

VOLUME 11  
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# The Whole



# Dog Journal™

A monthly guide to natural dog care and training

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## FEATURES

### 3 Our Dog

*Often, an individual brings her own dog into a relationship, while maintaining her singular authority regarding the dog. Until recently, we failed to appreciate what a good idea that was!*

### 6 Do You Recall?

*Here is a fun, fast method for teaching your dog to come when called.*

### 10 Old and Confused

*Learn how to detect, treat, and maybe even prevent canine “cognitive dysfunction syndrome” (CDS) in your senior dog.*

### 14 More Odd Foods

*Information on a few more interesting (and high-quality) dehydrated diets.*



### 15 Healthy Low-Fat Diets

*Dogs who are prone to pancreatitis or IBD, or who have suffered from these painful conditions in the past, can benefit from a smart low-fat diet. But identifying one takes a bit of effort.*



## ALSO IN THIS ISSUE

- 2 Editor's Note
- 22 2008 Editorial Index
- 24 Product and Expert Resources

# Mutt Mandate?

*Allow the president-elect to pick his own dog!*

BY NANCY KERNS

Actually, that headline should read “Allow the president-elect’s daughters to pick their own dog!” but it wouldn’t fit. I hate to sound grumpy in the holiday season, but I feel very protective of Malia and Sasha Obama and their wish for a dog.

I wish it wasn’t such a big story. Just about every dog magazine or discussion group I’ve seen has asked its readers to “Vote on the breed that Obama should get!” Others are polling on the question of “Shelter dog or purebred?” (As if there were no purebreds in shelters; wouldn’t that be nice!) Celebrity trainers have weighed in. Headlines proclaim “Top Dog Will Have to Watch Step!” and “Doo the Right Thing, Obama, Forget the Dog!” When it comes to dogs – unlike the country’s economic troubles or the wars we’re fighting – it seems that *everyone* has advice for the next First Family.

If the Obama family still doesn’t have a dog as you read these words, good! People should take their time when choosing the next member of their family.

And consider this: Can you imagine being a dog-crazy 10-year-old girl who has been wanting, dreaming about, and working toward getting a dog for *years*, and suddenly having every aspect of that personal dream broadcast on every news station and newspaper in the country? For a *real* change, I wish the press would allow the child and whatever dog she selects to have some privacy!

“Why get so riled up about the Obama dog story?” a colleague asked me. “It’s a great opportunity to educate people about dogs.” But I don’t agree. Did the country learn anything

after then-Arkansas Governor Bill Clinton’s dog, Zeke, escaped from the Governor’s Mansion and got killed by a passing car? Heck, not even the Clinton family seemed to learn anything from that! In 2002, Buddy, the Clintons’ famous chocolate Labrador, escaped through an open door from the Clintons’ home in New York, and, yes, was killed by a car. Were there any headlines that urged dog owners to keep their doors and gates secure? I doubt it.

How about the more recent story about Barney Bush, the outgoing President’s dog, who was caught on film biting a reporter? (After watching the footage on YouTube, given the dog’s behavior and that of his handler, I doubt that it was Barney’s first bite; both the dog and handler were too calm afterward, as if this sort of thing had happened before!)

Did the press rush to educate the public about the body language clues that most dogs give – like Barney did – when they are uncomfortable enough to bite a person? (If you want to learn more about this, see “Stress Signals,” WDJ June 2006.) Did they discuss the significance of bites that break the skin, as opposed to bites in which the dog merely pinches the skin? (See “Bite Me Not,” October 2005.) Did any of the mainstream media discuss the best way to greet a dog, or how to train a dog to greet people? (See “Four on the Floor,” May 2008.) All the headlines I saw joked about the bite; none were educational.

I hope the Obamas find a lovely dog for their daughters. To help the rest of you, we’ll plan articles on how to live with dogs if you are allergic to them (like Malia Obama is), and how to help children train the family dog.

NK

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

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# Our Dog

*My first attempt at full joint legal and physical custody . . . of a dog.*

BY NANCY KERNS

I have had a number of dogs over the years, but Otto is actually the very first dog that I've gotten as a co-owner. A former boyfriend paid the \$40 or \$50 that a Bodega, California, sheep rancher wanted for my heart/soul dog, Rupert, way back in 1989, but the puppy was a birthday present for me; Rupe was always *my* dog. He stuck close by my side through the breakup of that relationship and the next few. When Brian (the man who later became my husband) came on the scene, he and Rupert formed a bond, but still, Rupe was *mine*.

Later, a summer of dog-sitting my sister Sue's long-haired Chihuahua, Mokie, turned into a several-year stay. Mokie has since gone on to live with my sister Pam, who won't ever give him up; Brian was more than happy when I did so. He tolerated Mokie, but never fully embraced the



**When I drive Otto somewhere, we take the car, but my husband is old school! He likes dogs to ride in the backs of trucks, so that's where Otto goes when he drives. Fortunately, he's a safe driver, and uses Otto's harness and safety ties.**

## What you can do . . .

- Communicate as best as you can with your family members or roommates about your dog's training. Try to get everyone in your home to agree on basic training techniques and cues. Hint: You might have to compromise on some things!
- Keep in mind that most dogs can figure out and follow different sets of rules for different situations, but this may make their responses less reliable.
- Take a dog training class every so often! It's important to practice your own timing and training skills, and keeps your dog engaged.



idea of a yappy little house-dog, no matter how smart and cute.

So, while Brian and I have shared a home since 1996, we have never truly shared ownership of a dog, like we do now. I selected Otto from a shelter, but Brian was the one who gave the signal that it was time for us to get a dog. When Brian and I got married, I kept my own last name, but Brian wanted to be sure that Otto took *his* surname, and even made sure the dog's full name ("Otto Maddock") was engraved on his ID tag. And Brian has been a real champ about sharing dog-care duties with me.

This is all good news, and I'm happy – I really am. I love my husband, I love our dog, I love that all three of us spend a lot of time taking walks and runs and hikes and drives together. I love the fact that Brian and Otto interact a lot – all on their own. And I really enjoy that Brian and

I frequently discuss Otto's behavior, and compare notes on how to best teach Otto to be a well-behaved member of the family, with full indoor and outdoor privileges. But it's not all sweetness; it's not all easy.

## Battle of the sexes?

I'm just going to come out and say it: Guys do things differently. I know that's sexist. Not *all* guys are alike. But my guy is.

Brian respects my knowledge about dogs and dog training, and he often solicits my opinion about how we should deal with some naughty Otto behavior or another. But sometimes he just wings it – in a very *guy* way.

For example, way back in July, when Otto had been with us for only two weeks, Brian decided to take Otto for a bike ride. He wasn't going far, just six blocks or so to drop off the bike at a repair shop for a



tune-up, and then he walked Otto home. Never mind the fact that I was working hard to teach Otto polite leash walking skills, and didn't want him to practice pulling or running ahead. Forget about the fact that Otto was still shy and mildly anxious about meeting strangers, and that I wanted to make certain that all of his social encounters were positive, and all of his outings were carefully controlled to keep them fear-free.

If Brian had asked me what I thought about him taking Otto with him, running alongside his bicycle to the bike shop, I would have been adamant: no way, not yet! And I'm sure that's why Brian didn't ask what I thought, he just did it.

It was over before I even knew they were gone. I heard the front gate clang, and there they were, apparently back from a little walk. Brian fed Otto a treat as he unsnapped the leash and turned the dog loose in the yard. Otto happily trotted over to his water to drink and then to greet me, tail wagging and eyes dancing. "Where'd you go?" I asked Brian. He answered casually, "We just took a little bike ride. And then I dropped my bike at the shop for a tune-up."

I'm sure I gaped. And then caught myself. This was not just *my* dog; Otto is ours. Of course Brian has every right to take the dog out without consulting me. So I tried to modulate my worried inquiries. I really *wanted* to say, "Darn it, I hope you didn't hurt him or scare him. And if you set back his training or socialization, I'm going to have a fit!" But what I actually said was, "How did it go? Was he okay?"

Brian and I have been married long enough that he knows exactly what I *wasn't* saying; he could probably read my *real* thoughts as if they were printed on my forehead.

"It went fine!" said Brian. "Otto didn't really get it at first, he was nervous about the bike, but I went slow and he caught on fine. I only ran over him once!"

This last thing was not true; it's part of Brian's humor. It's also how he catches me mentally flat-footed about a dozen times a day. I know I'm overprotective of the dog and I know I tend to take things too literally. But you would think I would catch on at some point.

"WHAT?!"

"I'm kidding!" Brian laughed. "Otto was fine. We went really slowly. And I brought him into the store with me – I didn't leave him tied outside; I know you

don't approve of that. I gave him a bunch of treats along the way and we walked back. He's fine!"

## Different parenting styles

Okay, so it's never as bad as I think it is. As a point of fact, Otto accompanies us on a *lot* of bike rides now: on-leash in town and off-leash on trails. In both situations, he's well-mannered and just brilliant.

And Brian *does* listen to my endless lectures about positive training and behavior modification. He's seen me have a lot of success with dogs in the past; he sees it working with Otto.

But I also know that in his heart of hearts he thinks that I make things harder than they need to be. I'm sure he thinks that living with a dog should be simpler, and that I needlessly anticipate problems and overanalyze minute bits of Otto's behavior. You don't have to read a hundred books on dog training to own a dog!

The problem is, I *have* read a hundred dog-training books. I'm hyper-aware of all the ways we can screw up the dog, make him fearful, and undermine his training and his confidence.

And it's always something with this guy! He wants the dog to do *guy* things, like ride in the back of the truck. He opens our front gate to enable Otto to chase a feral cat (who lives under the abandoned house on the corner) across the street and back to that abandoned house. When they hike in our local wilderness areas, he lets Otto chase any jackrabbit that they happen to come across. He often gives Otto his plate after dinner so the dog can lick it clean. When he sees Otto doing something he doesn't approve of, he is apt to bellow, "OTTO! NO!" I, of course, have issues with all of those things!

Recently, the three of us took an off-leash hike. Suddenly I noticed that Otto had stopped for a third time in a few hundred yards to pee. One of the things I have really enjoyed about walks with Otto is that he hardly ever urine-marks; he's usually fixated on moving on and moving out, getting some serious mileage on the trail. And excessive urine-marking is one of my dog-walking pet peeves; I really like walking fast and hate being pulled to a halt every 50 feet. So I kept walking and called Otto, giving him a treat when he caught up to my side. And I said to Brian, "When you walk Otto on leash, please don't let him stop to sniff and pee whenever he wants to 'mark' something."

"Huh," said Brian. "But that's what we do!" Meaning himself and the dog and all the world's male citizens, I suppose.

"Brian! Come on!" I insisted. "I really don't want him to turn into one of those dogs who stops constantly, and pees on every other tree we walk by."

"What's the point of taking the dog for a walk if he can't smell stuff and pee on things?" Brian argued. "That's what dogs like to do! It's natural! You're going to take all the fun out of going for walks!"

I argued back. "He can do all of that stuff when we're in a place like this, and he's off-leash. But when he's on-leash, I want him to pay attention to me, not the bushes, and walk without dragging me all over the place. He still has plenty of opportunities to have fun!"

I'll spare you the rest. Suffice to say we have different ideas about dogs and dog training, and even though I am the editor of *The Whole Dog Journal*, since we are equal partners in owning this dog, I don't always get my way.

You'd think I'd be used to working out our dog-care and -training differences, since we have kids and we have spent more than a decade co-parenting. Ah, but our kids pre-date our relationship, and I'm here to tell you that there *is* a difference between parenting a child of your own, and one who isn't yours and doesn't live with you full-time. We take a respectful back seat when it comes to major decisions concerning each other's kids, letting the biological parent call the shots. But Otto is, in effect, our first child *together*. And somehow this means we have a lot of arguing to do!

My son is going to be 17 years old soon, which means that *long* before I ever read dog books, I read books full of parenting advice. I read – and learned – that all parents have different ways of caring for their babies and children, and that all styles of loving, safe guidance are valid and important for the kids' development. A protective new mom might be worried about turning over her precious baby to her partner, for what might even seem like less-effective care, but it's best if each parent learns and uses his or her own special way with the infant. I know all this stuff. That doesn't make it any easier to share my dog!

