3** Continue alternating the pausing and feeding bits of chicken to your dog. After several seconds, have your helper remove the cat. As soon as the cat is out of your dog's view, stop feeding him the treats.

**4** Keep repeating steps 1 through 3 until the presentation/appearance of the cat at your dog's original threshold distance consistently causes your dog to look at you with a happy smile and a "Yay! Where's my chicken?" expression. This is what we call a conditioned emotional response (CER); your dog's association with the cat at his original threshold distance (let's call it "X") is now positive instead of negative.

**5** In the next few steps, you need to increase different aspects of the intensity of the stimulus, making sure to get and/or maintain the desired CER from the dog at decreasing distances. *What?!* How do you increase the intensity of a cat?

For a dog who is aroused by the sight of a cat, the least intense presentation of a cat is what you've been using so far: a single cat in a carrier. To increase how stimulated your dog is by the cat, you might open and close the door of the cat's carrier, so your dog can see the cat more clearly. You could also bring in another cat in another carrier. If your cat is confident and won't immediately try to leave the scene, you could let her out of the carrier – or, to take this to a stimulating extreme, have your helper invite the cat to play with a toy. Each of these things will be a more intense stimulus for your dog.

Back at your dog's original threshold distance, start increasing the intensity of *one* aspect of the cat's presentation while you decrease the distance between your dog and cat in small increments. Achieve the desired CER (with a happy "Where's my chicken?" expression) at each distance, until your dog is calm very near the cat, perhaps even sniffing or targeting (touching with his nose on cue) the cat's carrier. Then move away from the cat.

If your dog starts to get overstimulated, fixated on the cat, not taking your treats (or taking them with a "hard" mouth), you are moving too fast. Increase the distance between the cat and the dog, and/or decrease the intensity of the cat (back into the carrier!).

**6** Return to your dog's original threshold distance and increase the intensity of the cat in some different way, gradually decreasing the distance between your dog and the cat and attaining the desired CER along the way, until your dog is delighted to have the cat in relatively close proximity. A loose cat, a playing cat, a meowing cat, two cats . . . Keep working until your dog maintains his relaxed, happy, "Where's my chicken?" look throughout each of these cat presentations, even at a close range to the cat. He should now think of the cat as a very good thing – a reliable predictor of very yummy treats.

**7** If appropriate, you can gradually work up to actual interaction with the cat or cats at this stage. If not appropriate, don't! Don't push your dog "over threshold"

– the point at which the cat (or other animal) is too exciting for him and he loses his composure. The rule for effective CC&D is "Go slow – and then slow down!"

*Your pets may never become this comfortable with each other, but they have the best chance of doing so if you introduce them as carefully as described here.*



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# Sound Effects

*A wide assortment of audio products are sold to dog trainers and owners for the purpose of desensitization and counter-conditioning. But many lack the sounds that dogs can hear!*

Dog trainers often recommend smartphone apps and YouTube videos for desensitizing and counter-conditioning dogs who are afraid of specific noises. There are many apps designed and marketed for this purpose, and they typically include recordings of many different sounds. However, the physics of sound production and the limitations of consumer audio present large problems for such use – problems substantial enough to prevent the success of many (most?) conditioning attempts.

## WHY MANY AUDIO CONDITIONING PRODUCTS FAIL

If quizzed, most people would likely guess that dogs have hearing abilities that are vastly superior to ours. In fact, it's a mixed bag.

Humans can hear slightly lower frequencies than dogs can, and we can also *locate* sounds quite a bit better. But dogs are the big winners in the high frequency range; they can hear tones over about twice the frequency range that humans can. Also, dogs can hear sounds at a much lower volume level than humans can over most of our common audible range. Yet the superior aspects of dogs' hearing are rarely considered when we decide to use sound recordings in conditioning!

There are four major acoustical problems with using human sound devices to condition dogs:

- The inability of smartphones to generate low frequencies, such as those present in thunder.
- The limited ability of even the best home audio systems to generate these low frequencies in high fidelity.
- The upper limit of the frequencies generated on all consumer audio.
- The effects of audio file compression on the fidelity of digital sound.

There are also common problems with the use of sound apps that can be deduced through what we know through behavior science. These can also make or break attempts to positively condition a dog to sound:

- Lack of functional assessment before attempting conditioning.
- The length of the sound samples used for conditioning.
- The assumption that lower volume always creates a lower intensity (less scary) stimulus.

*“What’s that noise and where’s it coming from?” Dogs’ hearing abilities are different from ours – a fact that is frequently and strangely unconsidered in the development of many audio products for dogs.*



Some, but not all of the above problems can be addressed with do-it-yourself work and a good plan. But sound conditioning of dogs using recordings will *always* have some substantial limitations that can affect success.

### WHAT IS THE FREQUENCY?

Frequency is the aspect of sound that relates to the cycles of the sound waves per second. Cycles per second is expressed in units of hertz (Hz). I'll refer a lot to low and high frequencies because they pose different challenges.

To help with the concept of frequency, think of a piano keyboard with the low notes on the left and the high notes on the right. The low notes have lower frequencies and the high notes have higher frequencies. Keep in mind that sound frequency goes much higher than the highest notes on a piano!

Common sounds with low frequencies include thunder, fireworks, industrial equipment, the crashing of ocean waves, the rumble of trains and aircraft, and large explosions. Common sounds with high frequencies include most birdsong, the squeaking of hinges, Dremels and other high-speed drills, referees' whistles, and most digital beeps.

Motorized machinery generates sound frequencies that correspond to the rotation of the motor. These frequencies can be high like the dentist's

drill or low like aircraft. Motors can also vary in speed. For instance, when you hear a motorcycle accelerating, the frequency of the sound rises as the engine speeds up.

Humans can hear in a range of 20 to 20,000 Hz, and dogs can hear in a range of 67 to 45,000 Hz.

Some sounds don't have a detectable pitch, meaning they include such a large number of frequencies that you can't pick anything out and hum it. These are called broadband sounds. A clicker generates a broadband sound.

### FRIENDS IN LOW FREQUENCIES

Our human brains are great at filling in blanks in information and taking shortcuts. This makes it hard for us to realize what a bad job our handheld devices do in generating low-frequency sounds. Our dogs undoubtedly know, though.

