

The Whole Dog Journal™



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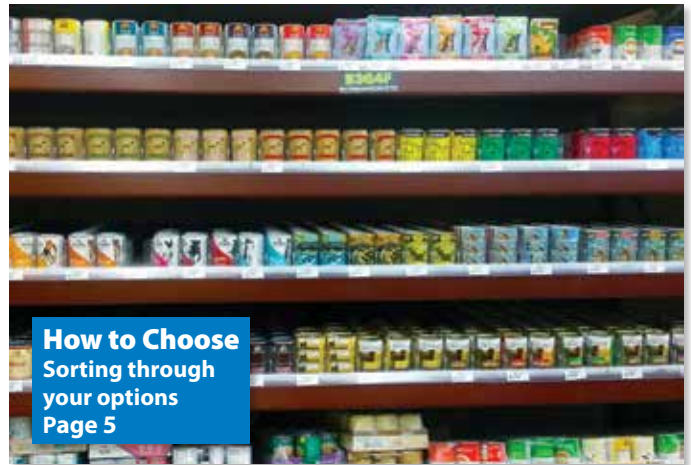
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EDITOR-IN-CHIEF – Nancy Kerns
TRAINING EDITOR – Pat Miller
PUBLISHER – Timothy H. Cole
CIRCULATION DIRECTOR – Greg King

EDITORIAL OFFICE

E-MAIL: WDJEditor@gmail.com
ADDRESS: 1655 Robinson Street
Oroville, CA 95965

SUBSCRIPTION SERVICES

PHONE: (800) 829-9165
INTERNET: whole-dog-journal.com/cs
U.S. MAIL: PO Box 8535
Big Sandy, TX 75755-8535
CANADA: Box 7820 STN Main
London, Ontario N5Y 5W1

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For price quote, contact
Jennifer Jimolka at (203) 857-3144
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NEWSSTAND

Jocelyn Donnellon, (203) 857-3100

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Ask For More

We think pet food companies should be able to prove that their “complete and balanced” foods actually are. Don't you?

BY NANCY KERNS

I'm using this space in a novel way this month: as both an editorial and an article. Usually, my editor's note is confined to this page alone, and is comprised of my personal thoughts, opinions, and notes about dogs and about what's in this issue. This month, my personal thoughts and opinions about something I learned recently (having to do with the “complete and balanced” claims that appear on the commercial foods we all feed our dogs) have led me to the conclusion that WDJ needs a drastic overhaul of its dog food reviews. The explanation for that decision, and describing how our reviews will change, can't fit on this page, nor even this page *and* the next one! So, I'm breaking the usual format this month, and giving you opinions *and* facts about pet food companies and what they have to do to represent their products as “complete and balanced.”

I won't beat around the bush. Here's the fact I learned recently that completely astonished me: Pet food companies don't have to *prove* that their products contain the minimum amounts of all the nutrients that are considered essential for dogs before labeling and selling their foods as “complete and balanced” diets. In fact, in all likelihood, some of the products on the market today – perhaps your dog's food? – may *not* meet some of the legal requirements of a “complete and balanced” food, even though their labels say they do.

To help you understand how this is possible, I have to dive into a lot of facts, and explain some things about the pet food industry and how the whole notion of “complete and balanced diets” is legally defined and regulated. So, here is the “article” part of the editorial/article.

WHAT AAFCO IS AND ISN'T

A national advisory group, the Association of American Feed Control Officials (AAFCO, pronounced to rhyme with “laugh-coe”), is responsible for creating and overseeing the evolution of the standards and definitions that are used to guide the players in the pet food industry.

It's important to understand that AAFCO

is not an enforcement agency in any way; by its own description, it “provides a forum whereby control officials and industry meet in partnership” to address animal feed (and pet food) standards and regulations. State feed regulators are voting members of the group, but it invites input from pet food industry participants, veterinary nutrition experts and researchers, and even (recently) consumer representatives.

Pet food is regulated by the feed control officials in each state, and each state's feed control officials may adopt regulations unique to their own states. However, for the most part, AAFCO's “model” guidelines and definitions for the regulation of pet food are uniformly adopted by each state.

DEFINING “COMPLETE AND BALANCED”

Over decades, AAFCO originated and continues to refine the description of what constitutes “complete and balanced nutrition” for dogs. The AAFCO Dog Food Nutrient Profiles, incorporating decades of canine nutrition research, establish minimum (and a few maximum) values for the nutrients that are known to be essential for dogs at various life stages. As per AAFCO rules, the “life stage” of the intended recipient of any food

must be stated on the label. The canine life stages that may be referenced are:

- Adult maintenance
- Gestation/lactation
- Growth
- All life stages (this one would indicate the food meets the requirements for all of the preceding life stages)

The profiles are occasionally changed when new research prompts needed updates. For example, recent research has led to the reduction of the maximum amount of calcium that will be allowed in dog foods that may be fed to large-size puppies (those who are expected to mature to more than 70 pounds as adults). This change was published in the 2016 AAFCO Official Publication and will be reflected in formulation and labelling changes over the next two years.