## Back to school

Here is another thing that I know a lot about, but am not necessarily good at: dog training!

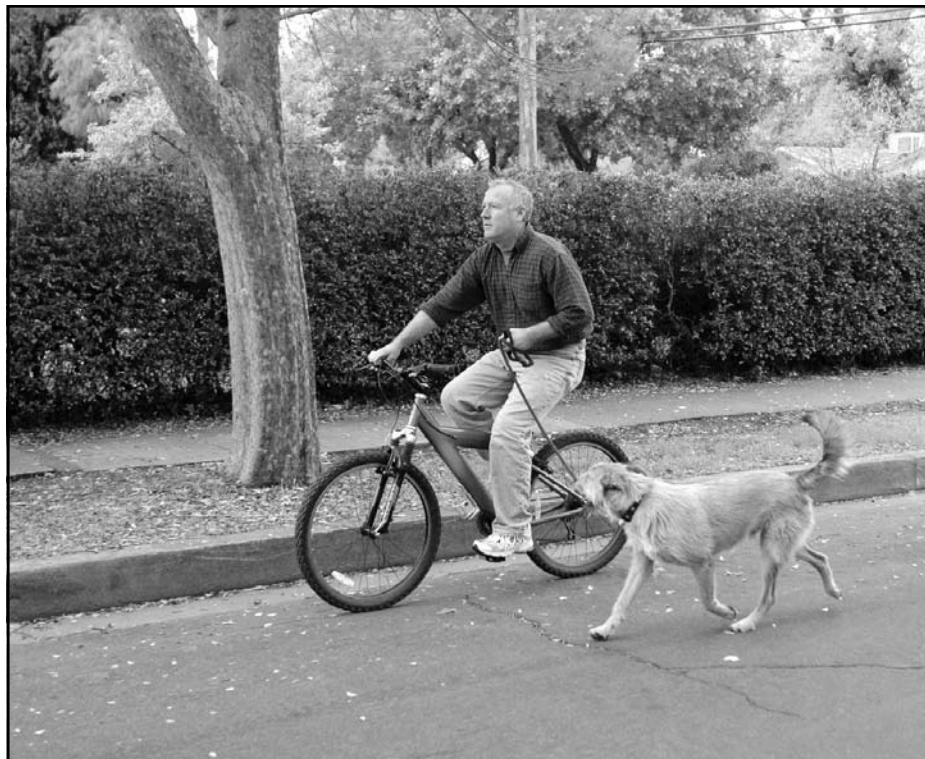
As I mentioned earlier, I've read a ton of great dog-training books. And I can't tell you how many hundreds of hours I've spent in dog training classes, dog sports events, and dog parks combined. I'm usually carrying a camera, and I have taken tens of thousands – maybe hundreds of thousands – of photos of dogs and people with dogs. I've developed a really good eye for canine behavior, and a solid ability to accurately predict what a dog is going to do next. In training classes, I can often spot and “diagnose” a dog/human communication problem before the handler realizes that he's got one, and even make a good guess at what the class instructor will tell the handler to do to correct the problem.

But *taking* a class as a participant is another matter! It turns out that no matter how much you *know*, you still have to practice the actual skill of dog training in order to have much success with it. (Of course, I've heard dozens of trainers *say* that, but now I'm really *getting* it!)

Practice, not just knowledge, is necessary because you have to develop and improve your timing; the quicker and more accurately you can “mark” the behavior you want your dog to repeat, the faster he'll learn how to do it on cue. You have to practice the physical skills of retrieving treats (from your bait bag or pocket or wherever) and delivering them to your dog in a manner and location that doesn't draw him out of the position you are trying to reward him for attaining.

You have to practice in order for your hands to learn to be conscious of the leash, and not unwittingly rise in the air, floating like magic until the leash is unaccountably taut *again*, through no fault of your dog. It even takes practice to learn to walk again! That is, to walk with your hands low and leash loose, while watching your dog carefully, occasionally reinforcing him for being in the right zone by your side, and steering him to where you want to go *without* the leash, using only your clear, confident body language.

Believe me, these things don't just happen; they have to be practiced and practiced. And that practice has to happen at home *and* in front of an instructor who can bring your attention to all the ways you are doing something that prevents your dog from getting what the *heck* you are trying to teach him. Sometimes it's simple. “Try giving the cue again, but this time, take your hand out of the bait bag before you give him the cue,” my trainer said to me



**We practice everything to do with exercising Otto a lot, and he's gotten quite good at running off-leash and alongside a bicycle! As a young, active, and sometimes unsupervised dog, the likelihood of his getting into trouble (barking, chewing, digging) goes up when he doesn't get enough exercise. So we're all getting fitter!**

one night. I had to look down. Well, shoot! How did my hand get in the bait bag? I had no memory of that. *Of course* Otto will have a hard time concentrating on the signal from my right hand if my left hand is busily indicating “Here's another delicious hot dog, coming right up!”

Learning good timing and coordination is no small matter with a dog who has learned “the shaping game” so well. After he receives a click and treat for something twice, Otto almost always “gets” what it is that he did that earned the treat, and he delivers it again, pow! On the night when we first tried nose-targeting in class, he had successfully touched the target stick with his nose three times in a row, and then I got sloppy and clicked too soon. I was listening to the trainer talk to someone else, and as Otto leaned his nose toward the target, I inadvertently clicked at the exact moment he took the end of the target stick into his mouth. Well, there's nothing for it; if you click, you have to give a treat. The click (or other reward marker, such as a verbal “Yes!”) is supposed to *always* predict a treat. I waited a full minute before I held out the target again, but Otto is a dogged dog, and he knew just what to do; he immediately mouthed the stick again.

Fortunately, because he is so good at shaping, it was easy enough to undo the damage. I simply didn't click or give him a treat when he took the stick in his mouth, and instead gently pulled it away, paused a moment, and then presented it to him again. After the third time that he took the stick and failed to get a click, he tried a nose-touch again. Whew! Click and a bunch of treats! And just like that we are back on track.

I laugh and laugh at myself in class; I just can't believe how dopey and uncoordinated I am in class sometimes. My trainer, Sarah Richardson (shameless plug: The Canine Connection in Chico, California, [thecanineconnection.com](http://thecanineconnection.com)), is a great sport and she laughs with me as I fumble with the leash, the treats, the clicker, and the dog.

I also laugh at the looks on Otto's very comical and expressive face as he offers various behaviors, figuring out which position or motion will make me give him a treat. He doesn't seem to be offended by my laughter; I think he knows it's all in fun, taking a new language class together. 🐾

*Nancy Kerns is Editor of WDJ. She (and her husband) adopted Otto from a shelter on June 13, 2008.*

# Do You Recall?

*Teach your dog a solid recall.*

BY PAT MILLER

“Lucy, come!” I call, as I walk across our front lawn toward the old barn to feed the ponies housed there. Our Corgi beelines across the driveway, low to the ground, ears flat against her head, as she speeds to join me. My heart warms. There is nothing more gratifying to a dog owner than a canine companion who comes flying as fast as her paws can carry her in response to the recall cue. The recall response seems to come naturally to some dogs. For others, it’s a hard-won behavior. The Miller pack has some of both.

A solid recall is a valuable behavior for dogs of all sorts, including dogs who compete in sports, do therapy or assistance work, or provide the valuable service of being someone’s beloved companion. The better the recall, the safer he is when off-leash, and the more he can enjoy off-leash freedom with his human. One good off-leash hike is worth at least 10 on-leash walks around the block!

I’ve been blessed throughout much

of my life with dogs who have had naturally solid recalls. Maybe it’s due to my predilection for herding breeds, who seem to have a genetically programmed tendency to stick close to their humans. But then there was Josie, the best dog ever, a terrier-mix who never once entertained a “run away” notion during her 15 years as a beloved member of our family.

Still, I don’t think it’s a coincidence that on our farm, Lucy the Corgi and Missy the Australian Shepherd can be off-leash at will, while Dubby the Scottie and Bonnie the Scottie-mix require closer monitoring. The two terriers have outstanding “situational recalls.” They will both come beautifully sometimes, in some places – not surprisingly, the places we’ve practiced the most – but not with the generalized reliability that Missy and Lucy demonstrate.

I used to teach “Come” the old-fashioned way, in which you put your dog on a sit-stay, walk to the end of the

## What you can do . . .

- Reserve your cue for come (whether it is “Come!” or “Here!” or whatever you choose) for moments when your dog is *certain* to come to you, and you are well-supplied with rewards that are highly valuable to her.
- Practice this behavior several times a day, every day.
- Never, ever call your dog and then subject her to something unpleasant.



leash, turn, face him, call him, and jerk on the leash. I look back on those days and wonder that we were able to teach recalls that way at all! What a negative association those dogs must have had with the come cue: “Come means run to my owner fast so I don’t get hurt.” Not to mention that to a dog, the body language of a direct frontal position is assertive and intimidating, a position that threatens, “You may be risking bodily harm if you approach.” Yikes! Now I know why Marty, my tricolor obedience competition Collie, always trotted to me with his head down when I called him. He always came, but he wasn’t happy about it. “Workmanlike,” I think the judges called it then.

My Bull Terrier took it one step further. As long as Caper was within the 30-40 foot distance that we practiced for show-ring recalls, her “Come” response was faster than a speeding bullet. But if she was beyond range of my normal leash or long-line correction distance, my “Come!” cue caused her to run as fast, or faster – in the opposite direction.



**Sandi Thompson demonstrates the first step of a fun way to teach a dog to come when called. With the dog safely on leash in a low-distraction environment, she says “Come!” in a cheerful tone, and takes off at a run. Her dog, Turtle, thinks this is a fine game and happily runs to Sandi.**



**It's difficult to resist trying to call a dog away from something that you don't want her to investigate. But if you give the "Come!" cue when she is distracted or unlikely to come, the cue will become increasingly irrelevant to your dog.**



**Sandi demonstrates another mistake that many owners make: Standing in a stationary, frontal, and unconsciously threatening posture. Many dogs would decline to come to this person.**

## Teaching happy recalls

We've raised the standard since those obedience days some 30-plus years ago. Nowadays we want recalls that are not just reliable, but that are happy and fast as well. We want dogs who come because they *want* to and love it, not because they *have* to.

The good news is it's not as hard as you might think. It just takes a commitment to *regular practice*, keeping it fun and happy.

- Start by "charging" your "Come" cue. This will be a word that will always mean to your dog: "Absolutely wonderful stuff is about to happen and you better get over here fast or you're going to miss out!" Say "Come!" in a loud, cheerful voice and feed your dog a very high-value treat – chicken, steak, whatever he thinks is totally wonderful. Repeat many times, until your dog's eyes light up when he hears the cue. Remember, he doesn't have to "come" for this part – he's just hanging out with you, eating treats.

Note: If you've already taught your dog that "Come!" sometimes means "bad stuff" then you've "poisoned" your cue, and you need to pick a different word. See "The Poisoned Cue" on the next page.

- Now, with your dog walking by your side on leash, say "Come!" loudly, in a cheerful tone of voice, and run away fast. You and your dog are running together, in the same direction. Run 10-15 feet. Reward him with a treat when you stop, or even better, a toy – play a quick game of "Tug" or toss a ball for him to catch. If you keep your rewards high-value and unpredictable, your dog will find your recalls irresistible. "I wonder what exciting thing she's going to do next!"

By the way, "fast" is relevant. If you have a Labrador Retriever, "fast" is probably "fast as you can." If you have a Yorkshire Terrier, "fast" is considerably slower. "Fast" should only be as fast as your dog can comfortably run.

- After several *days* of practicing the previous steps, try this: Wait until your dog is a few feet away from you (still on leash). Say "Come!" (cheerful and loud!) and run away fast. Run 10-15 feet and reward her at the end. Exciting and unpredictable! If your dog stays very close to you, drop a few yummy treats on the ground, walk to the end of the leash, wait until she's eating the last one, then say "Come!" and run away. Practice this step for a week or more.

- When your dog consistently runs to you and with you when you say "Come!" and run, start a little off-leash work in a safely enclosed, low-distraction area, such as a hallway in your house, or large den. When he's not right next to you and not deeply engrossed in some highly rewarding activity (such as gnawing on a bone), say "Come" (loud and cheerful) and run away. Remember to reinforce with an exciting, unpredictable toy or several treats when he comes.