Many people purchase sound apps in order to try to condition their dogs to thunder. The frequency range for rumbles of thunder is 5 to 220 Hz. Handheld devices generally have a functional lower output limit of about 400 to 500 Hertz. If you play a recording of thunder (or a jet engine or ocean waves) on a handheld device, the most significant part of the sound will be played at a vanishingly low volume or be entirely missing.

When performing desensitization, we aim to start with a version of the

sound that doesn't scare the dog, so this could possibly be a starting point. On the other hand, without the distinctive low frequencies that are present in *real* thunder, some dogs will not connect the recording (played at *any* volume) with the real thing.

Home sound systems, including some Bluetooth speakers, can do a better job. They usually generate frequencies down to 60 Hz. This is roughly the lower limit of dogs' hearing, so it's a good match. But even the best home system can't approach the power and volume of actual thunder, and the sound is located inside your home instead of outside. Some dogs do not appear to connect recordings of thunder on even excellent sound equipment to the real thing, or they will respond to recordings with a lesser reaction.

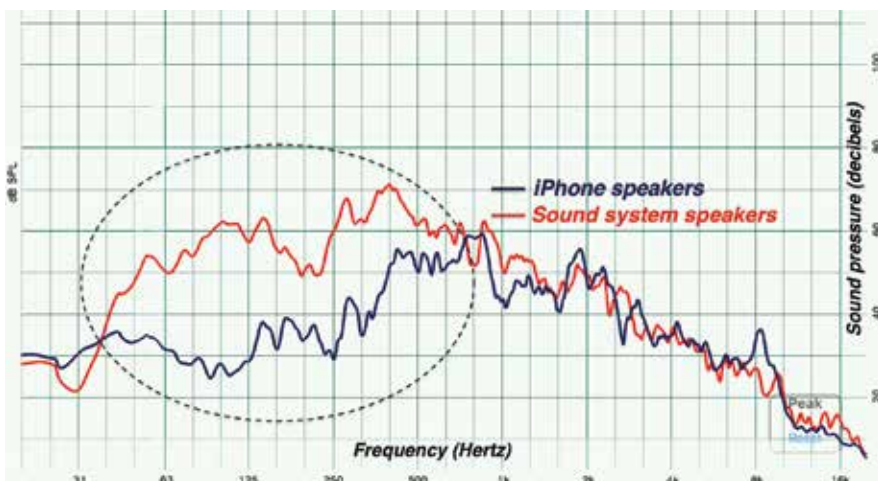
In one study of thunder phobic dogs, the researchers brought their own professional quality sound system to each dog owner's home; great mention is made of the fact that the sound system was *large*. This bulk indicates that they were serious about being able to generate low frequencies! In general, the larger the speakers, the better they are at generating low frequencies. The difference today is smaller than it was 15 years ago, however. Sound systems have improved a lot in recent years.

Some of the sound apps for dog training now instruct you to send the sound to a home sound system rather than using the speaker in the handheld. *This is excellent advice for any sound.* But the bottom line is that you will not always be able to emulate low frequencies well enough to function as desensitization for some dogs.

Table I (at left) shows the difference between the sound of a roll of thunder played on an iPhone 7 versus a home sound system (Altec Lansing speakers). The Blue Yeti microphone I used to capture the sound for analysis was the same distance from the speaker in each case.

The graph in the oval is the approximate range of the rumbles of thunder. The navy blue line represents the sound generated by the

Table I: Volume Comparison of iPhone vs. Home Sound System Playing a Recording of Thunder



smartphone in those frequencies. The red line was from the Altec Lansing home speakers. The speakers generate sound down to 60 Hz (as per their specifications).

In contrast, the output of the phone is virtually inaudible below 300 Hz.

## LET'S GET HIGH FREQUENCIES

All consumer audio equipment is designed for human ears. Our handhelds, computers, TVs, and sound systems put out sound only up to the frequency of 22,000 Hz. Humans can't hear higher frequencies than that. But dogs can hear up to about 40,000 Hz. So again, the recordings are not high fidelity for dogs.

This is different from the thunder situation. The low frequencies of thunder are *present* in high quality recordings, but our equipment can't perfectly generate them. With high frequencies, it's not only a limitation of our speakers. The sounds in "dog frequencies" are not recorded in the first place.

It's not that it can't be done. Biologists and other scientists use specialty equipment that can record and/or play back sound in the ultrasound range. The recording device requires a higher sample rate (how often the sound is digitally measured) than consumer equipment and the speaker for playback requires a wider bandwidth for frequency response.

How much does this affect the fidelity of recorded sound for dogs? We can't know for sure. But virtually all sounds include what are called harmonics or overtones. These are multiples of the original frequency into a higher range. Dogs can hear these in the range from 22,000 to 40,000 Hz, but they are never present in sound recordings made even by very high quality equipment.

Because of this, it's likely that dogs with normal hearing will be able to easily discriminate between a natural sound and even the best recording of it.



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## SOUND FILE COMPRESSION

Digital audio files are large. Most files that are created to play on digital devices are saved in MP3 format. This format was created in the 1990s when digital storage was much more limited than it is today. Hence, MP3 files are compressed, meaning that some of the sound information is removed so they won't be so large.

MP3 is termed a "lossy" compression because sound data is permanently lost through the compression. The compression algorithms are based on the capabilities of the human ear. Sounds we humans are unlikely to be able to hear are removed.

Some of these limitations may be shared by dogs. For instance, quieter sounds that are very close in time to a loud sudden sound are removed. We can't hear those because of masking effects, and it's probable that dogs can't either, although there may be a difference in degree.

However, there are other limitations of the human ear that dogs do not share. For instance, our hearing is most sensitive in the range of about 2,000 to 5,000 Hz, so very quiet sounds that are pretty far outside that

range will likely be eliminated. Dogs' most sensitive range is higher than ours, so sounds they could hear are probably omitted from compressed recordings.

Keep in mind that dogs not only hear sounds that are higher than we can perceive, but they hear all high-pitched sounds at lower volumes than we do.