Assessing the nutritional content of a food is just one method that AAFCO allows to substantiate a “complete and balanced” claim. There are actually three ways that pet food companies can substantiate a “complete and balanced” claim. The three methods are:

- Feeding trials
- A family claim
- Nutrient levels

Let’s look at each of the methods used to substantiate the nutritional adequacy claims.

■ **FEEDING TRIALS** – In feeding trials, a prospective product is fed as a sole diet to a population of dogs for a given length of time, while the dogs are monitored for various indicators of health. If the product sustains the test dogs for the

requisite period of time, with various parameters for the test dogs’ health being met (such as the maintenance of certain blood values, and no weight loss), the product can be labelled with the claim, “Animal feeding tests using AAFCO procedures substantiate the (name of product) provides complete and balanced nutrition for (name of dog’s life stage).”

Note that the products that use a feeding trial claim don’t have to meet the parameters established by the AAFCO Dog Food Nutrient Profiles. They sustained the dogs; the dogs didn’t decline in health or weight; that’s it.

An “adult maintenance” trial lasts at least 26 weeks. A “gestation/lactation” trial must start before female test dogs come into heat, and continues through breeding and pregnancy; the test is concluded when the puppies are four weeks old (so the test is a minimum of 13 weeks). For a “growth” trial, puppies no more than eight weeks old (at the start of the trial) are fed the product for a minimum of 10 weeks.

For an “all life stages” claim, the food must be used as a sole diet in a gestation/lactation trial, followed sequentially (with the same test puppies) by a growth trial.

Feeding trials are expensive to conduct – about \$20,000 per food per “life stage.” Feeding trials are routinely conducted by the largest pet food companies, but are not commonly undertaken by smaller companies.

■ **FAMILY MEMBER** – For this method of substantiation, a prospective diet is shown to be “nutritionally similar” to a lead product that passed a feeding trial. The nutritional similarity of the family product must be established by AAFCO’s “procedures for establishing pet food product families.” If this can be shown, the food is permitted to be labelled with the claim, “(Name of product) provides complete and balanced nutrition for (dogs of named life stage) and is com-

parable in nutritional adequacy to a product which has been substantiated using AAFCO feeding tests.”

In our view, this is the weakest of the three methods of substantiation. The products labelled with this claim are neither tested with a feeding trial, nor do they have to meet the AAFCO Dog Food Nutrient Profiles.

■ **NUTRIENT LEVELS** – This is the most common method used to substantiate the nutritional adequacy of foods made by smaller companies, including almost all – perhaps all? – of the ones that make the sort of foods we like. And now we are getting to the nitty-gritty.

If a company uses this method to substantiate that its products are complete and balanced, it will state on the label, “(Name of food) is formulated to meet the nutritional levels established by the AAFCO Dog Food Nutrient Profiles for (name of life stage).”

The AAFCO Dog Food Nutrient Profiles establish minimum values – and a few maximums – for the nutrients that are essential for dogs. Minimum values are given for crude protein (as well as all of the constituent amino acids required by dogs); crude fat (as well as the constituent omega-6 fatty acid, linoleic acid); and the 11 vitamins and 12 minerals for which there is a consensus of current scientific evidence to support their designation as essential for dogs.

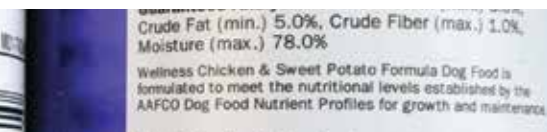
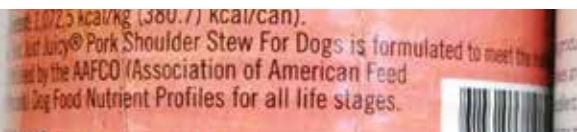
There are actually *two* AAFCO Dog Food Nutrient Profiles: one for “adult maintenance” and one for “growth and reproduction.” They are very similar, but the minimum amounts of protein, fat, calcium, phosphorus, sodium, and chloride in the growth/reproduction profiles are higher than the minimum values in the adult maintenance profiles. If a nutritional adequacy claim references “all life stages,” the product must meet the minimum nutrient values in the growth and reproduction profile.

NO PROOF!

Until recently, I was under a false impression – and no pet food company representative hastened to correct it! I thought if a food had a “nutrient values” claim on its label, its maker would have



The front of the cans might be pretty, but it’s the tiny print that references AAFCO that you need to look for on a label. And then you need to understand what the various statements (see below) mean.



to submit *proof* that the food inside the can or bag actually contains nutrients in the required amounts. I guess I *assumed* the products would be tested by third party laboratories and the results would be filed with state feed control officials.

I was wrong.

The actual requirement is this: A company representative must sign and have notarized an affidavit that states, “This product meets the nutrient levels established in the AAFCO Dog Food Nutrient Profiles for (growth/reproduction, maintenance, or all life stages).” And then they have to keep a copy of that affidavit.

That’s it. Seriously.

No lab test results or analysis of the nutrients confirming that the statement is true are required.

And the affidavit doesn’t even get filed with the state! It just has to be kept “on file” in the company’s *own* files!

No kidding: The company has to, in effect, *pinky swear* that their products meet the required nutrient levels. And consumers have to just *trust* that the products do.