- Avoid calling your dog when he's not likely to come! At best, you'll teach him "learned irrelevance" – that your recall cue is meaningless. At worst, you'll get angrier and more insistent with

your recall cue and poison it. Then you'll have to pick a new cue and start over again. Make sure you have his attention before you call him. Say his name first and wait for him to look at you. If you call him and he *doesn't* come, do something else: make a kissy noise or squeak a squeaky toy, and make sure you have his undivided attention before you call him again.

- You can practice longer distance recalls outside with your dog on a long line – a leash that is 20 to 50 feet long (*not* a retractable leash!). The long line keeps him safe and prevents him from leaving, but do *not* use it to pull him to you. Remember to turn and run away fast – at least at first. If he's now flying to you happily every time, you can face him to greet him and reward him when he gets to you.

- When he reliably comes to you on the long-line in a safely enclosed location, start working on off-leash recalls – still in your safely enclosed location. Repeat the two previous steps. Take care *not* to call him if he's involved in some highly rewarding activity such as eating deer poop in the garden. Always call him in a loud, cheerful tone, and use a high-value (and unpredictable) reward when he comes.

- When your dog will run happily to you even when you take only one or two running steps, you can add an automatic sit. This parks him when he gets to you.

If you've already done a good job of installing a



**Once your dog is reliably coming when called, add in an automatic sit.**



“default sit” by reinforcing “sit” so much that he offers it easily and automatically, this part is easy. As he runs toward you, turn to face him, and when he gets to you pull your shoulders back, lift your chest and, if necessary, raise your hands to your chest. This body language will often elicit a sit. If he sits, reward him. If he doesn’t sit, reward him anyway for coming, and *then* ask for a sit.

■ When your dog’s recall-sits happen easily and automatically, occasionally reach for his collar, gently, under the chin. Give him a yummy treat, and then toss a ball or toy for him to chase. This teaches him to happily accept you reaching for him after a recall for those occasions when you need to restrain him. We’ve all seen those dogs who dance just out of reach when their owners are trying to capture them. Don’t let that be *your* dog!

■ Now you can add Round Robin Recalls with other family members and friends. Supply each player with a stock of toys

and yummy treats. Take turns calling your dog and running away fast, with each person rewarding him each time they call him, with a high value (unpredictable and exciting) treat or fun game with a toy.

■ As long as your friends and family are around to help with your training, ask them to create distractions while you call your dog. Small ones at first – standing between you and your dog; walking across his recall path; talking to him as he runs by – and then bigger ones: sitting on the ground between you and your dog; holding treats in their hands (but not letting him have them); holding a toy, eventually tossing it in the air and catching it as you call your dog – and finally, huge ones: running across his recall path; throwing a ball on the ground as he runs past; or walking across the yard with another dog on-leash.

What should you do if your dog fails to resist the temptation to investigate one of the distractions? First, try to stop him from engaging with the distraction (the other dog, a ball, another person with treats), put

your dog back on-leash, and make a note to yourself: your dog is not yet ready for that level of distraction off-leash!

With your dog back on-leash, go back to work, but with a less-challenging distraction. Ask your distraction volunteers to stand farther away, or to be much less exuberant in their efforts to distract your dog. Also, increase the value of your reinforcer. Bring out the very top-level treats you possess, or the toy that your dog loves so much that it will overcome almost any distraction.

Your goals, as always, are to prevent the dog from being reinforced for behaviors you don’t want (failing to come to you); and to reinforce the behavior you do want (coming when called) with rewards that are very meaningful to your dog (not just kibble).

■ If you and your dog have been successful at the previous steps, you can start working on generalizing your dog’s recalls in new locations. Each time you go to a new place, practice recalls on the long line

## The Poisoned Cue

A cue becomes “poisoned” when the dog’s association with the cue is ambiguous – it’s sometimes associated with positive reinforcement, and sometimes associated with punishment. When the association is ambiguous, the dog is confused and doesn’t know what to expect.

A positively trained cue *always* “opens the door” to positive reinforcement. If the behavior does not occur, the only result is that no reinforcement occurs. When the behavior occurs, reinforcement is guaranteed. As soon as the dog understands what a given cue means, the cue itself becomes a positive reinforcer. It seems likely, too, that the desirable, positive emotional response that we know to be associated with the click of the conditioned clicker also accompanies the presentation of a positively conditioned cue.

Behavior that has been trained by correction also has associations with commands that indicate when the specific behavior is to occur. However, the association is not positive. If the dog doesn’t perform the behavior, or performs it incorrectly, the command leads to punishment such as a “leash pop” or verbal reprimand (often called a “correction”). The command is now a conditioned negative reinforcer (dog’s behavior makes a bad thing go away). The dog works to avoid bad stuff rather than to get good stuff. The dog’s emotional response to the command is negative/avoidance, not positive.

Even if the behavior was trained with positive reinforcement, if a cue is followed by an aversive correction (leash pop, verbal reprimand, etc.) for incorrect behavior, the cue immediately loses its positive association and its value as a positive reinforcer. It is, at best, ambiguous in terms of reinforcement. It no longer automatically triggers the positive emotions as-

sociated with conditioned positive reinforcers. Even if primary reinforcers, such as approval, toys, and treats are used during or after training, the cues (now commands) are threats as well as promises. Behavior tends to break down because the behavior that *might* be punished tends to be avoided. The dog’s attitude often switches from attentive eagerness to reluctance and avoidance, often with visible manifestations of stress. Even though an appropriate behavioral response to a cue is still followed by reward, if failure is followed by punishment, you have made that cue ambiguous in terms of predictable outcome. It is no longer “safe.” You have poisoned your cue.

“Come” is one of the most frequently poisoned cues. Owners often inadvertently poison the recall cue by following with a consequence the dog perceives as undesirable, even though the owner isn’t intentionally punishing the dog. It can happen to the best of us. Before I realized that coming into the house from outside was aversive to Lucy, our Corgi, I often called her to “Come!” and then took her inside. By the time I realized she was avoiding me when I said “Come,” it was too late – the damage to the cue had been done.

Now I use “Let’s go!” and make sure it’s frequently associated with fun stuff even when it means we’re going into the house. On the way to the house we often play targeting games, or “Find it!” and once we’re inside it’s time for a quick game with her all-time favorite toy. Sometimes I don’t call her, but go into the house without her. Because she hates being outside *alone*, she soon appears at the back door, waiting to be let in. I can get away with leaving her outside unattended because we live smack dab in the middle of our 80 acres, a long way from the road, and I know she won’t leave. Problem solved.



## Emergency Recall Alternatives

No behavior is 100 percent reliable. No matter how good your dog's recall is, there may come a time when you need an emergency alternative. There are at least three behaviors that are relatively easy to train that can save you in a crisis:

**TARGETING:** Targeting is teaching your dog to touch his nose (or other body part) to a designated place, on cue. (See "Right On Target" WDJ Feb 2006) I usually teach nose-to-hand as a first targeting behavior. Because targeting tends to be a highly reinforced, fun behavior, dogs who love to touch will often easily offer that behavior even when they're not responding to their "Come" cue.

**WAIT:** A well-installed "Wait" cue can stop your dog in his tracks. (See "Wait a Bit, Stay a While," WDJ May 2001). Let's say he takes off after a deer. He may not be willing or (mentally) able to come to you in that moment, but you may be able to get him to pause long enough for the deer to vanish, at which point your recall or targeting cue may work.

**DOWN:** Like the "Wait," a sharp "Down" response can stop your dog, and he's even more firmly anchored – at least psychologically – if he's lying down. Again, once the deer is out of sight you may be able to call him to you, and if not, you can walk up to him and collect him.

until you're sure he's really reliable, even in the presence of big distractions. When you're confident he'll come every time you call, and as long as it's legal and safe, you're ready for long off-leash hikes in the hills – the best adventure and exercise any dog could ask for.

### You may be surprised!

Sometimes our dogs are better than we think they are. While Dubhy's and Bonnie's recalls aren't as solid as Lucy's and Missy's, I am sometimes reminded that they're pretty decent after all. When we hike on the farm, I do let Bonnie off-leash. She bolts off after a flock of crows and I watch her disappear into a hayfield. Since our house in the middle of 80 acres surrounded by neighbors' woods, I'm not too concerned that I can't stop her in her tracks and that she ranges a little farther than I'm truly comfortable with. I give her several minutes of running time, then call her. Sure enough, her happy panting face soon peeks out from the tall grass, and we hike on.

Dubhy the Scottie stays on his long-line for our hikes and we practice safe recalls a lot. I know from experience that his recall is great unless he's halfway down a groundhog hole where he might choose to stay for quite some time.

However, his recall worked like a charm this past July when he discovered a gate he could pry open in the backyard and

he escaped into the darkness. When I called the dogs in from their final evening potty-break, Dubhy was nowhere to be found. I grabbed a flashlight and headed out to hunt for him in the woods, knowing how futile it would be to look for a small black dog in the dark, especially if he was down a groundhog hole. I anticipated sitting up all night, going out every 15 minutes to call him, hoping he'd stay out of trouble.

To my surprise and delight, I hadn't even gotten to the woods when I heard doggie paws rustling through the horse pasture. It was Dubhy, speeding happily back to me in response to his "Come!" cue. Our long-line practice recalls on all our hikes paid off. I'm half-tempted to let him off-leash on our next farm-hike! 🐾

*Thanks to Sandi Thompson, CPDT, owner of BravoPup! of Berkeley, California, for demonstrating these techniques. See "Resources," page 24, for contact information.*

*Pat Miller, CPDT, is WDJ's Training Editor. Miller lives in Hagerstown, Maryland, site of her Peaceable Paws training center. Pat is also author of The Power of Positive Dog Training; Positive Perspectives: Love Your Dog, Train Your Dog; Positive Perspectives II: Know Your Dog, Train Your Dog; and the brand-new Play with Your Dog. See "Resources," page 24, for more information.*

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# Old and Confused

*Detect, treat, (or prevent?) canine “cognitive dysfunction syndrome.”*

BY LISA RODIER

Each of us has, at some point, wandered into a room and realized that we’ve forgotten why we’ve gone there. When that happens, chances are we are momentarily perturbed with ourselves, but typically we chalk it up to too much on the brain, remember why we’re there, then move on. Should our dogs wander in the same fashion, it could well be a sign of cognitive dysfunction syndrome (CDS), a condition quite similar to Alzheimer’s in humans.

CDS happens when the aging process affects brain pathology, resulting in behavioral changes, including cognitive decline (memory and learning). One of the biggest culprits is the damage done to mitochondria caused by oxidative damage over time. Researchers also believe that a decline in cerebral vascular circulation contributes to the changes we see in our aging dogs.

Testing dogs’ cognitive abilities in a laboratory setting has shown that signs of CDS can be seen as early as seven years of age, yet we, as pet owners, often don’t realize a change in our canine companions until they reach 10 years of age or older. However, dogs trained to a higher level – such as service or guide dogs, agility, and other competition dogs – are those whose cognitive decline might be noticed sooner than that in “just” a pet dog because of a subsequent drop off in the highly trained dog’s performance.

## Give me a sign

The gold standard for testing

for CDS is in the laboratory. In aged dogs tested in a laboratory setting, researchers observed poor performances on cognitive tasks using a “three component delayed non-matched to position task” (3-DNMP) that tested discrimination learning (ability to select one object over another), reversal learning (after training to select an object, criteria are reversed), and spatial memory (memory of places).

Unfortunately, such laboratory testing is not readily available to us mere mortals. So what should you do? Watch and observe your dog, looking for changes in his or her behavior that might be symptoms of CDS.