So the MP3 compression process is another reason that some sounds in dogs' hearing range that would be present in a natural sound would be missing in a recording of it.

If you make your own recordings, there is an easy thing you can do to prevent this issue: Simply save your sound files in WAV or AIFF formats as discussed below. I haven't seen a desensitization app that uses these formats, however.

## BEHAVIOR SCIENCE CONSIDERATIONS

The problems I've discussed so far are caused by the physics of sound and how it is recorded, compressed, and played.

The following cautions have to do with applying what we know about performing classical conditioning to sound without errors.

### ■ Lack of Functional Assessment

Trainers who deal with dogs with behavior problems perform functional assessments. They observe and take data to help them understand what is driving the problem behavior. In the case of fear, they analyze the situation in order to determine the root cause of the fear.

In the case of sound sensitivity, a dog may react because the sound has

become a predictor of a fear-exciting stimulus, as is the case with much doorbell reactivity. Or the dog may be responding to an intrinsic quality of the sound, in the case of sound phobia. Sound phobia is a clinical condition that requires intervention. Many such dogs need medication in order to improve.

Trainers, working with veterinarians or veterinary behaviorists, can make these determinations. Consumers often can't. And as the sound apps being marketed to consumers become more elaborate, pet owners who follow the directions have a good chance of worsening some dogs' fears.

For example, a newer sound app allows you to set up the app to play the sound randomly when you are not home for purposes of desensitization (without counter-conditioning). The instructions show an example of a dog's doorbell reactivity going away through use of the app (although perhaps not permanently). The app was programmed to play doorbell sounds randomly when the owner wasn't home. This decoupled the doorbell as a predictor of strangers at the door.

This protocol would give any professional trainer pause. First, the cause of the reactivity – the dog's fear of strangers – wasn't addressed at all. All things considered, that is not a humane or robust approach. The dog's fear is left intact while the inconvenience of their barking at predictors is removed. Second, the instructions of playing a feared

sound randomly when the owner isn't home, even at a low volume (more on this below) could result in a ruinous situation for a dog with a true sound phobia rather than "just" doorbell reactivity.

Apps that can play randomized, graduated sound exposures can be a good tool for trainers, as long as the trainers are aware of the limitations here. They should *not* be marketed or recommended to consumers.

### ■ Length of the Sound Stimulus

Many noises in the apps are too long for effective desensitization and counter-conditioning. Real-life thunder and fireworks both have an infinite array of sound variations. If you play a 20-second clip of either of these, there will be multiple sounds present and a sound phobic dog may react several times, not just once.

Classical delay conditioning, where the stimulus to be conditioned is present for several seconds, and the appetitive stimulus (usually food) is continually presented during that time, is said to be the most effective form of classical conditioning. This is the method that trainer Jean Donaldson, founder of the well-regarded Academy for Dog Trainers, refers to as "Open bar, closed bar."

Delay conditioning would be appropriate to use for a continuous, homogeneous sound, such as a steady state (non-accelerating) motor. But fireworks and thunder are not continuous; they are sudden and chaotic. They consist of multiple stimuli that can be extremely varied.

To offer a visual analogy: If your dog reacts to other dogs and you seek to classically condition him, you might create a careful setup wherein another dog walks by at a non-scary distance and is in view for a period of, perhaps, 10 to 20 seconds. You would be feeding your dog constantly through that period. That is a duration exposure to one stimulus. (And

you would try to use a calm decoy dog who doesn't perform a whole lot of jumpy or loud behaviors!)

But for the first time out you would *not* take your dog to a dog show or an agility trial to watch 60 different dogs of all sizes and shapes coming and going and performing all sorts of different behaviors, even if you could get the distance right and the exposure was 10 to 20 seconds. That is the visual equivalent of the long sound clip of fireworks. There are far too many separate stimuli!

Also, if you play a longer clip, one lasting many minutes (as has been done in some sound studies), you are essentially performing simultaneous conditioning, a method known for its failure to create an association. The fact that you started feeding one second after the sound started is not going to be significant if the crashes of thunder and food keep coming for minutes on end. You have not created a predictor.

And if you are feeding the whole time but the scary sounds are intermittent, you are probably also performing *reverse* conditioning, where the *food* can come to *predict* the scary noise.

If you are working to habituate a non-fearful dog or a litter of puppies to certain noises, the longer sound clips are probably fine for that. They may even work for a dog with only mild fears of those noises. But the more fearful the dog is, and the closer he is to exhibiting clinical noise phobia, the cleaner your training needs to be. To get the best conditioned response, you need a short, recognizable, brief stimulus.

After you get a positive conditioned response to one firework noise, for instance, you can then start with a different firework noise. After you have done several, you may see generalization and you can use longer clips. But don't start with the parade!

### ■ Volume

Most mammals have what is called an acoustic startle response. We experience fear and constrict certain muscles when we hear a loud, sud-

*Following the directions that are packaged with some of the commercial sound apps meant to be used to train noise-sensitive dogs could actually cause more harm than good.*



den noise. It's natural for any dog to be startled by a sudden noise. It may be that dogs who have over-the-top responses to thunder and fireworks have startle responses so extreme as to become dysfunctional. For dogs who fall apart when they hear a sudden, loud sound such as thunder, it makes all the sense in the world to start conditioning at low volume, because this practice can remove the startle factor.

But it's different for dogs who are scared of high-frequency beeps and whistles. These odd, specific fears are not necessarily related to a loud volume. I have observed that, with these dogs, starting at a quiet level can actually scare the dog *more*. Remember, dogs don't locate sounds as well as humans do. It could be that the disembodied nature of some of these sounds is part of what causes fear. (Have you ever tried to locate which smoke alarm in a home is emitting the dreaded low battery chirp? Even for humans, it can be surprisingly difficult – and we are better at locating sounds.)

When lowering volume is ruled out as a method of providing a lower intensity version of a sound stimulus, virtually all apps for sound desensitization are rendered useless.

## SOLUTIONS

With apps that can do more and more for *humans*, it seems odd to suggest that in order to help your dog, you might have to invent your own helpful tools. But doing so can help you make recordings of better fidelity and more appropriate length, and if you (or an acquaintance) are at all tech-savvy, you can also alter sounds in other ways besides volume.