Editorial: I don’t think that’s right. I don’t think that’s sufficient.

WHY THIS MATTERS

This matters because *most* dogs get *most* (if not all) of their nutrients from commercial food. They are a captive audience, literally. They are not free to select their own foods, they can’t follow their instincts to drive them to ingredients that contain any nutrients they may be lacking. What’s more, many owners are warned by their veterinarians and other pet professionals against feeding any table scraps or “human food” to dogs. And pet food companies encourage owners to feed their products and only their products, and to use extreme caution when switching products, lest the dog explode (or something) from diarrhea (or something).

Put another way: If most dogs eat a single type of food and nothing but that food, shouldn’t their owners be able to verify that the food *truly* contains every nutrient their dogs need?

RAISING THE BAR

I’ve long believed that, for the reasons above, consumers ought to be able to ask for and readily receive a complete nutrient analysis of their dogs’ food – to make sure that the diet contains adequate

(and not excessive) amounts of the nutrients that experts agree dogs need – and that was *before* I knew that it was possible that products that are labelled as “complete and balanced” might not be.

Last year, we surveyed the dog food companies whose products met our selection criteria and asked this question: “Do you make a complete nutrient analysis for each of your products available to consumers? If so, are the analyses available only upon request, or is this information on your website?” As it turned out, very few of the companies had nutrient analyses readily available, and some of the ones that said they had them available were not able (or perhaps not willing) to produce them.

So, this year, we sent the pet food companies whose products have been on our “approved canned dog food” list an email that said, “There will be one significant change in how we will select and present the ‘approved’ foods on our list. This year, we are asking each company to provide us with a fairly recent (within the past year) ‘typical analysis’ for each of the canned dogs foods that they offer, and we will be comparing the values with the AAFCO nutrient profiles for dogs. If we do not receive the analyses, the foods will not appear on our ‘approved foods’ list this year.”

THE RESULTS

A few companies promptly sent us what we asked for, and these companies now constitute our gold-star picks – our top-rated producers of canned foods. See page 7 for a list of these companies.

In contrast, there were other companies we didn’t hear back from. We are more than willing to give them the benefit of the doubt; maybe they didn’t receive our email? Maybe our phone message got lost? If they respond in the next few months, we will update their information here.

We heard from a few companies that said they would be happy to get this information to us, but they needed more time. So, for them, too, we’re going to reserve space in the next few issues to update their information.

Quite a few companies sent us something that’s *close* to what we asked for; quite a few sent us nutrient analyses of their products that were generated by computer software. Different companies use different programs to generate these analyses, but they all work in a similar

fashion: The programs are loaded with nutrient values for every dog food ingredient you can dream of, and then a formula for a given dog food is entered – so many pounds of this, so many ounces of that, etc. – and the software calculates the amount of nutrients that will be in the resulting food.

Literally every company has these software-driven analyses – projections, really – of their formulas, because that’s how pet food is formulated today. The concern is, how do these projections pan out when compared to actual laboratory analysis of the nutrients?

We put this question to a number of pet food experts – including formulators and pet food company owners – and the answer was, it depends on a lot of things, including:

- how closely the food manufacturer hews to the recipe for the food;
- what software is used to analyze the recipe;
- whether or not the software takes into account chemical reactions between ingredients that take place when the food is mixed or cooked – reactions that might cause certain nutrient values to test at different levels than the software would predict; and
- whether the pet food company routinely tests their raw ingredients in a laboratory and enters updated nutrient values for those ingredients into the software.

All of these are reasons why computer-generated analyses might return very different values than a laboratory test of the actual dog food.

So, even though these computer-generated analyses are not exactly what we asked for, we’re going to give the companies that sent them to us the benefit of the doubt, too. For now, they still appear on the list of our “approved canned dog foods” that starting on page 8. If they, too, send us actual laboratory test results for their products, we’ll upgrade their status to our gold-star list in upcoming issues.

But we’re also giving all the companies a heads-up: Only the pet food makers that provide lab analyses of their products will appear on our list of “approved dry dog foods” in the February issue. 🐾



🐾 NUTRITION 🐾

Yes, We Can!

Why canned food might be healthier for your dog than dry food, and how to pick a good one.

BY NANCY KERNS

Why do you want to feed canned food to your dog? Compared to dry dog food, it's expensive – and it might even be prohibitively expensive if you plan to feed it as your dog's sole diet, especially if he weighs more than just a few pounds.

Many owners who feed canned food make that selection for a specific reason, for a limited period of time – for example, to motivate an elderly dog or a dog suffering from a health condition that causes weight loss and a poor appetite to eat more. The one exception might be people with very tiny dogs, who may have trouble chewing or swallowing kibble, and whose caloric needs are so minimal, that it might take two days or more to consume a single can.