**What’s wrong with this picture? When your dog suddenly has a difficult time remembering which way to enter a door (or which side of the door opens), he may be experiencing CDS.**

Traditional “DISHA” categories include:

- Disorientation, including appearing lost or confused in the house or yard; wandering aimlessly; pacing; staring into space or at walls
- Altered Interactions with people or other pets, including not seeking attention or petting or failing to greet family members
- Sleep-wake cycle alterations, including sleeping more in the day, less at night
- House-soiling “accidents”
- Altered activity level

Gary Landsberg, DVM, DACVB, in his paper “Therapeutic Agents for the Treatment of Cognitive Dysfunction Syndrome in Senior Dogs,” published in *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, notes that we might also see:

- increase in anxiety
- decrease in hygiene/self-grooming
- altered appetite
- decreased responsiveness to stimuli
- deficits in learning and memory

At the same time, it’s important not to jump to conclusions and self-diagnose our dogs if we see any of these signs. These changes can also be due to a variety of medical problems, so it’s important to first rule out environmental factors, physical health, and drug-induced behavior side effects with a visit to your dog’s veterinarian.

I had that very experience with my 12-year-old Bouvier, Axel. When I queried

his veterinarian, Susan Wynn, DVM, as to whether his standing very still for periods of time when out in the backyard with me was a sign of CDS, her observation, after further querying me, was that she just wasn't seeing it. Her hunch was that the behavior was most likely a result of pain from arthritis.

She further explains, "I think CDS is very difficult to differentiate from pain and this is a mistake that is made often. I do see CDS occasionally, but I treat for pain first, and as an acupuncturist, I often find pain that is missed on the conventional exam. If signs of compulsive walking and disorientation remain after two weeks, I'll usually initiate a trial for cognitive dysfunction."

### Lots you can do

If you're concerned that your canine companion might be showing signs of CDS, don't panic, cry, or devour a box of bon-bons just yet. The good news is that there are traditional and alternative interventions that can both treat the symptoms and also possibly halt further progression of the condition.

Most exciting of all have been groundbreaking studies examining the positive impact of dietary supplementation and behavioral enrichment that includes social, cognitive enrichment (learning problems), and physical exercise components. Check

with your veterinarian to discuss the following alternatives.

#### ■ Dietary intervention

A variety of clinical studies have revealed that dietary intervention in the form of an antioxidant-enriched diet improved the learning ability of older dogs, and a resulted in a subsequent decrease in CDS symptoms. Primary supplementation included:

- ◆ **Vitamin E:** Acts to protect cell membranes from oxidative damage
- ◆ **Vitamin C:** Essential in maintaining oxidative protection for the soluble phase of cells as well as preventing Vitamin E from propagating free radical production

- ◆ **L-Carnitine:** Mitochondrial co-factor

- ◆ **Alpha-lipoic acid:** Mitochondrial co-factor

- ◆ **Other antioxidants** from fruits and vegetables (i.e., spinach flakes, tomato pomace, grape pomace, carrot granules, and citrus pulp) that are also rich in flavonoids and carotenoids

Dr. Landsberg notes that it has been suggested that high intakes of fruits and vegetables might decrease the risk for age

### What you can do . . .

- Help your senior dog at home by following a predictable daily routine.
- Make gradual, rather than sudden, changes in the household or routine.
- Use tactile (rugs, runners), and audible (TV, radio) cues to help pets maintain orientation and help with navigation around the house.



related cognitive decline through their antioxidant and anti-inflammatory properties, and the addition of omega-3 fatty acids can promote cell membrane health and provide a possible anti-inflammatory effect.

Although available in a commercial prescription dog food, the diet can be mimicked by those pet owners who prefer to feed home-prepared, or another type of food by feeding an antioxidant rich diet and supplementing.

Dr. Wynn, who practices alternative and complementary medicine and is the nutritionist at Georgia Veterinary Specialists in Sandy Springs, Georgia, says that antioxidants are the single most important treatment for her clients diagnosed with CDS, adding that "any older dog with clinical signs" is a good candidate. In addition to antioxidants, she uses acetyl-l-carnitine and alpha-lipoic acid. She also recommends herbs, preferring to treat with lemon balm, ginkgo, bacopa, and gotu cola. In her experience, she expects to see results "usually within two weeks."

Dr. Wynn agrees, too, that for those people so inclined, "Use the diet you want, plus antioxidants and alpha-lipoic acid and acetyl-l-carnitine supplements."

#### ■ Behavioral enrichment

Just as exciting is the research reported in *Neurobiology of Learning and Memory*, "Enhanced Spatial Ability in Aged Dogs Following Dietary and Behavioural Enrichment" (P.M.D. Nippak, J. Mendelson, B. Muggenburg, N.W. Milgram). This study tested aged dogs on a 3-DNMP test, and followed the results of dietary inter-



**Provide plenty of environmental stimulation to your dog. This Pawlicker dog puzzle, which requires the dog to sniff out the location of the treats and then physically manipulate the pieces to reveal (and eat) the treats, is great for older dogs.**





**It's easy for senior dogs with CDS to get lost, even in areas they were formerly quite familiar with and knew how to get home from. Make sure your dog wears ID at all times, so any kind-hearted stranger can help him get home ASAP.**

vention and behavioral enrichment on the cognitive abilities of aged (and control) dogs in the trial for three years. As has been found in previous studies, dietary intervention in this study "... led to rapid improvements in learning and within two weeks, significant improvements in spatial attention." Over time, learning ability improved as well, while untreated dogs showed progressive decline.

In their test of the effect of behavioral enrichment on cognitive abilities, researchers reported that the dogs showed similar improvements to those receiving dietary intervention. Behavioral enrichment included increased exercise, environmental enrichment (kennel mate, toys alternated weekly), and a program of cognitive enrichment. Why? We can only guess, based on data from human studies that tell us:

- ◆ **Physical activity** is associated with improved cognitive function and lower risks of cognitive impairment and dementia.
- ◆ **Enriched environments** improve learning ability and "can be sufficiently robust to reduce or eliminate age-dependent cognitive decline, particularly if intervention is instituted early in development."
- ◆ **Cognitive experience** is linked to the absence of cognitive dysfunction, with an inverse relationship between educational level and rate of cognitive decline later in

life; studies also show that patients with dementia demonstrated an improvement in cognitive performance following the implementation of special cognitive training protocols."

Jonna Kanable, Certified Canine Rehab Practitioner (CCRP) with Atlanta Animal Rehab and Fitness in Roswell, Georgia, is a firm proponent of the exercise piece of the puzzle. "If you look at it from the common sense standpoint, if you increase blood flow to a particular organ, you'll see more nerves firing and more synaptic involvement, and you should definitely increase cognitive ability at that point, too.

"In my own experience, I've had a lot of elderly canine clients for exercise (underwater treadmill) who were arthritic but also showed symptoms of CDS. They were prescribed exercise to help out with the arthritis, but we also saw their cognitive ability improve."

Kanable also reported seeing dogs with "more peppiness, not that listless stare; they're looking around more, and definitely seem to be more energetic afterward." The more weekly sessions the dogs attended, the longer they "held" their treatments and demonstrated more voluntary movement at home instead of just lying or standing in one spot. Plus, she adds, "All the owners, every single one of them, said with exercise during the day they saw improvements (a decrease) in

their dogs' pacing behavior (a classic CDS symptom) at night."

Kanable believes daily exercise is the key. Even if it's short periods of exercise – 10 to 15 minutes at a time, two to three times daily, for an elderly pet, depending on their level of conditioning – owners should expect to see better quality of sleep for their pets and better cognitive ability.

In addition to exercise, enriching your dog's environment could include short outings to meet people and take in new sights and sounds; visits with other dog-friendly pets; mini-daily training sessions; a low key training class; and a weekly rotation of toys. WDJ's Training Editor, Pat Miller, lists the following activities as a few of her favorites to keep your dog's brain engaged:

- ◆ **Shaping games**, including "101 Things to Do With a Prop," or directed shaping of a specific task; great because these can be played no matter how much a dog may be physically limited
- ◆ Playing with **interactive puzzle games** (for more information on these, see "A Puzzling Activity," WDJ June 2008, and [nina-ottosson.com](http://nina-ottosson.com) or [pawlickers.com](http://pawlickers.com))
- ◆ **Targeting** games such as touch an object, go outs, and object discrimination
- ◆ **Learning to spell** (see "Teach Your Dog to Read," WDJ October 2006)
- ◆ Playing **find it** (hide a toy or treat)
- ◆ Playing with **interactive stuffed toys** with "parts" the dog pulls out or apart

## **Diet + behavioral enrichment = best formula**

All these things are helpful for dogs with CDS, but what researchers discovered was that the combination treatment group – the one that received both dietary *and* behavioral interventions – consistently demonstrated *greater* benefit than groups receiving a sole treatment. Prior reports indicated that the "3-DNMP" task was too difficult for aged animals, yet this study showed aged dogs making fewer errors and responding more slowly (actually a good sign!) on these complex tasks.

While Dr. Wynn likes to start dogs on antioxidants at roughly nine years of age as "prevention," she, too, is a big believer in the power of behavioral enrichment in

combination with dietary intervention.

"I think that, as in humans, if you don't use it, you lose it," says Dr. Wynn. "Some older dogs are left at home with nothing to do but dwell on their anxieties – the gradual loss of hearing and sight, increasing stiffness and pain. I really think they dwell on these changes unless they are given other things to do and to think about, and are provided with adequate pain control. So we should manage their pain very aggressively with acupuncture, massage, herbs, chiropractic, physical therapy, and drugs, and provide them with small projects, or if possible, keep them in training. Training and exercise should never stop."

### Nutraceuticals

A variety of nutraceuticals intended to boost brain power are available. Studies that indicate that Juvenon®, available for dogs as "Vigorate," is effective for canine CDS. Other available nutraceuticals include Memoractiv™, Geriactive®, Proneurozone™, and Senior Moment®. At this time, the efficacy of these products has not been proven through clinical trials or cognitive studies, although some users report seeing improvements in their dogs.

### Pharmaceuticals

Currently, the only veterinary pharmaceutical approved by the FDA for treatment of CDS is Anipryl® (selegiline hydrochloride, L-deprenyl hydrochloride). This drug has also been used in the treatment of Alzheimer's in humans.

Like any drug, Anipryl can cause adverse reactions and side effects, and should not be used in combination with drugs that include, but not limited to, phenylpropanolamine, ephedrine, other tricyclic antidepressants (Clomicalm), amitraz (Mitaban dips or Preventic collars), fluoxetine, mirtazapine ( a tetracyclic antidepressant used as an antiemetic and appetite stimulant, often in cancer patients), and tramadol. A thorough review of current medications and an in-depth discussion with your veterinarian are in order should you decide to take this route.

Other pharmaceuticals being studied, according to Dr. Landsberg, are those that enhance cerebral vascular circulation and drugs that increase alertness and regulate sleep-wake cycles. Antidepressants might also help (i.e., clomipramine), as might anti-inflammatory drugs and hormone replacement therapy, although clinical trials

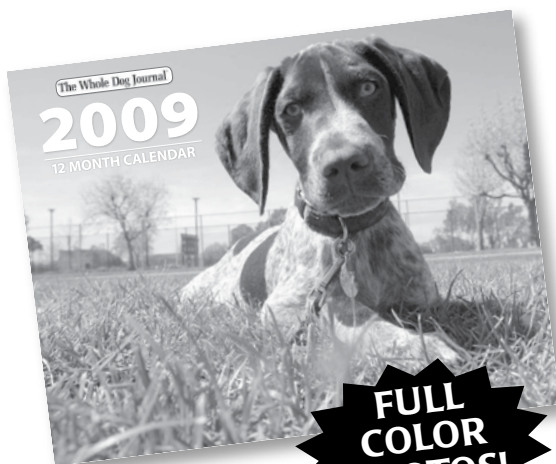
have yet to be run specifically for treatment of CDS with these interventions.

### Not there just yet?

Think your friend is not quite ready for the senior center? Well then, now is the perfect time to get serious about updating his diet and engaging him in an active lifestyle. Human epidemiologic studies suggest that maintaining an active lifestyle can protect against pathological aging. Participation in cognitively stimulating or physical activities that lead to improved function reduce the risk of developing Alzheimer's. Reduced intellectual or physical activity in middle age has been shown to lead to a higher risk of Alzheimer's later in life.