■ Record sounds yourself using an application that can save the recordings in WAV or AIFF (uncompressed) formats. This eliminates one of the ways that recordings can sound very different to dogs from real life sounds. Newer smartphones are fine for this. Even though they can't play low frequency sounds, they can record them.

■ Create *short* recordings of single sounds, especially for dogs with strong sound sensitivities. Or, purchase sounds and edit them down. For instance, you could purchase a 20-second recording of a thunderstorm, and edit out one roll of thunder to use. But be sure that the file you purchase is uncompressed.

■ Play sounds for desensitization on the best sound system possible, especially if you are working with thunder, fireworks, or other sounds that include low frequencies.

■ For dogs who are afraid of high-pitched beeps, create a less scary version by changing the sound's frequency or timbre rather than by lowering the volume. Generally, lowering the frequency works well. You will then need to create a set of sounds for *graduated* exposures. They should start at a non-scary frequency, then gradually work back up to the original sound.

There are several ways to change the frequency of a recorded sound. You can use video software that has good audio editing capabilities, the free computer application Audacity, or professional sound editing software. You can also generate beeps at different frequencies using a free function generator on the internet.

The one advantage of working with dogs who are afraid of such sounds is that the original sounds themselves are usually digitally generated, so when you create similar sounds the fidelity will be high. (In other words, when a dog is afraid of a smartphone noise, a smartphone is the perfect playback tool.)

## HEAR ME OUT

This is not a project to be undertaken lightly, but it can be done if you have tech skills and a good ear. Be sure to use headphones and be at least one room away from your sound-sensitive dog when you start working with recordings of beeps. My dog can hear high-frequency beeps escaping from my earbuds from across the room!

Be aware that with some dogs and

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some sounds, it will not be possible to play recordings that are similar enough to the natural sounds to be able to carry over a conditioned response. Thunder and fireworks will always present significant problems.

We want to believe that there is always a training solution. But sometimes physics foils our plans and the gap between an artificially generated sound and the generated sound will be too high. In that case, masking, management, and medications will be the best help. 🐾

*Dog trainer Eileen Anderson writes about behavior science, her life with dogs, and training with positive reinforcement on her blog (eileenanddogs.com). She holds bachelor's and master's degrees in music performance and a master's degree in engineering science. See page 24 for contact information.*



HEALTH

# Canine Massage

*Every dog can benefit from therapeutic massage performed by a professional massage practitioner. Here's what to look for when seeking hands-on help for your dog.*

*The author massages her young dog, Peter. The athletic dog is healthy, but massage helps prevent soreness and injuries from his exuberant activities.*

As a newly board-certified canine massage practitioner, I want to encourage everyone who is dedicated to their dogs to consider adding professional massage to their dogs' healthcare plan. Who needs this? I would suggest *every* dog. For some dogs, it is essential; for the rest, it will enhance their lives, at a minimum. How so?

Let's start with **young, healthy dogs** like my Peter. Practicing massage on him, starting just a few months after my husband and I adopted him, clearly enhanced our bond. I started slowly and found that he enjoyed every stroke and was happy to have me (and my classmates) touch him everywhere. Also, maintenance massage can assist in protecting the bodies of young, athletic dogs from injury and build resiliency.

For **newly adopted dogs**, particularly those who have had a rough start in life, gentle massage will help relax your dog and allow you to touch him when you need to for other reasons. Just start *gently* and in areas where the typical dog has fewer worries (e.g., shoulders, base of neck). This has helped me greatly with trimming Peter's nails.

Several of my fellow students spent their internships in shelters. They reported in words and video how powerful massage is at helping **stressed dogs** become more relaxed and trusting of humans.

For **senior dogs**, massage will help to identify areas of soreness and bring some relief. Massage also seems to help older dogs suffering from cognitive dysfunction; maybe it's just from having their circulation improved and their neural circuits stimulated by novel touch!

For dogs **who have had injuries**, massage – with the express direction and approval of their veterinarians – can help reduce the formation of scar tissue, soften and lengthen tissue to assist healing, and increase flexibility. It can also help loosen muscles that may be compensating, so more injury does not result. Massage can reduce tightness in areas where dogs have restrictions. Gentle, directed, firm bodywork can stimulate the release of endorphins, with a powerful pain-relieving effect.





■ Dogs with **respiratory conditions** may benefit from massage by relaxing and strengthening the rib muscles that support lung function.

Does this all sound familiar? If you have been treated with massage, you may recognize many of these benefits.

## WHY AND HOW TO HIRE A PROFESSIONAL

While almost anyone can learn to use some basic massage strokes to relax their dog, a well-educated practitioner can use more specialized massage techniques to effectively address the particular issues that affect your dog.

Massage is one of the modalities that is often considered as a “can’t hurt” practice, but it *can* be contraindicated. Dogs with certain cancers (e.g., mast cell cancer and osteosarcoma) should *not* be massaged, and dogs with spinal injuries require special consideration. Dogs who are sick with fever, suffered a recent trauma, or “just aren’t right” should see a veterinarian before massage.

Be aware that there is no consistency in the U.S. regarding the regulation

of animal massage. The website of the International Association of Animal Massage and Bodywork (IAAMB) lists the laws pertaining to animal massage in each state: [iaamb.org/resources/laws-by-state](http://iaamb.org/resources/laws-by-state).

If you are looking for a prospective massage therapist for your dog, I recommend looking for credentialed

professionals. I’m biased, because I recently was certified by the National Board Certification of Animal Acupressure and Massage (NBCAAM), which requires a minimum of 50 hours studying anatomy and physiology, 50 hours of supervised hands-on work, and 100 hours of study in other areas (including business ethics, animal behavior, and biosecurity). NBCAAM reviews the education and experience of candidates to ensure adequacy and then administers a board examination. I believe this sort of rigorous credentialing process is a *must*.

Some veterinary offices and veterinary rehabilitation centers employ technicians who are trained in massage. Even so, I would check the practitioner’s credentials. Was their training program at least 200 hours, and did it include anatomy and hands-on training? There are any number of one-week and video educational programs out there, which are not adequate (in my opinion) to qualify someone to work on *my* dog! If you feel the same, investigate those credentials!