It's too bad that it's so costly, because,

fed in appropriate amounts, canned food is a very healthy choice for dogs. Its moisture content is far closer to that of so-called evolutionary diets for dogs, the sort of food dogs ate before they came to rely on us to feed them. Good-quality canned foods generally contain *far* more meat than dry foods; meat, the most natural canine ancestral diet ingredient, often accounts for as much as 95 percent of a good canned food! And meat is incorporated into canned foods in a much less processed form

Independent pet supply stores and small chain stores typically carry the best selection of top-quality canned dog foods. "Pet specialty" chains (such as Petco and PetSmart) also carry some of these top-shelf brands, but may also stock lower-quality, lower-cost foods, so read those ingredient labels carefully!

than the meat used in most dry foods. In top-quality canned dog foods, real, fresh meats from named species are the rule, not the exception. That's awesome!

But in order for her dog to enjoy these advantages, an owner has to be able to identify these top-quality products! She has to be capable of picking them out of the crowd of lower-quality foods, which may have labels that are just as beautiful – and which, undoubtedly, have lower prices.

You don't have to be a genius to sort the wheat from the chaff – or, I should say, to sort out the *meat* from the *wheat*! You'll probably need some reading glasses or a magnifying glass, though, because to accomplish this task, you have to read some very fine print on the product labels. And the labels on cans are much smaller than the labels on bags of dry dog food! So, equip yourself accordingly when you head to the pet supply store, and we'll tell you what to look for.

OUR SELECTION CRITERIA

Since the main advantage of canning is its ability to deliver a diet with a very high percentage of animal protein in a shelf-stable and bacteria-free form, the first and foremost indicator of a canned dog food's quality is the amount and type of meat included in the formula.

Water (or broth) as required for processing is often among the first few ingredients listed on a canned food label, but a whole, named animal protein (or two) ought to be right next to it.

"Whole" means no byproducts – although you should be aware that when you see "chicken" (or any other named whole meat) on a label, it doesn't mean the chicken breasts or legs you might ordinarily associate with the phrase. The official definition of each type of meat includes fat and "the portions of skin, sinew, nerve, and blood vessels which normally accompany the flesh." The legal definition of poultry (chicken, duck, and turkey) includes flesh and skin, with or without accompanying bone.

In contrast, “meat byproducts” include lungs, spleen, kidneys, brain, livers, blood, bone, fat, and stomachs and intestines that have been “freed of their contents.” Poultry byproducts include heads, feet, viscera (“free from fecal content and foreign matter except in such trace amounts as might occur unavoidably in good factory practice”). We do not consider foods that contain animal byproducts for our “approved food” lists.

“Named” means a specific animal species – such as chicken, beef, or pork – as opposed to “meat,” which can be just about anything.

Because we are looking for products with the highest possible inclusion of top-quality animal proteins, we’d choose a product with meat first on the label over one that listed water first and meat second.

We also want to see named animal fat sources, such as “chicken fat” or “pork fat,” rather than “animal fat.” That could be just about anything – and a mix of everything. If your dog has allergies or

food sensitivities, avoiding ingredients with unknown constituents is a particularly good idea.

If vegetables, grains, or other carb sources are used, we prefer to see them in their whole forms, rather than byproducts (potatoes, rather than potato starch, for example).

The use of grains and other starches should be limited in a canned food; there is little sense in paying canned food prices for carbs! So a food that contained just one grain or non-grain carb source (such as sweet potatoes) is preferable to one that contains multiple grain or non-grain carb sources. And one that contains a whole grain or vegetable is preferable to one that contains grain or vegetable byproducts (such as oat bran, potato starch, or tomato pomace).

TRAITS OF LOWER-QUALITY FOODS

There are a number of traits that automatically disqualify a canned food from our consideration. The first and most im-

portant is the inclusion of an *unnamed* animal source, such as:

- “Meat” or “meat byproducts”
- “Poultry” or “poultry byproducts”
- “Animal fat”

Wheat gluten is the next disqualifier. Wet foods often contain some sort of thickener or binder. Various types of “gum” (such as guar gum, from the seed of the guar plant, and carrageenan gum, from seaweed) are common thickeners. Whole grains, potatoes, and sweet potatoes also can be used to thicken wet food. But wheat gluten (and some other glutes) are generally used in wet foods to both augment the protein content of the food (albeit with lesser quality amino acids) and to act as a binder, a substance that holds together artificially formed “chunks” so that they resemble chunks of meat. In other words, it’s a cheap replacement for a greater amount of animal

HALLMARKS OF QUALITY

The following is our selection criteria – the things a canned dog food must have to appear on our “approved” foods list:

- ✓ A whole, named animal protein in one of the first two positions on the ingredients list. “Whole” means no byproducts. “Named” means a specific animal species – chicken, beef, pork, lamb – as opposed to “meat” or “poultry.” Because we are looking for products with the highest possible inclusion of top-quality animal proteins, we’d choose a product with meat first on the label over one that listed water (or broth) first and meat second.
- ✓ Named fat sources.
- ✓ If vegetables, grains, or other carb sources are used, we prefer to see them whole, rather than byproducts (potatoes, rather than potato starch, for example).

DISQUALIFIERS

There are actually far more traits that automatically disqualify a canned food from our consideration. **Quality canned dog foods should *not* contain:**

- ✓ An *unnamed* animal protein or fat source, such as “meat,” “poultry,” or “animal fat.”
- ✓ Any meat byproducts or poultry byproducts.
- ✓ Wheat gluten, which may be used as a cheap source of plant protein, a thickener, and/or a binder, holding together artificially formed “chunks” of ground meat.
- ✓ Sugar, molasses, or other sweeteners
- ✓ Artificial colors, flavors, or preservatives.