Since some treatments might actually slow the progression of disease rather than simply treat symptoms, it's best to start treatment of senior dogs prior to onset of clinical signs. At the end of the day, it's a win-win situation, with both of you benefitting from a change in lifestyle that incorporates an antioxidant-rich diet, exercise, and cognitive stimulation. 🐾

*Lisa Rodier lives in Alpharetta, Georgia, with her husband and two Bouviers.*



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# More Unconventional Food

*Three more very different dehydrated diets.*

BY NANCY KERNS

Any time we aspire to review the best products in a given category, we inadvertently miss some. Last month, we highlighted some interesting “novel” foods – products that are manufactured outside the conventions of dry, canned, or raw frozen foods. Somehow, we failed to include a few interesting dehydrated products.

As we stated last month, dehydrated foods are light and compact, and easy to take on the road; just add water. Because

most include raw, dried meat as the major protein (and indeed the major ingredient), they are frequently used as “travel food” for dogs who ordinarily eat a home-prepared or commercial raw meat diet.

Please note that some of these products are *not* formulated to meet the nutritional levels recommended by the Association of American Feed Control Officials (AAFCO). It’s *usually* easy to identify these products by the omission of a “complete and balanced” claim on their labels. However,

one product below makes a “complete and balanced” claim that lacks information about which AAFCO standard it met.

Most dogs can eat unbalanced or incomplete diets for a short time without adverse side effects. But such diets should be used only as a short-term solution, or by owners who are experienced with home-prepared or unconventional diets. It’s advisable to develop a collaborative relationship with a vet who can provide educated oversight of alternative diets.

## DEHYDRATED DIETS

### Addiction Foods

Singapore  
(65) 6273-8981  
addictionfoods.com

(U.S. distributor is  
Evergreen Pet Supply,  
800-959-3395)

Addiction Foods manufactures its raw dehydrated diets in New Zealand; this is also where it sources its protein sources, including lamb, venison, and wild brushtail (a type of possum, so common it is considered a pest species in New Zealand). Unlike conventionally extruded (the process through which most kibble is made) foods, these products (like the other dehydrated diets we reviewed in the November 2008 issue) contain a high percentage of animal protein – in excess of 45 percent, says the maker. All of the products are formulated to meet AAFCO’s “nutritional levels” standard for “complete and balanced” canine diets.

Five varieties are available, including three grain-free types (lamb & potato; brushtail & potato; and venison & fig). The varieties that contain grain (oats) are brushtail & venison and venison & cranberry. The first six ingredients in the “Fig’licious Venison Feast” variety are: venison, potatoes, papayas, canola oil, figs, carrots. The label indicates this variety contains 19% protein, 10% fat, and 12% moisture.



The first six ingredients in Aelyôn are: cooked dried chicken, oats, wheat germ, flax seed, wheat bran, brewers yeast. It also contains herbs, probiotics and prebiotics, and a plethora of vitamin, mineral, and other food supplements. The label indicates that it contains 24% protein, 17% fat, and 10% moisture.

### PHD Products

Elmsford, NY  
(800) 743-1502  
phdproducts.com

PHD’s dehydrated diet is called Aelyôn. Its label indicates that it’s a complete and balanced diet, but there is no information about whether an AAFCO standard (feeding trial or nutrient levels) supports this assertion. The maker says this product can be fed as a sole diet or with raw meat. The chicken in this product is cooked and dehydrated.



Three varieties are available: lamb, venison, and venison & fish. The first six ingredients in lamb variety are: lamb, liver, tripe, heart, kidney, chicory syrup. No grains are included. ZiwiPeak says its meats are free of antibiotics and hormones. The label indicates that this food contains 28% protein, 30% fat, and 15% moisture; this profile suggests this food would be very useful as a nutritious treat or to boost the appetite of a sick or chronically underweight dog.

### ZiwiPeak

North Island,  
New Zealand  
(877) 464-9494  
ziwipeak.com

ZiwiPeak “Daily-Dog” Cuisine Air-Dried formulas (the company also makes “Daily-Dog” Cuisine Moist [canned] formulas) are made in New Zealand. They are made with raw, dehydrated meat and organs; in fact, the maker says the formula consists of 65% meat and about 20% organs (liver, tripe, heart, kidney). The product label includes a statement that the food “has been designed to meet industry requirements as set by AAFCO.” Note that this is *not* a standard statement and may not indicate that the food meets AAFCO’s standards for a “complete and balanced” diet.





# Healthy Low-Fat Diets

*Feeding dogs prone to pancreatitis or who can't tolerate dietary fat.*

BY MARY STRAUS

Last month, we talked about the causes, diagnosis, and treatment of pancreatitis. This month, we will discuss diets that can be used long term for dogs who cannot tolerate too much fat in their diet. These guidelines are meant for adult maintenance only, not for puppies or females who are pregnant or nursing, as their requirements are different.

Many dogs with chronic pancreatitis and those prone to recurrent attacks of acute pancreatitis do better when fed diets that are low in fat. Dogs with exocrine pancreatic insufficiency (EPI) due to damage to the pancreas, or with inflammatory bowel disease (IBD), may also respond favorably to a low-fat diet. Some dogs need a low-fat diet to control hyperlipidemia (high levels of triglycerides in the blood) that can lead to pancreatitis.

Dogs with fat intolerance or malabsorption may show signs such as diarrhea and weight loss, or steatorrhea (excessive



**It's important to look past the "low fat," "senior dog," or "weight control" claims and determine how much dietary fat (and protein) the product actually contains.**

excretion of fat in the stool, resulting in large, pale, greasy, and malodorous stools) in more severe cases. Fat malabsorption can also be associated with liver and gall bladder disease, intestinal infection (viral, bacterial, or parasites), lymphangiectasia, and other conditions. It's a good idea to try a low-fat diet for any dog with digestive problems to see if he improves, though if no improvement is seen, it need not be continued.

## How much fat?

As a rule, veterinarians consider a diet with less than 10 percent fat on a dry matter basis (less than 17 percent of calories from fat) to be low fat, while diets with 10 to 15 percent fat (17 to 23 percent of calories) are considered to contain a moderate amount of fat. Foods with more than 20 percent fat are considered high-fat. A few dogs may need a *very* low-fat diet, especially if they have hyperlipidemia, or if they react to foods with higher levels of fat.

When comparing the percentage of fat in different foods, you must consider the

food's moisture content. The percentage of fat in wet food (canned or fresh) must be converted to dry matter (DM) for comparison, or to use the guidelines above. To do the conversion, first determine the amount of dry matter by subtracting the percentage of moisture from 100, then divide the percentage of fat by the result. For example, if a food is 75 percent moisture and 5 percent fat, divide 5 by 25 (100 - 75) to get 20 percent fat DM.

**Percentages give you only a rough estimate of the actual amount of fat your dog will consume.** For a more exact figure, calculate the grams of fat per 1,000 kcal (kilocalories, the standard caloric measurement). For simplicity's sake, I will call this GFK, though that is not a standard abbreviation. Veterinary nutritionists consider diets to be low-fat if they have less than 25 GFK (22.5 percent of calories from fat). This measurement can be used for any type of food: dry, canned, or fresh.

**The ratio of fat to calories is more accurate than the percentage of fat in the diet, since the amount of food your**

## What you can do . . .

- Learn to calculate grams of fat per 1,000 kcal rather than relying on fat percentages to identify low-fat foods.
- Be sure your homemade diet includes the proper amount of calcium.
- Avoid foods that are excessively low in protein, such as some prescription and weight-loss diets.
- Avoid diets that are excessively low in fat, unless your dog is one of the few who requires it.



The Whole Dog Journal

**dog needs to consume is determined by calories.** For example, a diet that is 10 percent fat with 4,000 kcal/kg provides 25 GFK, while a diet that is 8 percent fat with 2,700 kcal/kg provides 30 GFK.

In other words, for every 1,000 kcal your dog consumes, he would get 30 grams of fat from the food with 8 percent fat, but only 25 grams of fat from the food with 10 percent fat. See the sidebars on the following pages for instructions on how to easily calculate the GFK in various foods and combinations.

Here is a list of the percentages of fat that would translate to 25 grams per 1,000 kcal for foods with various calories:

- 2.5 percent fat @ 1,000 kcal/kg
- 5 percent fat @ 2,000 kcal/kg
- 7.5 percent fat @ 3,000 kcal/kg
- 10 percent fat @ 4,000 kcal/kg

Vegetarian diets are sometimes recommended to provide a low-fat diet. I do not advise feeding your dog a vegetarian diet, whether commercial or homemade. See “Have Dinner In,” WDJ April 2007, for more information on how such a diet can lead to serious nutritional deficiencies.

Some low-fat recipes for dogs are excessively low in fat, providing as little as 5 to 8 GFK, with as much as seven times more starches than meat. With very few exceptions, it’s not necessary to feed such an extremely low-fat diet to dogs recovering from or prone to pancreatitis or with other forms of fat intolerance, nor is such a diet likely to be nutritionally adequate, regardless of how many supplements you add. The NRC (National Research Council) recommends a minimum of 11.1 GFK for adult dogs (10 percent of calories from fat, or around 5 percent fat DM).

Diets that are too low in fat can lead to deficiencies of fat-soluble vitamins and problems with the skin and coat; they can also leave your dog feeling tired and hungry all the time. It’s important to feed adequate fat unless your dog absolutely cannot tolerate it. In that case, you can add easily digestible fat in the form of medium-chain triglycerides (MCTs), found in coconut oil and MCT oil (generally made from coconut and/or palm kernel oil). See last month’s article for more information on MCTs.

Not all dogs who have had acute pancreatitis, or who have EPI, need a low-fat diet. Many dogs who have experienced acute pancreatitis can return to a normal diet with no problem. A recent study

showed that severe fat restriction (less than 13 percent of calories from fat, or less than 15 GFK) failed to show any significant benefit for dogs with EPI.

A case report of three German Shepherd Dogs with EPI demonstrated that a diet with 19 percent fat (on a dry matter basis) was well tolerated and resulted in weight gain, decreased diarrhea, and an improved coat (the diet used hydrolyzed protein, which is processed in such a way as to render the proteins nearly hypoallergenic). Diets with 43 percent calories from fat have been shown to promote better protein, fat, and carbohydrate digestibility compared to diets containing 18 and 27 percent calories from fat in dogs with experimental EPI.

### Low-fat commercial diets

In order to calculate the amount of fat in commercial foods, you will need to know the kcal/kg. If this information is not provided on the label of the product you’re interested in, call or e-mail the company. Ask them to provide the actual amount of fat from a nutritional analysis if possible, rather than the guaranteed minimum amount that is shown on the label. (See “Find the Amount of Fat in Commercial Foods,” on the facing page. You’ll see that the actual amount of fat in a food may be much higher than the “minimum” amount shown on the label.)

Most senior and light diets are relatively low in fat, but look for those that are not also low in protein. Low-protein diets should be avoided, as they can increase



**The grams of fat per 1,000 kcals (or GFK) in Canidae’s Platinum canned food is double the amount in its dry food.**

the risk of both hyperlipidemia and pancreatitis. Diets that are low in both protein and fat are mostly carbohydrates. Dogs get more nutritional value from protein than from carbohydrates, so it’s better to feed a diet that is higher in protein and therefore lower in carbohydrates. You can increase the amount of protein in the diet by adding high-protein, low-fat fresh foods, if needed. Moderate amounts of protein (up to 30 percent on a dry matter basis, or 23 percent of calories) are recommended for dogs recovering from acute pancreatitis.

Low-fat foods are inherently less palatable (not as tasty). If your dog is unwilling to eat low-fat foods, try adding some low- or moderate-fat canned or fresh foods, or low-sodium nonfat broth, to make the food more attractive. See the homemade diet section below for more information on foods to add. You can also combine low-fat food with moderate-fat food to keep fat at reasonable levels while increasing palatability.

Veterinarians debate about the amount of fiber that is best for dogs recovering from pancreatitis. Some dogs respond better to low-fiber diets (0.5 to 5 percent DM), using mixed soluble and insoluble fiber types, while others do better on diets that include moderate levels of insoluble fiber (10 to 15 percent). The difference may depend on what other gastrointestinal disorders the dog has. Low fiber is recommended for dogs in the initial recovery stages of acute pancreatitis, as fiber slows gastric emptying, which may prolong pancreatic stimulation.