If you have any uncertainty about the practitioner’s qualifications, ask for references – and check them! Also, if your dog has a specific issue that needs to be addressed, ask the practitioner if she has had experience addressing that issue.

## Try it yourself

*Want to try a technique on your dog? I suggest starting with effleurage (French word for “skimming” or “touching lightly”), a gliding technique often used to begin and end massage sessions. It can be done slowly to relax and prepare the dog for deeper work or it can be done quickly to stimulate a dog getting ready to work or perform.*

*Ideally, your dog is lying down on a comfortable, soft surface and you are kneeling (I use a cushion to support my knees). You can use both hands; nails should be short and your hands should be in a line with your wrist and arm to prevent injury to yourself. Lean in to compress the tissue and glide your hands, one after the other, starting with the base of the neck, going down either side of your dog’s back to the base of the tail.*

*Start slowly and gently and remember to watch your dog’s reaction. If she remains lying down with a relaxed demeanor (no stiffening or jerking her head up), you can add a little more pressure.*

*If you are interested in massage and have the time and inclination, you can find a good program and enroll in study. There are also some excellent books that can assist you; see “Canine Massage Resources” on page 24.*

## EDUCATION OF A CANINE MASSAGE PRACTITIONER

I have trained dogs professionally for six years and enjoy helping people improve their communication with their dogs. Now I also use another technique that can dramatically improve how a dog feels and behaves: massage! I learned about the benefits of massage when my dog Chester Bighead had bilateral surgery for torn cruciate ligaments; physical therapy sessions helped him so much.

With some coaching from veterinarian friends, I decided to learn to massage dogs. I embarked on a year-long course of study at the Bancroft School of Massage and learned about canine anatomy, physiology, behavior, disease, first aid, business practices including ethics, and, of course, massage techniques. As students, we started working on each other, and as we gained competence, graduated to massaging dogs. We practiced on either our own dogs (my dog Peter loved coming to class) or volunteers from the adjacent doggy daycare. We took exams – written, oral, and practical demonstrations of our techniques – and completed internships during which we worked on dogs in our own communities. After graduation, I passed the National Board Certification of Animal Acupressure and Massage (NBCAAM) boards for canine massage.

I’m sharing all of this in order to make it clear that, while anyone can learn some basic massage strokes, in order to learn to use these techniques effectively without causing harm, education is essential. It wasn’t easy at what some may call my “advanced” age to learn all the muscles and their points of origins and insertions. But I don’t see how a massage would be nearly as beneficial for a dog if the practitioner wasn’t knowledgeable about how each muscle is supposed to interact with the dog’s bones and joints or its healthy range of motion. – Helene Goldberger

## Canine Massage Case Reports

Aimee Johnson of Little Bear Animal Massage ([littlebearanimalmassage.com](http://littlebearanimalmassage.com)) in St. Paul, MN, reports: One of my clients is a 13-year-old German Shepherd Dog, Izzy, who was referred to me by her traditional Chinese medicine (TCM) veterinarian, Dr. Deb Brown of Pequot Lakes (MN) Animal Hospital. Izzy is a former agility dog and has arthritis in her back, knees, shoulder, and neck. She also has spondylosis, hip dysplasia, and had hip denervation done in 2015. Izzy's owner, Julie, has incorporated multiple modalities to keep Izzy moving (chiropractic, laser therapy, TCM, etc.). After adding massage to her routine (once a week with me, and nightly sessions by her owner), Izzy is doing the things she loves again.



Izzy

Karen Lachapelle, a massage practitioner and owner of Rub My Belly ([facebook.com/rbmybilly](https://facebook.com/rbmybilly)) in Lowell, MA, reports: Wendy and Marc had four dogs. The first dog of theirs that

I massaged was the oldest guy, Taz. When I first met him, he was about 12 years old with just patches of fur. At first, he was unsure, but by the third or fourth session he liked his massages so much so that he would sleep through the night – and, remarkably, his fur started to grow back. I massaged Taz on a monthly basis for two years until he passed away. Then Wendy and Marc called on me to massage their next-oldest dog, Chantilly. When I massaged Chantilly, Wendy and Marc would comment on the “spring in her step” and report that she would have a good night’s sleep. I massaged Chantilly until she passed away in 2019 at the age of 19.



Chantilly

Ellen Kanner of Framingham, MA, shared this report: Bella is my 12-year-old Shih-Tzu/Poodle-mix. About five months ago, she stopped using her left front leg. Her veterinarian diagnosed advanced arthritis and prescribed

an injectable pain killer once a week for 10 weeks. She also advised me that massage or acupuncture may reduce Bella's pain. I contacted Lisa Ruthig (Lively Animal Massage in Grosvenordale, CT), and she started massaging Bella once a week. Within five days of getting her first massage, Bella started walking on all four paws again! After 10 weeks, Bella no longer needed her injectable pain medication. Bella now gets massages every other week. Recently,

she was able to hike at a normal pace for over an hour. Massage turned my older, pain-filled Bella into a much more comfortable “younger” Bella.

Karen Brothers of Bellingham, MA, shared this report: My 13-year-old German Shepherd, Maggie, has severe arthritis in the lower spine and severe hip dysplasia. Medication helped for a time, then her veterinarian recommended physical therapy or massage. After her first massage from practitioner Lisa Ruthig, Maggie slept through the night – for the first time in a while. I was so relieved! I realized that Maggie didn't groan as much as she lay down or struggle as much when she got up. She was willing to walk farther than she had been, she didn't seem as stiff, and her gait was better. Most amazingly, the sparkle came back to her eyes. Over the next two years, her challenges worsened, but each hour-long massage helped Maggie feel more comfortable for the remainder of the week.



Bella

## WHAT TO EXPECT

Before the massage practitioner ever touches your dog, she should have you complete an intake form about your dog. It should have room to include information about any physical and behavioral issues your dog has. The practitioner should then spend time reviewing this information with you. If there is an active illness or physical problem, she should consult with your veterinarian before working on your dog.