OTHER TRAITS WE LOVE TO SEE

- ✓ A very clear “best by” date/code.
- ✓ Organic ingredients. A luxury, but we’d look for them if we were feeding a canine cancer patient.
- ✓ Voluntary inclusion of non-essential but potentially therapeutic ingredients (such as DHA or glucosamine) in the “guaranteed analysis.”



protein. If chunks of meat are present in a wet dog food, they should be *actual* chunks of meat, not a meat facsimile.

Sugar, molasses, or other sweeteners used in a canned food is another automatic strikeout. A food that contains quality meats shouldn't need additional palatants to entice a dog's appetite.

Finally, as always, we disqualify foods that contain artificial colors, flavors, or preservatives. These are rare in wet foods, but do appear on ingredients lists from time to time.

YOUR UNIQUE NEEDS

Remember, there is no single "best" food for *every* dog. Your task is to find the best-quality foods that are within your budget that suit *your* dog.

As discussed in the previous article (pages 2-4), make sure you look for the statement of nutritional adequacy (a.k.a. the AAFCO statement) on the product label. Pay attention to whether it references adult maintenance, gestation/lactation, growth, or dogs of all life stages. Remember that if it says it's for "dogs of all life stages" it is formulated to meet the higher nutrient levels required by puppies and pregnant or nursing moms. Make sure you are selecting a product that is appropriately formulated for your dog's life stage.

So, keeping that foremost in your mind, the next thing you want to look at on the label is the "guaranteed analysis" (GA). By law, the GA must contain four things: the minimum amounts of protein and fat (they usually *actually* contain higher amounts, which we'll discuss in a minute), and the maximum amounts of moisture (water) and fiber.

These four nutrients (and only these four) are legally required to be present on the label, as a consumer protection of sorts. From a nutrition standpoint, protein and fat are the most important factors in feeding an animal, so minimum amounts of these must be guaranteed by the pet food maker. If present in excessive amounts, nutrient-free water and fiber crowd out more valuable ingredients, so maximum amounts of these must also be guaranteed by the pet food maker. The majority of regulatory surveillance and enforcement is focused on these values.

Protein and fat levels in canned dog foods vary widely, so you have to look at the label for a clue as to whether the product you are considering is appropriate for your dog. We used the word

"clue" deliberately, because the product might actually have far more fat and at least a little more protein than is stated on the GA. This is done partly to make sure that no matter what sort of variation there might be in the protein and fat levels in the formula's raw ingredients, the food will reliably deliver *at least* the stated amount of protein and fat.

A food that contains a higher amount of protein than expected won't harm the vast majority of dogs, so we don't worry about the possibility that a food that states it contains 8 percent protein might actually contain 10 or 12 percent. However, a product that says it contains 5 percent fat but *actually* contains 10 percent or more fat can really cause problems for a lot of dogs, particularly dogs prone to pancreatitis.

The prevalence of under-reporting the fat (and to a lesser extent, the protein) in canned dog foods is just one more reason why we are now insisting on seeing the full nutrient analyses for food that we will include in our "approved foods" lists. Which brings us to our "approved canned dog foods" for 2016 . . .

A DISTINGUISHED CLASS

As I stated in the editorial/article (which starts on page 2 of this issue), for this year's review of canned dog foods, we asked all of the companies that produce our previously approved foods to send us laboratory analyses of their products. We are awarding a higher level of distinction to the products that meet all of our selection criteria, old (as seen in "Hallmarks of Quality," opposite page) and new (lab results). The companies that were quickly and readily able (and willing) to share lab analyses for their canned dog foods appear in a separate table of "approved foods" on page 8.

A greater number of companies sent us theoretical, software-driven analyses of their formulas, with nutrient values that they expect from their recipes. As stated earlier, however, there are many factors that can cause a lab analysis to return nutrient values that are significantly different than what was expected or forecast by the software that formulated the food.

For now, we are recognizing these companies for their good-faith effort by continuing to include them on our "approved canned dog food" list, which starts on page 9. We'd be happy to upgrade them to our "gold star" list if

MISSING FROM OUR LISTS

The following companies have products that meet our selection criteria based on their ingredients, and each has appeared on our "approved foods" list in the past. This year, when we asked for lab analyses of their products, they either didn't respond or asked for more time.

Artemis
Azmira
Blue Buffalo
Dogswell
Drs. Foster & Smith
Evo
Hound & Gatos
Mulligan Stew (no longer labelled as complete & balanced)
Natural Balance
Party Animal
Petguard
Spring Naturals
Precise
Three Dog Bakery
Tiki Dog
Ultra
Verus
Weruva

they produce those lab results in the next few months.

In the box above, we've listed the companies whose products were previously on our approved foods lists (based on our selection criteria involving ingredients), but who either didn't respond to our inquiry about lab analyses or who asked for more time. If or when we receive lab test results from these companies, we will add them to our "gold star" list, which will be updated in the next few issues.