### Low-fat homemade diets

To make a low-fat homemade diet, feed about half carbohydrates, and half low-fat meat, eggs, and dairy. The percentage of carbs can be decreased, and the amount of meat increased, if you use very low-fat cuts, or boil them to remove most of the fat.

The majority of the carbohydrates should be starchy foods, such as rice, oatmeal, barley, quinoa, pasta, potatoes, sweet potatoes, pumpkin, and winter squashes (e.g., acorn and butternut), to supply low-fat calories. Other types of vegetables, such as broccoli, summer squash, and leafy greens can be included, but they supply fewer calories so they can’t replace the starchy carbs. You can also use a low-fat pre-mix designed to balance out a homemade diet, such as Preference from The Honest Kitchen.

# Find the Amount of Fat in Commercial Foods

You can calculate the grams of fat per 1,000 kcal in any food you find by using the following formula:

$$\text{fat percentage} \div \text{kcal per kg} \times 10,000 = \text{grams of fat per 1,000 kcal (GFK)}$$

For example, if a food is 10.0% fat and has 4,000 kcal/kg:

$$10.0 \div 4,000 \times 10,000 = 25 \text{ GFK}$$

For dry food, you need to know the kcal per kg, not per cup, a volume measure that cannot be converted to kcal/kg.

For canned food, if you know the number of calories and ounces per can, you can use this formula instead: Fat percentage x ounces per can ÷ kcal per can x 284 = GFK.

If you know the kcal per pound (rather than per kg) of any food, you can use this formula instead: Fat percentage ÷ kcal per pound x 4,540 = GFK.

See the table (right) for examples of higher-quality, lower-fat commercial foods (presented alphabetically) that you can choose from if your dog requires a low-fat diet. This is just a sampling; there are other brands that would be comparable. Most are senior or weight-loss formulas, but I have also included some adult formulas that are only moderately higher in fat, which will be fine for many dogs. For comparison, see the gastrointestinal prescription diets at the table's bottom; note that these are not high-quality foods.

The most important column in the table is "grams fat/1,000 kcal (GFK)". That value gives you the most accurate information about the amount of fat in each food, and can be used to compare different types of foods. Some varieties of food shown are lower in fat than most dogs need (less than 25 GFK); these can be combined with foods that have moderate amounts of fat to give you more feeding options.

Be careful to check the individual food you're considering feeding; just because one variety a company offers is low-fat doesn't mean they all are. Canidae Platinum Formula is an example of a food where the canned version has almost twice as much fat as the dry.

I've included three incomplete dehydrated pre-mixes. These must be mixed with fresh foods per instructions to provide a complete diet. The added foods will boost the protein level of the overall diet to an adequate level.

**The fat percentages in the table are taken from the minimum values as shown on the label. The actual amount of fat will be somewhat higher than the guaranteed minimum.** Some companies provide (on their websites) the actual "as fed" amount of fat found when the food was tested. Ranges of fat percentage and GFK are given for those foods, showing the difference between the computations using the minimum and actual amounts of fat.

For canned and raw foods, I also show the **dry matter (DM)** percentages of fat and protein in parentheses; dry foods have so little moisture that their DM percentages are only slightly higher than their "as fed" percentages. Use the DM percentages of wet foods when comparing the amounts of fat or protein to the amounts in dry foods.

BRAND	TYPE	KCAL/ KG	PERCENT FAT	GRAMS FAT / 1,000 KCAL (GFK)	PERCENT PROTEIN
Blue Buffalo Chicken Dinner	can	1,213	4.0% (18.2%)	33	8.5% (38.6%)
Blue Buffalo Senior Chicken & Brown Rice Recipe	dry	3,398	8.0%	24	18%
Blue Buffalo Weight Control Chicken & Brown Rice	dry	3,100	6.0%	19	20%
California Natural Low Fat Rice & Chicken Meal Adult	dry	3,426	7.0%	20	21%
California Natural Low Fat Rice & Lamb Meal Adult	dry	3,373	7.0-7.1%	20-21	21%
Canidae Lamb Meal & Rice	dry	4,022	12.5%	31	21%
Canidae Platinum Formula	dry	3,328	8.0-8.5%	24-26	20%
Chicken Soup for the Pet Lover's Soul Adult Formula	can	1,139	4.0% (18.2%)	35	8% (36%)
Chicken Soup for the Pet Lover's Soul Adult Light	dry	3,088	6.0%	19	20%
Chicken Soup for the Pet Lover's Soul Senior Dog Formula	dry	3,364	12.0%	36	22%
Drs. Foster & Smith Dry Senior Dog Food Formula	dry	3,180	8.0-8.9%	25-28	23%
Eagle Pack Holistic Select Duck Meal & Oatmeal	dry	3,656	13.0%-13.6%	36-37	23%
Eagle Pack Holistic Select Senior Care	dry	3,606	10.0-12.5%	28-35	26%
HealthWise Chicken Meal & Oatmeal Weight Control	dry	3,285	7.0-8.0%	21-24	20%
Innova Low Fat Adult	dry	3,340	7.0-7.9%	21-24	18%
Innova Senior Plus	dry	3,491	10.0-10.2%	29	24%
Wellness CORE Reduced Fat Formula	dry	3,270	9-10%	28-31	33%
Wellness Senior	can	1,064	3.0% (13.6%)	28	7% (32%)
Wellness Super5Mix Complete Health Chicken	dry	3,570	12.0%	34	22%
Wellness Super5Mix Just for Seniors	dry	3,220	10.0%	31	18%
Sojos Europa Grain-Free Dog Food Mix (incomplete mix)	dehyd.	3,469	6.5%	19	15%
Sojos European Style Dog Food Mix (incomplete mix)	dehyd.	3,738	6.0%	16	13%
The Honest Kitchen Preference (incomplete mix)	dehyd.	3,510	5.0%	14	12%
The Honest Kitchen Verve	dehyd.	3,770	7.5%	20	21%
Primal Pet Foods Venison Formula	frozen /raw	1,689	4.0% (18.2%)	24	16% (73%)
Hill's Prescription Diet i/d	dry	3,849	9.0-13.0%	23-34	22%
Purina Veterinary Diets EN Formula	can	1,194	3.0% (11.5%)	25	6.5% (25%)
Royal Canin Veterinary Diet Digestive Low Fat LF20	dry	3,410	4-6%	12-18	20%
Royal Canin Veterinary Diet Digestive Low Fat LF	can	1,148	1.5-2.0% (6.8%)	13-17	8% (32%)

CONVENTIONAL DRY AND CANNED FOODS

DEHYDRATED

RAW

PRESCRIPTION



The other half of the diet should be mostly low-fat meats, or meats cooked to remove much of their fat. Skinless chicken breast is very low in fat, but other parts can be used as long as you remove the skin and visible fat. Turkey, venison, goat, buffalo, and rabbit are low in fat, while lamb and pork are generally high in fat. Ground beef comes in varying levels of fat.

Whole eggs are relatively high in fat but are highly nutritious, so they should be included in the diet in limited amounts. A large egg has about 5 grams of fat, which is not a lot for a very large dog, but too much for smaller dogs. You can hard boil eggs and then feed just a portion each day, or split them between multiple dogs. Almost all of the fat and calories are in the yolks, so the whites alone can be added to increase protein without increasing fat, if needed. When feeding just egg whites, they should either be cooked or a B vitamin supplement should be added, as raw egg whites can deplete biotin over time when fed without the yolks.

Low-fat or nonfat dairy products are also good to include in the diet. Cottage cheese, plain yogurt, and kefir (a cultured milk product that is easy to make at home using low-fat or nonfat milk) are all good choices. Avoid other cheeses; even low-fat ones are high in fat (nonfat is okay).

Homemade diets should include organ meat, and most organs are low in fat. Liver and kidney should be fed in small amounts only, no more than 5 to 10 percent of the total diet (around 1 to 1.5 ounces organ meat per pound of food). Beef heart is quite low in fat and is nutritionally more of a muscle meat, so it can be fed in larger quantities, as long as your dog does well with it.

Fruits such as apple, banana, melon, papaya, and blueberries are fine to include in the diet in small amounts. Avoid avocados, which are high in fat.

Meat can be fed either raw or cooked. Certain types of cooking, such as boiling and skimming off the fat, can be used to reduce the amount of fat, while other types, such as frying in oil, will increase the amount of fat. You can buy less expensive, fattier cuts of meat if you remove the fat by cooking or trimming before feeding.

Grains and starchy carbs should be cooked to improve their digestibility, while other vegetables must be either cooked or pureed in a food processor, juicer, or blender in order to be digestible by dogs (raw whole veggies are not harmful, but provide little nutritional value).

If you feed raw meaty bones, the amounts should be small, as these tend to be high in fat. Be sure to remove the skin and visible fat from poultry, and avoid fattier cuts such as lamb and pork necks and breast (riblets).

This is one case where “balance over time” does *not* apply. A high-fat meal can’t be balanced out later with a low-fat meal. Instead, combine foods so that no meals are high in fat. Some dogs prone to digestive problems do better with more fiber, while others do better with less. Many vegetables and fruits are high in fiber, as are beans and some grains, while white rice has little fiber. If you need to add fiber, you can use canned pumpkin or psyllium.

### Balancing a homemade diet

You will need to add calcium to your homemade diet, unless you feed at least 20 percent raw meaty bones (RMBs, where the bone is consumed) or use a pre-mix designed to balance out a homemade diet.

Because you need to feed more food when feeding a low-fat diet in order to supply the same number of calories, it’s better to calculate the amount of calcium needed based on the calories your dog consumes rather than the weight of the food. The National Research Council recommends 1 gram (1,000 mg) of calcium per 1,000 kcal for adult dogs. Another way to compute the amount of calcium your dog needs is by body weight: the NRC recommends 30 mg calcium per pound of body weight (65 mg/kg) daily. Be sure to divide this daily amount by the number of meals you feed.

If you are feeding RMBs but they are less than 20 percent of the diet, adjust the amount of calcium proportionately. For example, if your diet is 10 percent RMBs, you would need to add only half as much calcium as the NRC recommends to balance out the rest of the diet.

You should also adjust the calcium amount if you feed part commercial and part homemade. There’s no need to add calcium if the homemade food is just a small percentage of the diet, say 25 percent or less, but if you feed more than that, calculate the amount of calcium based on the percentage of the diet that is made up of homemade food. For example, if you feed half commercial and half homemade, give half as much calcium as your dog would need based on body weight, or calculate the calories in the homemade portion and base the amount of calcium to add on that

amount alone. You can use any form of calcium, such as calcium carbonate or calcium citrate. You can also use bone meal. Ground eggshells can be used to supply calcium. Rinse and dry the eggshells, then grind them in a clean coffee grinder or blender. One-half of a teaspoon of ground eggshell provides approximately 1,000 mg of elemental calcium.

### Supplements

If the diet you feed lacks variety, especially organ meats, it’s best to add a supplement designed to balance out a homemade diet. Two supplements are designed to balance out high-carb diets: Balance IT Canine and Furoshnikov’s Formulas Vitamins & Minerals for Home-Cooked Dog Food.

When using Balance IT, calculate the amount of calcium your dog should have based on the formulas above, then figure how many scoops of the supplement are needed to supply that amount of calcium.

See Spot Live Longer Homemade Dinner Mixes can also be used, but give a little less than the recommended amount, since it’s made for diets that are higher in fat. Each of these supplements supplies calcium in the proper amounts, so there’s no need to add more.

Even if the diet you’re feeding has a lot of variety, it’s a good idea to add certain supplements. As discussed last month, digestive enzymes and probiotics may help to control the effects of chronic pancreatitis, and sometimes are helpful for other digestive problems. Fish body oil, such as salmon oil (not cod liver oil), and antioxidants, including vitamins C and E, beta carotene, and selenium, may help reduce the risk of acute pancreatitis. Dogs with chronic pancreatitis can be deficient in B vitamins, so a B-complex supplement is also recommended.

### Diet versus single recipe

Many people feel more confident feeding a diet that has been designed by a veterinary nutritionist, but these can have limitations. Most nutritionists provide the dog owner with a single recipe rather than a diet, and in fact caution against making any substitutions to the recipe in order to keep each meal “complete and balanced.”