You should absolutely be permitted to be present when the practitioner works on your dog; in many cases, the practitioner will prefer this, as your dog may be more relaxed with you in the room. Massage may take place in your home or in the practitioner's office, which should be clean and soothing.

The practitioner may employ a dog appeasing pheromone like the Adaptil (DAP) plug-in; there may be calming music such as “Through a Dog's Ear” playing, and there should be a freshly covered soft cushion for your dog. I prefer to work on the floor because I think it's safer and more comfortable for most dogs. But for small dogs, some practitioners may opt for a table. Massage can make dogs thirsty, so fresh water should be available.

Some dogs may enjoy chomping on a Kong or other chew while getting massaged, and the practitioner might offer your dog an occasional treat for staying calm and relaxed. If your dog tends to guard his chews or treats, let the practitioner know so she does *not* offer him something to chew.



Maggie

If your dog is shy or anxious with strangers, the first session may mean just getting used to the practitioner and limited touching. It may take a few sessions until the dog is willing to lay still and allow the full extent of the work.

The practitioner should be very mindful of your dog's body language and *never* insist on working on an area that the dog has expressed is a no-go. *Massage should not be forced* – dogs should be allowed to get up and move and come back as their choice. Often, dogs who are not comfortable with being touched in certain areas may, over time, allow massage in those places.

The length of the session will depend to some extent on your dog's reaction. If the dog is quite accepting, this will allow the bodyworker to move from the warming-up strokes (such as effleurage and compression) to deeper techniques (such as petrissage and direct pressure), and to more areas of the body.

The practitioner may use any of a variety of techniques for your dog's massage. Swedish massage is excellent for warming up the dog's tissue for deeper strokes and handling most minor muscle problems. Swedish strokes combine compression with gliding, lifting tissue, squeezing, or vibration, depending on the effect desired.

Trigger-point therapy softens up "knots" in the muscle, often using direct pressure. Myofascial release uses gentle pressure to affect change in the tissue that surrounds muscle. Passive range-of-motion exercises can be very effective to enhance joint flexibility and range.

Some practitioners augment massage with other modalities, such as Tui Na (Chinese massage), kinesiology taping, and acupressure.

Toward the end of the session, the practitioner may also employ some passive range-of-motion exercises. The practitioner will support a joint on both sides and move the limb through its comfortable range of motion and within its proper plane, *without forcing*. In addition, the practitioner may show you ways

## Warning Indicators

When you contact a massage practitioner about your dog, one of the first questions she should ask you is whether and when your dog has been seen by your veterinarian. Be wary of any practitioner who would work on your animal with an illness or injury if you haven't at least tried to get a medical diagnosis. Because of massage's powerful pain-relieving effects, doing massage first could delay important medical treatment.

Another thing to watch closely is how the practitioner interacts with your animal. Any attempt to forcibly restrain the dog is a red flag. Massage works closely with the parasympathetic nervous system – the opposite of fight or flight – and anything that counters that relaxation effect will undermine results. Be proactive, and end any session if you feel the practitioner isn't respecting your dog.

One of my instructors, Lisa Ruthig, told me about a dog she worked on who was prone to behaving aggressively when her neck was touched. The dog had been diagnosed with intervertebral disc disease (IVDD) and was in serious pain. Lisa learned that the dog had been muzzled and forced to endure deep-tissue neck massage from another practitioner.

Lisa used behavioral desensitization coupled with massage to the rest of the body to overcome the dog's fear. In the end, the dog didn't need deep tissue massage to relax her tight neck – and deep massage is contraindicated with IVDD! Instead, Lisa used light massage and myofascial release, which the dog happily accepted. Giving dogs some choice and control over a session is the most humane, fastest way to build a bond of trust and allow the necessary work.



Lisa Ruthig and a relaxed client.

to encourage your dog to stretch using treats. These may include neck stretches where the dog follows the treat from side to side, toward either shoulder, or encouraging a bow.

At the end of the session, the practitioner should provide you with her findings, including pointing out any problem areas, growths, or lumps that should be mentioned to your dog's veterinarian. She may also make suggestions about future sessions.

I love massaging my dog as well as other people's dogs. I walk away from every session feeling positively uplifted and more connected to my canine friends. The happy comments I receive from the dog owners are icing on the cake.

Massage has the power to transform your dog's life and even your own. I recommend that you learn more about massage and its benefits and consider a session for your dog. 🐾

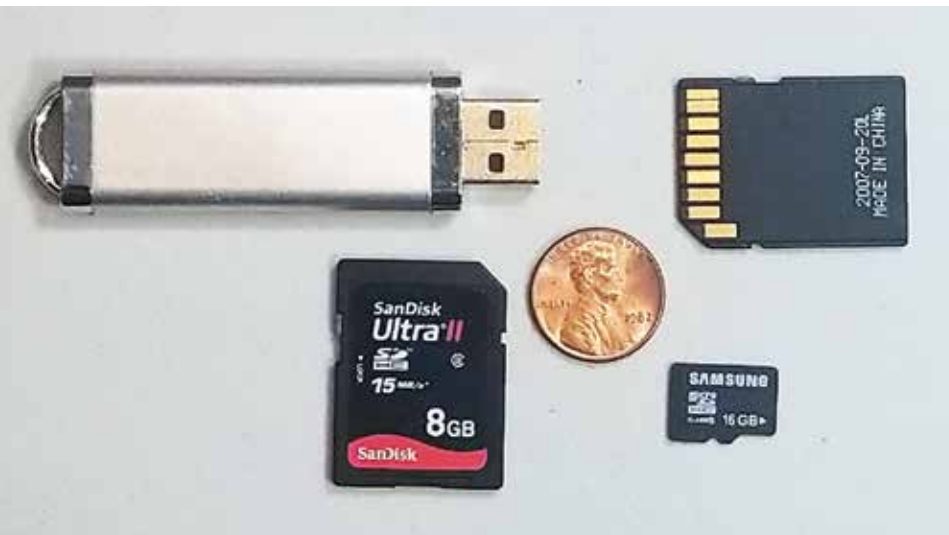
*The author would like to thank Lisa Ruthig of Lively Animal Massage in Franklin, MA, for her help with this article. Lisa is a small animal and equine massage practitioner, mentor with Power of Touch for Animals, instructor and Director of Animal Programs at the Bancroft School of Massage Therapy and the Chair of the National Board Certification of Animal Acupressure and Massage (NBCAAM.org).*