Two final notes: Depending where you live, the foods on our "approved foods" lists may be difficult to find; most are sold in independent pet supply stores, or high-quality "pet specialty" chain stores.

And don't forget that these foods are going to be more expensive than canned dog foods you may find in a grocery store or giant warehouse-type store; quality ingredients really do cost more than low-cost fillers like wheat gluten and animal byproducts. 🐾



WDJ'S APPROVED "GOLD STAR" CANNED DOG FOODS

The following companies have provided WDJ with the results of independent laboratory tests that confirm their products' "complete and balanced" claims.

The following companies not only offer products that meet our selection criteria, based on their ingredients, but also provided us (as requested) with independent, third-party laboratory nutritional analyses of their products – analyses confirming that their products are not just "formulated to meet," but do actually meet the AAFCO Canine Nutrient Profiles.

In our opinion, these companies constitute an elite group – a "gold star" class of companies who are willing and readily able to prove that their products are "complete and balanced" – something we think that *all* companies who make dog food should be required to provide.



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AVODERM — (Breeder's Choice, Central Garden & Pet), Walnut Creek, CA; (888) 500-6286; avodermnatural.com

Avoderm is available in 10 varieties. Eight are meant for all life stages; two, including the company's vegetarian formula, are for adult maintenance only. Note: We don't approve of vegetarian dog foods for any dogs other than one

with a veterinary-confirmed allergy to multiple animal proteins (something we have yet to come across). Four varieties are grain-free. Foods range from 7% to 8% protein and 4% to 7% fat.



BRAVO PET FOODS — Manchester, CT; (866) 922-9222; bravopetfoods.com *This product is new to our list!*

Bravo, a long-time producer of frozen raw diets, just came out with this very nice line of canned dog foods. There are 6 varieties, with 9.5% to 11.5% protein and 4.5% to 9% fat.

Three are "95%" recipes, with animal proteins comprising 95% of the formula. All six varieties are intended for dogs of all life stages.



CANIDAE CORP. — San Luis Obispo, CA; (800) 398-1600; canidae.com

Canidae has 2 lines of foods. Canidae Life Stages has 6 varieties, all suitable for dogs of all life stages with 1 intended for puppies. The foods range from 6% to 9.5% protein and 4.5%

to 7.5% fat). The Pure line has 5 grain-free varieties, all suitable for all life stages. They range from 7% to 10% protein and 6% to 8% fat.



CHICKEN SOUP FOR THE SOUL — Cos Cob, CT; (800) 658-0624; chickensouppets.com

Chicken Soup has 2 lines of foods. The grain-free line has 4 varieties, 3 suitable for all life stages and one intended for large-breed puppies. These foods all

contain 8% protein and 2.5% to 8% fat. The second line, Life Stages, has 3 varieties (puppy, adult, mature). They range in protein from 7.5% to 9%, and 4% to 6% in fat.



EAGLE PACK — (Wellpet), Tewksbury, MA; (800) 225-0904; eaglepack.com

Eagle Pack offers 4 foods for dogs of all life stages. These foods all contain 9% protein and 6% fat.



LOTUS — Lotus Natural Food, Torrance, CA; (888) 995-6887; lotuspetsfoods.com

Lotus offers 2 lines of foods; all of them grain-free and intended for dogs of all life stages. The Just Juicy line has

2 varieties, with 15% protein and 5% fat. The Canned Stew line has three varieties, all of which have 10% protein and 4% fat.



HOLISTIC SELECT — (Wellpet), Tewksbury, MA; (800) 225-0904; holisticselect.com

Holistic Select offers 7 grain-free foods for dogs of all life stages. These foods range from 11% to 12% protein and 6% to 8% fat.



NATURE'S VARIETY — St. Louis, MO; (888) 519-7387; naturesvariety.com

Nature's Variety offers 3 lines. The first is Instinct Original, with 7 grain-free varieties; all are suitable for dogs of all life stages. They range from 9% to 11% protein and 4.5% to 7% fat. Instinct Ultimate Protein has 2 varieties; both are grain-free and suitable for all life stages. They range from 10% to 11% protein and 5.5%

to 6.5% fat. The third line is Prairie Homestyle. These varieties do contain grain, and all are suitable for all life stages. They range from 7.5% to 8% protein and 4% to 5% fat.



PETCUREAN — Abbotsford, BC, Canada; (866) 864-6112; petcurean.com

Petcurean has 3 lines. Go! Daily Defense offers 3 varieties suitable for dogs of all life stages. They range from 8% to 10% protein and 4% to 5% fat. The second line is Go! Fit + Free, with 2 grain-free varieties suitable for all life stages. They both contain

8% protein and 4% fat. The third line is Go! Sensitivity + Shine, with just one grain-free variety that's suitable for all life stages. It contains 8% protein and 6% fat.



PINNACLE — (Breeder's Choice, Central Garden & Pet) Walnut Creek, CA; (888) 500-6286; central.com

Pinnacle offers five grain-free foods, all of which are suitable for dogs of all life stages. They range from 7% to 8.5%

protein and 5% to 6.5% fat.