The problem with this approach is that variety is *key* to good nutrition. Human nutritionists would never supply a single recipe and expect clients to eat that and only that for the rest of their lives. Instead, they give guidelines for which foods can

be eaten in quantity, which in moderation, and which should be avoided or eaten in only very limited amounts. That's what I've tried to do here. If you do use a recipe from a nutritionist long term, don't be afraid to sometimes substitute other foods in the same category as those used in the recipe if they have similar amounts of fat (as long as your dog does not have severe digestive problems or food allergies that require a very limited diet).

The other problem with these recipes is that often they are excessively high in

carbohydrates, with minimal amounts of protein, and rely on supplements to provide many nutrients. Carbohydrates are needed to supply low-fat calories for dogs who require a low-fat diet, but they provide less nutritional value than animal products such as meat, eggs, and dairy. Diets that are high in carbohydrates must rely on synthetic supplements to supply much of the nutrition that your dog needs.

A diet that contains more animal products and variety will meet more of your dog's nutritional needs naturally, without

requiring a complete vitamin-mineral supplement. Also, diets that rely on supplements may lack nutrients as yet unidentified as necessary or beneficial, as was the case with taurine before it was discovered that a deficiency leads to heart disease in cats (and some dog breeds as well). Taurine is one example of a nutrient that is found in meat, but not plant products.

### Low-fat treats

If your dog cannot handle much fat in his diet, then you'll also need to use low-fat

## Calculate the Amount of Fat in Fresh Foods

The table below has a sampling of foods that you can use to create a low-fat diet for your dog. You can check out other foods at [nutritiondata.com](http://nutritiondata.com), which allows you to save selected foods online and then use them to create recipes.

Once again, the most important column is the "grams fat/1,000 kcal," which gives you the most accurate fat measurement for comparison purposes. Note that some of these foods, such as eggs, are high in fat, suitable only when combined in limited amounts with lower-fat foods. Several foods show a range that depends on how the food is prepared (raw, roasted, boiled, etc.); see [nutritiondata.com](http://nutritiondata.com) for details.

A simple formula similar to the one used for commercial foods will allow you to calculate the grams of fat per 1,000 kcal (GFK) in any individual food or recipe. All you need to know is the number of calories and the grams of fat (not the percentage) for each food or recipe, both of which can be found at [nutritiondata.com](http://nutritiondata.com).

$$\text{grams of fat} \div \text{number of calories} \times 1,000 = \text{grams of fat per 1,000 kcal (GFK)}$$

Example: To calculate the grams of fat per 1,000 kcal in low-fat cottage cheese (using the numbers from the table below), divide 1.0 grams of fat by 72 kcal and multiply by 1,000.

$$1.0 \div 72 \times 1,000 = 14 \text{ GFK}$$

Remember that not *everything* you feed must be low-fat. Moderate-fat foods can be combined with very low-fat foods in order to create a low-fat meal. To calculate the GFK in any recipe, divide the total grams of fat in the recipe by its kcal and multiply by 1,000. For example, [nutritiondata.com](http://nutritiondata.com) says that 8 ounces of cooked white rice combined with 8 ounces of roasted skinless dark meat chicken provide 22.3 grams of fat and 750 kcal. So,  $22.3 \div 750 \times 1,000 = 30 \text{ GFK}$

MEAT, ORGANS, AND DAIRY

FOOD	KCAL/100 GRAMS	GRAMS FAT/100 GRAMS	GRAMS FAT / 1,000 KCAL
Beef, ground, 95% lean	137-193	5.0-7.6	36-39
Beef, ground, 90% lean	176-230	10.0-12.0	52-57
Beef heart	112-165	3.9-4.7	28-35
Beef liver	135-191	3.6-5.3	27-28
Cheese, mozzarella, low-fat	254	15.9	63
Cheese, mozzarella, nonfat	149	0	0
Chicken breast, skinless	110-165	1.2-3.6	11-22
Chicken, light meat, skinless	109-159	1.6-4.5	15-27
Chicken, dark meat, skinless	113-205	3.6-9.7	32-47
Cottage cheese, low-fat	72	1.0	14
Cottage cheese, dry nonfat	85	0.4	5
Eggs, two large, raw	143	9.9	70
Pork, various parts, lean only	136-215	5.2-10.5	38-49
Rabbit, domesticated	136-206	5.5-8.4	40-41
Ricotta cheese, part skim	138	7.9	57
Tripett canned green beef tripe	124	7.0	56
Turkey, light meat, skinless	108-161	0.5-3.7	5-23
Turkey, dark meat, skinless	111-192	2.7-7.8	24-41
Yogurt, plain, low-fat	63	1.5	24
Yogurt, plain, nonfat (skim)	56	0.2	4

RMBS

FISH

CARBS

FOOD	KCAL/100 GRAMS	GRAMS FAT/100 GRAMS	GRAMS FAT / 1,000 KCAL
Chicken necks, skinless	118-164 141 avg	5.5-9.5 7.5 avg	47-58 53 avg
Turkey necks, skinless	116-135 126 avg	3.8-7.0 5.4 avg	32-52 42 avg
Rabbit, whole w/bone, skinless	125	5.8	46
Cod (fresh or canned)	82-105	0.6-0.9	7-9
Jack mackerel, canned, drained	156	6.3	40
Pollock	81-118	0.8-1.3	10-11
Salmon, pink, canned	136-139	4.8-6.1	35-44
Sardines, packed in water	94-200	3.8-12.6	40-63
Whitefish	134-172	5.9-7.5	44
Couscous, cooked	112	0.2	2
Egg noodles, cooked	138	2.1	15
Macaroni, cooked	158	0.9	6
Oatmeal, cooked	71	1.5	21
Potatoes, cooked	86-93	0.1	1
Pumpkin, canned	34	0.3	9
Rice, white, cooked	123-130	0.2-0.4	2-3
Rice, brown, cooked	111-112	0.8-0.9	7-8
Sweet potato, cooked	76-90	0.1-0.2	1-2
Winter squash, cooked	27-56	0.1-0.6	2-13

## Find the Amount of Fat in Combination Diets

If you feed a combination of different commercial foods, you'll need to know the weights of each in order to calculate the GFK. Calculations are based on weight, not volume. The actual weight doesn't matter, only the proportions.

If you feed the **same amount** of two or more foods, just add the values together before doing the calculation. For example, if you feed half Innova Low Fat Adult (7.9% fat, 3,340 kcal/kg) and half Innova Senior Plus (10.2% fat, 3,491 kcal/kg), add the values for each together:

$$\begin{aligned} 7.9 + 10.2 &= 18.1 \text{ grams of fat} \\ 3,340 + 3,491 &= 6,831 \text{ kcal} \\ 18.1 \div 6,831 \times 10,000 &= 26 \text{ GFK} \end{aligned}$$

What if you feed **different amounts** of two different foods? Say you feed 3 ounces of canned Blue Buffalo Chicken Dinner (4.0% fat, 1,213 kcal/kg) plus 1 ounce of dry Blue Buffalo Weight Control food (6.0% fat, 3,100 kcal/kg); that's a ratio of 3:1. To do the calculations, multiply each canned value by 3 and add the results to the values for the dry food:

$$\begin{aligned} 3 \times 4.0 &= 12.0 + 6.0 = 18.0 \text{ grams of fat} \\ 3 \times 1,213 &= 3,639 + 3,100 = 6,739 \text{ kcal} \\ 18.0 \div 6,739 \times 10,000 &= 27 \text{ GFK} \end{aligned}$$

If you know the **kcal/oz** of a canned food, you'll need to convert that to kcal/kg in order to compute the GFK of a combination of foods. To do so, divide the number of calories per can by the number of ounces in the can, then multiply by 35. For example, if a food has 360 kcal per 12 oz can,  $360 \div 12 \times 35 = 1,050$  kcal/kg.

If you know the **kcal/lb** of any food, again you'll need to convert that to kcal/kg in order to compute the GFK of a combination of foods. To do so, multiply the kcal/lb by 2.2. So, if a food has 1,200 kcal/lb:  $1,200 \times 2.2 = 2,640$  kcal/kg.

Things get a little trickier when you combine fresh foods with commercial foods. To calculate the GFK in a combination of a commercial food and fresh foods, convert both to amounts per 100 kcal.

To convert kcal/kg (which is how the information is usually given for commercial foods) to kcal/100 grams, just divide by 10. Percentage of fat is the same as grams of fat per 100 grams, so no conversion is needed there. Use [nutritiondata.com](http://nutritiondata.com) to get the grams of fat and kcal for 100 grams of any food or recipe (**be sure to change the serving size to 100 grams**).

If you feed half commercial food and half fresh food, just add the grams

of fat per 100 grams of the fresh food to the percentage of fat in the commercial food, then divide by the combined total calories. Remember that calculations are based on weight, not volume.

For example: To calculate the GFK in a meal that is half Blue Buffalo Weight Control Chicken & Brown Rice and half broiled 95% lean ground beef (e.g., 4 ounces of each), add the values for the two together and use the same formula from above. Blue Buffalo has 6.0 grams of fat (6.0% fat) and 310 kcal (3,100 divided by 10) per 100 grams. The ground beef has 6.5 grams of fat and 171 kcal per 100 grams.

$$\begin{aligned} 6.0 + 6.5 &= 12.5 \text{ grams of fat} \\ 310 + 171 &= 481 \text{ kcal} \\ 12.5 \div 481 \times 1,000 &= 26 \text{ GFK} \end{aligned}$$

This same formula will work no matter what combinations you use, as long as you adjust for weight ratios. For example, if you combine 4 ounces each of three different foods, you're feeding the same amount of each food, so just add the grams of fat and kcal for all three foods together.

If you use more of one food than another, then multiply the grams of fat and kcal for that food by the appropriate factor – for example, if you use three times as much of one food as another, multiply the grams of fat and kcal for that food by 3 and add it to the numbers for the other food.

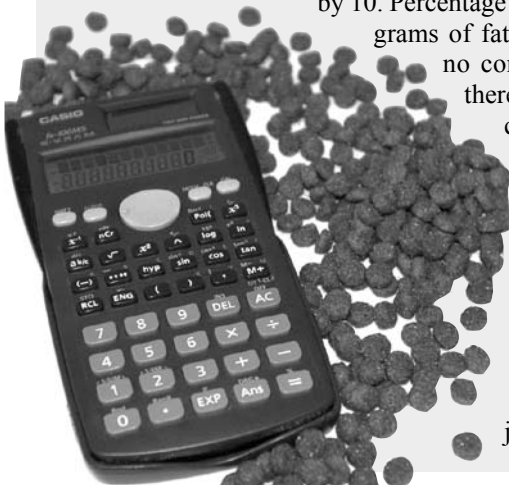
For example: Innova Senior Plus has 10.2 grams of fat (10.2% fat) and 349 kcal (3,491 divided by 10) per 100 grams. Low-fat cottage cheese has 1.0 grams of fat and 72 kcal per 100 grams. If you feed 6 oz Innova Senior Plus and 3 oz low-fat cottage cheese, you're feeding twice as much of the Innova as the cottage cheese, so multiply those values by 2 and combine them with the values for the cottage cheese:

$$\begin{aligned} 10.2 \times 2 &= 20.4 + 1.0 = 21.4 \text{ grams of fat} \\ 349 \times 2 &= 698 + 72 = 770 \text{ kcal} \\ 21.4 \div 770 \times 1,000 &= 28 \text{ GFK} \end{aligned}$$

You can use the same formula for combining the values for raw meaty bones with other fresh foods, since [nutritiondata.com](http://nutritiondata.com) doesn't have information on RMBs. Enter your recipe for all the ingredients except the RMBs into [nutritiondata.com](http://nutritiondata.com) and get the grams of fat and kcal for 100 grams of that recipe; **again, make sure to change the serving size to 100 grams**. Then combine it proportionately with the values for RMBs from the table on page 19.

Once you get a feel for the diet you're feeding, there will be no need to continue to do the calculations. You'll know about how much egg you can add, for example, without increasing fat too much – or you'll know that you can add more egg when feeding a particularly low-fat meal.