*Author Helene Goldberger, Esq., PMCT, CPDT-KA, is an attorney in Albany, NY, who has been professionally dog training for six years (Heartdog Training). She is a 2019 graduate of the Bancroft School of Small Animal Massage and is nationally board-certified by NBCAAM. See page 24 for contact information.*



# Porn-Sniffing K9s?

*Yup! These dogs are trained to detect hidden thumb drives and even tiny microSD cards when police are searching the homes of suspected child pornography traffickers.*



*Criminals who use computers may save files and photos that could incriminate them on electronic storage devices, rather than their hard drives, since the disks – especially the microSD cards, like the one in the lower right corner of the photo above – are so tiny and easy to hide. Fortunately, they are still quite detectable by the incredible noses of our canine pals!*

Humans have trained dogs to use their amazing noses to identify all kinds of things – explosives, illegal drugs, bedbugs, cancer, even ancient burial sites. But did you know that dogs can help police sniff out evidence against child pornographers?

It's true! In 2015, after a lengthy investigation, the home of Subway franchise spokesman Jared Fogle was raided by FBI agents with the help of a black Labrador Retriever named Bear. At Fogle's home, Bear indicated three finds by sitting in front of their locations, then pointing with his nose to each scent source. One of Bear's finds was an incriminating thumb drive missed by human searchers containing evidence that helped send Fogle to jail.

For the record, electronic-storage detection dogs (ESD K9s) have no knowledge of the content stored on the devices they seek. They are often called porn-sniffing dogs because those who treasure illicit images usually save them on electronic-storage devices that are small and easy to hide.

## A RELATIVELY NEW DOG JOB

In 2011 Jack Hubball, Ph.D., a chemist at the Connecticut Scientific Sciences Forensic

Laboratory, discovered that electronic storage devices carry unique scents in their circuit board components, such as triphenylphosphine oxide (TPPO), which dogs can detect. Armed with that chemical key, Connecticut State Police began training Thoreau and Selma, dogs who were too active to complete their training at Guiding Eyes for the Blind in New York.

The officers started with large amounts of the chemical and gradually reduced its quantity, placing devices containing the odor in different boxes and eventually in different rooms. After five weeks of odor detection training and six weeks of training with his new handler, Thoreau, a

yellow Lab, was given to the Rhode Island State Police. On his first official search, he discovered a thumb drive containing child pornography in a tin box inside a cabinet.

Selma, a black Lab, worked with the Connecticut State Police Computer Crimes Unit, where she uncovered devices in recycling bins, vents, and radiators while working on child pornography, homicide, parolee compliance, and computer hacking cases.

With those successes, an entirely new type of law-enforcement career for dogs was established.

## STANDOUT DETECTIVE DOG

Bear, the dog who helped make the case against Jared Fogle, started life as a pet dog in a family who loved him – but who couldn't prevent him from jumping on counter tops and eating everything he could reach. When he was 2 years old (the age at which many out-of-control dogs are surrendered to shelters), his owners offered him to Todd Jordan, an Indiana firefighter who trained dogs for arson investigations.

Instead of training Bear to detect fire accelerants, though, Jordan chose to help friends on the Internet Crimes Against Chil-

dren (ICAC) task force, who were frustrated at not being able to find thumb drives and microSD cards when searching the homes of child pornographers. Inspired by the electronic-storage device detection dogs Thoreau and Selma, Jordan focused on developing Bear's ability to detect tiny digital storage devices – the kind that might be hidden in wall cracks, clothing, ceiling tiles, radios, closets, books, boxes, furniture, dirty laundry, or garbage.

Most search and rescue (SAR) dogs are rewarded with toys that satisfy their prey drive, but food was Bear's favorite reward, and he was highly motivated. Jordan started training Bear in his own garage, hiding USB drives for Bear to find, and eventually began working with task force agents. Soon Bear and Jordan began accompanying detectives on warrant

searches, where Bear found thumb drives missed by human searchers.

A few months after Bear's successful search at Fogle's home, he helped police gather evidence that led to the arrest of Marvin Sharp, a USA Gymnastics coach charged with possessing child pornography; Bear found microSD cards hidden inside Sharp's gun safe.

In 2015, Seattle Police Department Detective Ian Polhemus, an eight-year member of the ICAC task force, went to Indiana to learn how to work with ESD K9s. Jordan matched Detective Polhemus with Bear, and not long after, sent Bear to live and work with Polhemus in Seattle. The new partners began sniffing out electronic evidence of crimes almost immediately. In one case, investigators completed their search of a suspect's home and then Polhemus brought in Bear for another

search. In just a few minutes, Bear located five devices, some of which contained child exploitation material, that the initial search team had missed.

Bear trains every day, Detective Polhemus explained in a 2018 KIRO Seattle radio interview. "Because he's a food-reward dog, he's highly motivated. So what that means is the only time he eats is when he's working," says Polhemus. Bear is fed three cups of food throughout the day, whether he's working on a case or practicing.

"I've got three training boxes with holes in them and only one of them has a device in it that he should indicate on," Polhemus says. "When he gets to the box that has a device in it, Bear is a passive indicator, which means he'll sit. I'll give him a supplemental command and then he'll shove his nose in the hole and his tail will wag and he'll sit there and hold his nose in the hole until I reward him with food."

## GROWING DEMAND

Illinois State Attorney Michael Nerheim became interested in ESD K9s when he learned about Bear's success. "We were seeing a trend here where child pornographers, rather than downloading evidence onto a computer, would download evidence onto a removable device and then hide that device in their house," he told the *Chicago Tribune* in 2018.

Subsequently, today, there are at least two ESDs trained by Todd Jordan working in Illinois. These dogs, named Browser and Cache, now work for the Lake and Will County attorney's offices, respectively. Child exploitation cases are their main tasks, but the dogs can help with any crime that involves computers or computer records.