SOLID GOLD — Greenville, SC; (800) 364-4863; solidgoldpet.com

Solid Gold offers 12 grain-free varieties of canned foods; 11 are suitable for dogs of all life stages and 2 (Hund-n-Flocken and

Green Cow Beef Tripe varieties) are for adult maintenance only). They range from 7.5% to 9.5% protein and 3% to 9% fat.



TASTE OF THE WILD — Diamond Pet Products, Meta, MO; (800) 442-0402; tasteofthewildpetfood.com

Taste of the Wild is the only line of canned foods that Diamond makes that is approved by WDJ. Taste of the Wild comes

in 5 grain-free varieties, and all are suitable for dogs of all life stages. They range from 7% to 8.5% protein and 3% to 4.5% fat.



WELLNESS — Wellpet, Tewksbury, MA; (800) 225-0904; wellpet.com

Wellness has 6 lines. Wellness Complete Health has 6 varieties. One (Senior formula) is for adult maintenance only; the rest are for dogs of all life stages. They range from 7% to 9% protein and 3% to 8% fat. Wellness Core has 19 grain-free varieties, 3 of which are 95% meat recipes. Twelve of these are for adult maintenance only; 4 of these (the Hearty Cuts recipes) are not suitable for large breed puppies. They range from 6% to 13% protein and 2% to 8% fat. Wellness Petite Entrees has 11 grain-free varieties; note that all of these recipes are for adult

maintenance only. They range from 6% to 8% protein and 2% to 5% fat. Wellness Simple Limited Ingredient has 4 grain-free varieties that are for adult maintenance only; each of these recipes features only one animal species in the ingredients. They range from 7% to 8% protein and 3% to 8% fat. The Wellness Stews line has 6 grain-free varieties, all for dogs of all life stages. They contain 8% protein and 4% fat. The Wellness TruFood line has 6 grain-free varieties; all of these foods are for adult maintenance only. They contain 4% protein and 2.5% fat.



WDJ'S APPROVED CANNED DOG FOODS

The following companies provided us with computer analyses of their products' formulas, rather than results of independent lab tests of their foods.

In contrast to our gold star list, the companies below provided us with only computer analyses of their products' formulas, rather than independent lab results of the products themselves. Because their foods meet our selection criteria based on their ingredients, however, they remain on our approved canned dog food list for 2016. This may change in the future.

While the computer analyses of the product formulas provided by the companies meet the AAFCO requirement

for a "complete and balanced" claim, they don't prove that the resulting foods, in fact, contain all the nutrients, in proper amounts, that are required to sustain our dogs. In our opinion, it is better for consumers to feed products with nutrient values that are independently verified.

We will continue to ask pet food companies to provide this assurance; further, we strongly encourage dog owners to ask for this information, too.



ADDICTION — Kent, WA; (425) 251-0330; addictionfoods.com

Addiction is available in 9 grain-free varieties, all of which are suitable for dogs of all life stages. They range from

8% to 9% protein and 2% to 6% fat.



CASTOR & POLLUX — Merrick Pet Foods, Hereford, TX; (800) 875-7518; castorpolluxpet.com

Castor & Pollux offers 4 lines of food. The first one is Natural Ultra Mix, with 8 different varieties for dogs of all life stages; Six of the foods are grain-free. They range from 8% to 9% protein and 3% to 5% fat. The second line is Organix, with 4 varieties containing organic ingredients. All of the Organix foods are suitable for adult

maintenance only, with 7% protein and 6% to 6.5% fat. The third line is Organix Grain-Free, with 4 grain-free organic varieties for dogs of all life stages. They contain 7.5% protein and 6% to 6.5% fat. The last line is Organix Grain-Free Butcher & Bushel, with 5 organic varieties for dogs of all life stages. They contain 7% protein and 3% to 4% fat.



EVANGERS — Wheeling, IL; (847) 537-0102; evangersdogfood.com

Evangers has 5 lines of foods. The Classic line has 4 varieties, one of which (Senior/Weight Management) is for adult maintenance only; the rest are for all life stages. They range from 9% to 10% protein and 4% to 8% fat. The Grain-Free Hand-Packed line has 4 varieties for all life stages, with 8% protein and 4% fat. Evangers Organic offers just 1 grain-free, all

life stages food, with 8% protein and 4% fat. Evangers Signature Series has 4 grain-free all-life-stages varieties, with 6% protein and 5% fat. Evangers Super Premium has 5 varieties for dogs of all life stages. Four are grain-free, and contain 9% to 10% protein and 4% to 8% fat. The last variety is a vegetarian food, with 7% protein and 2% fat; this one is not grain-free.



FIRSTMATE — North Vancouver, BC, Canada; (800) 658-1166; firstmate.com

FirstMate has 2 lines for dogs of all life stages. The first line is 50-50, with 3 grain-free varieties. They range from 10% to 11% protein and 5% fat. FirstMate's second line is called Limited

Ingredient, with 4 grain-free varieties, ranging from 10% to 12% protein and 3% to 6% fat.



FROMM — Fromm Family Pet Food, Mequon, WI; (800) 325-6331; frommfamily.com

Fromm offers 2 lines of foods. The first is Fromm Four-Star, with 3 grain-free varieties of foods meant for dogs of all life stages. They contain 7% protein and 2% fat. Fromm's Gold

line has 3 grain-free varieties. Two are suitable for dogs of all life stages and one is meant for large-breed puppies. They contain 9% protein and 6.5% fat.