Note that when we talk about a meal being half one thing and half another, we are talking about **weight**, not volume. A cup of dehydrated food will weigh less than a cup of ground beef, for example, so use the weight for the calculations. It's easy to weigh the food with an inexpensive kitchen or postage scale.





treats. Carrot, apple, and banana pieces or green beans can be used, if your dog likes them. Many people buy or make dried sweet potato slices for dogs prone to pancreatitis. Rice cakes are another option.

Many commercial treats are low in fat. Check the fat percentage on the label of dry treats to get an idea of how much fat they contain; most dry treats with 8 percent or less of fat should be fine. Moist treats are harder to calculate, since you must either convert the fat percentage to dry matter, or know the number of calories so that you can use one of the formulas above in order to determine the actual amount of fat (most treat labels do not provide information about calories).

Some dehydrated or freeze-dried lung and other meats are low in fat. Avoid using dehydrated chicken jerky, though, as most are imported from China (check the small print carefully), and the AVMA and FDA have warned that these treats have been linked to kidney failure in dogs, though no cause has yet been found. Also avoid using pieces of cheese, hot dogs, lunch meats (even those marked low fat), and other fatty foods as treats.

You can create your own dehydrated treats by drying thin slices of low-fat meat in a dehydrator or an oven set to a very low temperature. Sprinkle with garlic powder or nonfat Parmesan cheese before drying to make them even more enticing. Anise is another flavor that dogs really like. Try boiling beef heart in water with a couple of teaspoons of anise seed powder, then cut into small pieces to use as treats.

Use low-fat or nonfat yogurt in place of peanut butter or cheese for stuffing Kongs. Put them in the freezer to create a frozen yogurt treat that will last a long time.

Some chews, such as bully sticks (also called pizzles), are low in fat, while others, such as dried trachea and pig ears, are quite a bit higher. Dried tendons appear to be low in fat, but may be greasy, so use your own judgment. Similar products from different manufacturers may vary in fat content, so pay attention both to the amount of fat listed on the label and to the feel of the chew. Marrow bones are filled with fat and should be avoided. Knuckle bones also appear to be too high in fat to use safely.

Two low-fat chews that last a long time are Himalayan dog chews, which are made from yak and cow milk and are less than one percent fat, and deer antlers, such as those marketed by Lucky Buck. Mindy

Fenton, who owns K9 Raw Diet, carries these and other low-fat chews, and has helped many customers whose dogs are prone to pancreatitis to find chews that work for them.

I found several anecdotal reports of rawhide chews, particularly those that were imported, causing acute pancreatitis in dogs, but could find no studies or warnings from veterinarians or other reliable sources on this topic. Some people fear that the act of chewing for long periods may overstimulate the pancreas and cause problems for some dogs, but I could find no supporting evidence. A veterinary pancreatitis specialist confirmed that he feels chewing is not a problem as long as the chews are not high in fat (such as pig ears). Keep an eye on your dog and discontinue giving chews if they appear to cause any discomfort.

### Do what works

Remember that the bottom line is always to do what works for your dog. Numbers tell you only so much, and nutritional analyses for both commercial and fresh foods may vary from what you're actually feeding.

If your dog continues to have problems,

try different foods to see if he tolerates some better than others. If possible, feed frequent small meals, which are easier to digest. Experiment with supplements to find those that seem to help your dog. Keep a journal of what you feed, including treats and supplements, to help you see patterns and identify ingredients that might cause problems for your dog.

If digestive disorders continue no matter what you feed, work with your vet to look for other causes, such as intestinal infection, parasites, or food allergies that may be an underlying factor. 🐾

*Next month, we'll describe some low-fat homemade diets, both raw and cooked, that people are feeding to their dogs.*

*For additional low-fat commercial food examples and help with the math when combining foods, see the online version of this article at [whole-dog-journal.com](http://whole-dog-journal.com).*

*Mary Straus does research on canine health and nutrition topics as an avocation. She is the owner of the [DogAware.com](http://DogAware.com) website. She lives near San Francisco with her almost 17-year-old dog, Piglet.*

## Resources Mentioned in This Article

**Nutrition Data.** [nutritiondata.com](http://nutritiondata.com)

**Balance IT Canine.** [balanceit.com](http://balanceit.com), (888) 346-6362

**Furoshnikov's Formulas Vitamins & Minerals for Home-Cooked Dog Food.** [cookforyourdog.com](http://cookforyourdog.com), (612) 388-2315

**See Spot Live Longer Homemade Dinner Mixes.** [seespotlivelonger.com](http://seespotlivelonger.com), (541) 685-0538

**K9 Raw Diet,** sells Himalayan dog chews and Lucky Buck deer antlers. [k9rawdiet.com](http://k9rawdiet.com), (818) 888-6983

### FOR MORE INFORMATION ON HOMEMADE DIETS, SEE THIS SERIES OF ARTICLES:

**"Have Dinner In,"** April 2007. An introduction to home-prepared diets, including information about adding fresh foods to a commercial diet, and using dog food pre-mixes.

**"A Raw Deal,"** May 2007. Home-prepared raw diets that include bones that are consumed.

**"Now We're Cooking!"** June 2007. Home-prepared cooked diets, and those that use raw meat but no bones.

**"Reality Cooks,"** July 2007. Owners share their home-cooked diet recipes and strategies.

**"Keeping It Raw,"** August 2007. Owners share their home-prepared raw diet recipes and strategies.

**"A Homemade Diet Stew,"** September 2007. A medley of new products, updates, and answers to your FAQs.

## 2008 EDITORIAL INDEX

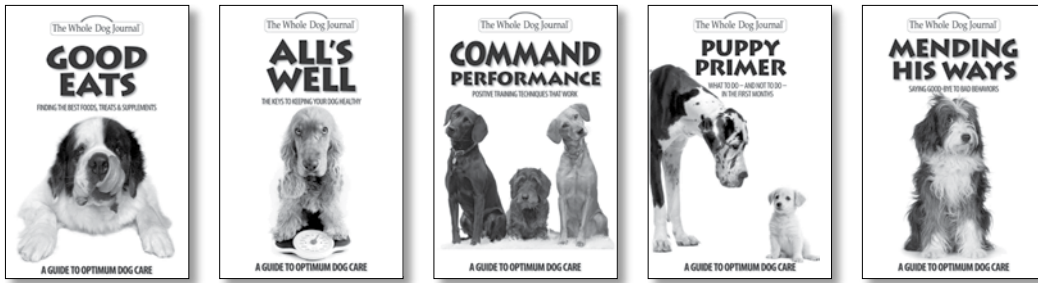
	ISSUE	PAGE
<b>CONSUMER ALERT</b>		
Why Vinyl Stinks: Getting Nonvinyl Dog Products	April	12
Pet Food Politics: Book Review and Interview With Author	Sept	15
Dog Gone? What You Must Do to Get Him Back	Nov	8
<b>EDITOR'S NOTE</b>		
Support Rabies Challenge Fund	Jan	2
New and Improved: Food Reviews Are Tougher	Feb	2
Good to Know: Never Know When You Need This Info	Mar	2
ID Required: No Dog Should Be Without ID	April	2
Gut Check: A Year After the Recalls	May	2
Spending Time Together: Building Bonds	June	2
Pay Attention!: How to Get the Most Out of Walking Your Dog	July	2
Too Much Fun?: Fun With Training	Aug	2
Guilty Pleasure: "Greatest American Dog"	Sept	2
Packed With Advice	Oct	2
Autumn, Anew: New Dog Brings New Appreciation of Life	Nov	2
Lighten Up!	Dec	2
<b>HEALTH</b>		
Defeating the Resistance: Drug-Resistant "Staph" Infections	Jan	8
Zoonosis and Therapy Dogs	Jan	11
Earth Energy: Healing With Crystals	Jan	17
Five Points for Health: Acupressure	Feb	16
Healing With Color, Body Tapping, Directed Energy	Feb	18
Tale of the Lost Appetite	Mar	3
Chiropractic for Canines	Mar	20
Calendula: 2008 Herb of the Year	April	7
Tales of the Lost Balance: Vestibular Disease	May	3
Shock Waves for Arthritis: Healing Through Sound Waves	May	10
Help Your Dog to Focus With Acupressure	June	10
Improve Your Dental Acuity: Dog Dental Health	July	3
Vaccinations 101	Aug	14
Drop the Cough: Natural Remedies for Kennel Cough	Oct	10
Pain in the Pancreas: Pancreatitis	Nov	16
Old and Confused: Canine Cognitive Dysfunction Syndrome	Dec	10
<b>JOURNAL OF A NEW DOG</b>		
Otto Comes Home	Aug	6
Getting to Know You	Sept	3
A Nocturnal Dog	Oct	15
Our Dog	Dec	3
<b>LETTERS</b>		
Details, Details: Correcting Book Title and Links	Jan	22
Anorexia in Dogs Grieving for Their Lost Companion	April	22
Floored: Vinyl Floor Dangers?	May	23
Feedback Regarding Vinyl and Vestibular Disease	June	22
Always More Than One Way: Employ Animal-Friendly Methods	Aug	23
More on Meat: Grass-Fed and Tripe	Oct	23

	ISSUE	PAGE
<b>NUTRITION</b>		
2008 Dry Dog Food Review Requires Manufacturing Info	Feb	3
Tale of the Lost Appetite	Mar	3
Corrections and More Approved Dry Dog Foods	Mar	13
Going Against Grain: Grain-Free Diets	Mar	14
Cold Standard: Raw Frozen Foods Review	June	3
How Green Is Your Tripe?: Health Benefits of Tripe	July	14
Grass-Fed Is Greener: Grass-Fed Meats and Dairy	Sept	6
Good Unconventional Food: Innovation in Food Forms	Nov	3
More Unconventional Foods	Dec	14
Healthy Low-Fat Diets	Dec	15
<b>PRODUCT REVIEWS</b>		
Light Up the Night: Nighttime Safety Products	Jan	12
A Puzzling Activity: Interactive Toys	June	18
(Peace) Fully Equipped: Appropriate Training Gear	July	8
<b>TRAINING</b>		
Great Introductions: Dog-Dog Introductions	Jan	3
Mythbusting Inaccurate Myths About Dog Behavior	Feb	12
Uncommonly Calm: Train Your Dog to Be Calm	Mar	9
New Dog, Now What?: First 10 Things to Do With Your New Dog	April	3
Someone Old, Someone New: Mixed Age Dog Packs	April	18
Keeping Four on the Floor: Teaching Dogs Not to Jump	May	6
Build Better Behavior: Constructional Aggression Treatment	May	17
Dogs Just Wanna Have Fun: Activities With You and Your Dog	June	12
Interview With Positive Trainer Kathy Sdao	June	15
(Peace) Fully Equipped: Appropriate Training Gear	July	8
Scared to Be Home Alone: Dogs With Separation Anxiety	July	20
Obeys This Law of Learning: Training Must Be Fun	Aug	3
Common Interests: Play and Training	Aug	4
Trials of the Timid: Socializing a Shy Dog	Aug	9
Dig This! Not That!: Build a Digging Box	Aug	18
Request for Leave: Teach Your Dog to "Leave It"	Aug	20
Please Play Tug	Sept	12
Build a Powerful Partnership	Sept	19
A Life-Changing Experience: Agility for a Reactive Dog	Oct	3
Generally Well-Trained: Generalization and How to Use It	Oct	8
Help for Dogs With OCD	Oct	18
Interview With Laurie Williams of "Greatest American Dog"	Nov	12
Do You Recall?	Dec	6

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## RESOURCES

### BOOKS

WDJ Training Editor Pat Miller is author of *The Power of Positive Dog Training*; *Positive Perspectives: Love Your Dog, Train Your Dog*; *Positive Perspectives: Know Your Dog, Train Your Dog*; and *Play with Your Dog*. All of these books are available from DogWise, (800) 776-2665 or dogwise.com

### HOLISTIC VETERINARIANS

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

### TRAINING AND INSTRUCTION

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

**Sarah Richardson**, CPDT, CDBC, The Canine Connection, Chico, CA. Group and private training, and puppy kindergarten. Force-free, fun, positive training. (530) 345-1912; thecanineconnection.com

**Sandi Thompson**, CPDT, BRAVO!PUP Puppy and Dog Training, Berkeley, CA. Private lessons and group classes. (510) 704-8656; bravopup.com

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*Our annual analysis of canned and pouched dog foods.*

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