"Browser has assisted on dozens of search warrants," says his handler, Carol Gudbrandsen, a cybercrimes analyst. "He routinely performs searches in the jails and has been per-

*Today, Bear lives and works with his Seattle Police Department Detective partner.*



forming sweeps with the Lake County Probation Department when they do home visits on their sex offenders. Browser and I also do presentations in the schools in Lake County, speaking on internet safety and cyberbullying to students, staff, and parents. When I bring Browser into these situations, he instantly grabs the attention of our audience, and our presentations have become even more effective.”

## JOB REQUIREMENTS

To date, Todd Jordan has trained 30 ESDs and nearly two dozen accelerant-detection dogs at his business, Jordan Detection K9. Jordan adapts his training methods for dogs who are ball- or toy-driven, but his primary focus is passive-response (indicating by sitting quietly), food-reward training.

“Our canines are hand-picked, based on their willingness to please and their willingness to work,” he explains at his company’s website, [electronicdetectionk9.com](http://electronicdetectionk9.com). “Most are second-career dogs. We also work closely with several Labrador rescues in order to give good dogs a chance at a fulfilling life.

“We select dogs with high energy and hunt drives. Many of the dogs have failed guide-dog or service-dog school because they may chase after small animals or bark at other animals or other people while working. Although those are instances where a canine would not be good for a person with special needs, they are still great for what we do.”

## TRAINING METHODS

Some trainers of law-enforcement dogs use only toys and play as training reinforcers, and worry that using food for rewards opens the way for an abuse of the system, so to

speaking: that someone could use food to distract a law-enforcement sniffing dog. The human partners of dogs like Thoreau, Selma, Bear, Browser, and Cache beg to differ.

“I had prior canine handling experience with ball- and toy-driven dogs, and had no experience with food-driven canines,” says Special Agent Owen Peña at the New Mexico Office of the Attorney General. “Todd made a believer out of me for the advantages of using a food-driven canine for this type of work and breaking me of my old toy/ball-driven habits. With the canine being food-driven, I feel there is a better bond and connection that I and my family have with our canine, Joey. Now Joey is part of my family and he just happens to have a job.”

Like other electronic-storage detection dogs, Joey works with just one handler, food is an integral part of his daily practice, and he is well fed in the process. Because the dogs eat only when they find a device, their handlers run trainings every day to keep their skills sharp.

Do they actually offer false indications just so they can steal food? In

2016 Special Agent Jeffrey Calandra of the FBI’s Newark, N.J., Field Office started working with Iris, a black Lab, in cases involving organized crime, drug gangs, and cybercrimes including child pornography. In one search, FBI agents were confident that there was nothing left to find in a room with a desk, but Iris alerted to something in its top drawer. Calandra opened the drawer and didn’t see any evidence. When he said, “Show me,” Iris pushed her nose onto a pad of sticky notes.

Calandra assumed that Iris was faking her response so she could steal food, but when he pulled her away from the desk drawer, she pulled back. This time she picked up the pad of sticky notes with her mouth and flipped it over, causing a microSD card to fall out.

“She was correct and I was wrong,” said Calandra. “Either the individual was concealing it, or it got stuck in the pad and you just couldn’t see it. That’s why the dogs are so good.” False positives are not usually a problem, he added, explaining that he’s more concerned about the dog missing something, though he says that hasn’t happened yet.

## IMPRESSIVE FUN

At the Connecticut State Police Forensic Laboratory, Jack Hubbell hopes to identify the lowest detectable scent levels of TPPO, measuring not only part-per-million levels but part-per-billion levels. The dogs’ noses are that impressive, he says, and they consistently out-perform any odor-detecting devices invented by humans.

As far as the dogs are concerned, finding evidence that helps police and the ICAC task force is a series of fun games and all in a day’s work. 🐾

*Montana resident CJ Puotinen is the author of The Encyclopedia of Natural Pet Care and other books. See “Resources,” page 24, for book information.*



*Special Agent Joey, of the New Mexico Office of the Attorney General, is another alumnus of Jordan Detection K9s.*

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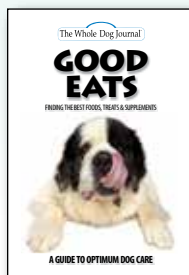
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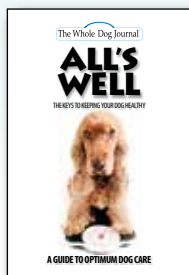
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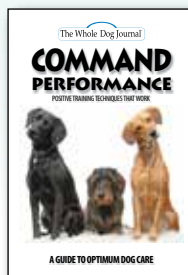
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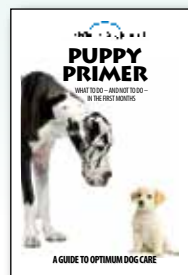
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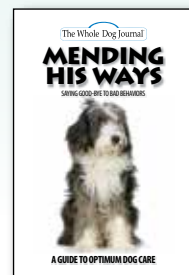
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*The Encyclopedia of Natural Pet Care* and *Natural Remedies for Dogs and Cats*, by WDJ contributor CJ Puotinen, are available from [Whole-Dog-Journal.com/products](http://Whole-Dog-Journal.com/products).

### CANINE MASSAGE

**Helene Goldberger, PMCT, CPDT-KA**  
HeartDog Training, Albany, NY  
[heartdogtraining.com](http://heartdogtraining.com)

**Lisa Ruthig, Lively Animal Massage**  
Grosvenordale, CT. (617) 413-9086  
[livelyanimalmassage.com](http://livelyanimalmassage.com)

*A Dog Lover's Guide to Canine Massage*, by Jody Chiquoine and Linda Jackson (Satya House Publications, 2008)

*Canine Massage (2nd ed.)*, by Jean-Pierre Hourdebaigt (Dogwise Publishing, 2005)

*Canine Massage for Passionate Dog People*, by Jonathan Rudinger (PetMassage Media, 2019)

**National Board Certification of Animal Acupressure and Massage** (NBCAAM)  
[nbcaam.org](http://nbcaam.org)

**International Association of Animal Massage and Bodywork** (IAAMB)  
[iaamb.org](http://iaamb.org).

### TRAINERS

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