HALO, PURELY FOR PETS — Tampa, FL; (800) 426-4256; halopets.com

Halo has 5 lines. The first one is Halo Grain-Free Small Breed, with 2 varieties for dogs of all life stages. They range from 9.5% to 11% protein and contains 5% fat. Halo Senior has 2 varieties, for adult maintenance only. They contain 8.5% protein and 4.5% fat. The Spot's Choice Shredded line has 4 grain-free varieties for all life stages; all varieties contain 9%

protein and 5.5% to 8% fat. Spot's Stew, Halo's original line, has 4 varieties, for all life stages. All these foods range from 4.5% to 6.5% protein and 2.5% to 5% fat. Halo's Vigor line has 3 grain-free varieties, for all life stages. These foods range from 8% to 9% protein and 6.5% to 7.5% fat.



HEALTH EXTENSION — Melville, NY; (800) 992-9738; healthextension.com

Health Extension has 2 lines of foods for dogs of all life stages. Health Extension Grain-Free has 3 varieties, which contain 8% protein and 4.5% to 5% fat. Health Extension Holistic

has 4 varieties; 3 are grain-free, and the fourth is a vegetarian food. They contain 7% to 8% protein and 2% to 6% fat.



NEWMAN'S OWN — Westport, CT; (203) 222-0136; newmansown.com

Newman's Own has two lines of foods for dogs of all life stages. The first line is Newman's Own Organics, with 7 grain-free organic varieties. Three of those contain 95% meat. They range

from 9% to 12% protein and 2.5% to 7.5% fat. The Newman's Own Premium line has 4 varieties, three of which contain organic ingredients. They contain 8% protein and 5% to 6% fat.



MERRICK — Amarillo, TX; (800) 664-7387; merrickpetcare.com

Merrick has 6 lines of all-life stages foods. Backcountry has 11 grain-free varieties, 2 of which are 96% meat recipes. They range from 7% to 10% protein and 3% to 5% fat. Merrick Classic Recipe has 18 grain-free varieties. They range from 8% to 10.3% protein and 3% to 5.5% fat. Merrick Grain-Free has 4 varieties, ranging from 9% to 10% protein to 5% to 7% fat. The

Merrick Lil' Plates Grain-Free line has 9 varieties, ranging from 8% to 8.5% to 3% to 3.5% fat. The Merrick Limited Ingredient line has 6 grain-free varieties, ranging from 8% to 9% protein and 4% to 5% fat. Merrick's Seasonal Limited Edition line offers 15 grain-free varieties, ranging from 7% to 9% protein and 3% to 5% fat.



PET-TAO — Fairview, TN; (615) 934-3832; pettao.com

Pet-Tao has 2 lines with foods for dogs of all life stages. The first line is called Harmony, with 3 grain-free varieties, containing 8% protein and 6% fat. Pet-Tao's Solutions line has

2 grain-free varieties, ranging from 8% to 10% protein and 5% to 8% fat.



WHOLE EARTH FARMS — (Merrick Pet Care), Amarillo, TX; (800) 323-3353; feedgoodness.com

Whole Earth is Merrick's budget-friendly line, with 10 grain-free varieties for dogs of all life stages. They range from 8% to 10% protein and 3% to 6.5% fat.

Puppy Vaccines

Ever wonder why puppies need multiple “shots” in order to become fully immunized? Here are the reasons behind the vaccination strategy.

BY NANCY KERNS

Most veterinarians recommend that puppies are vaccinated for distemper, parvovirus, and adenovirus (hepatitis) a number of times, starting when they are about four to six weeks old, and again every three or four weeks, with their last “puppy vaccination” given after they are about 16 to 20 weeks old. But do you know why puppies need so many “shots”? Let’s make it a quiz, shall we?

- A) Because it takes at least four vaccinations for full immunity.
- B) To “boost” the immunity from their first shot.
- C) Neither of these.

The answer is: C) Neither of these.

Repeated puppy vaccines do *not* increase or “boost” the immunity in any way. Vaccines are repeated in order to make sure the puppy receives a vaccination as soon as his immune system is able to respond as we want it to – to respond by developing antibodies to the disease antigens in the vaccines.

KNOW YOUR TERMS

Let’s do a bit of review, to make sure all the terms used here are understood.

An **antigen** is a substance that induces a response from a body’s immune system. In this discussion, when we talk about antigens, we mean a form of the diseases that commonly infect puppies and dogs.

A **vaccine** is a form of disease antigen that has been altered in some way so that his immune system will recognize it as a foreign invader and respond to it by destroying substances that resemble that antigen in the future. Some vaccinations are made with “killed” viruses; some are

genetically altered so they resemble the disease antigen but cannot make the animal ill (“modified live”); and still others are highly weakened, live strains of the disease.

Antibodies are the immune system protective substances that recognize and destroy the agents of disease (antigens).

When we administer a vaccine to a

dog, we are in effect training his immune system to recognize the disease antigen and mount an immune response to it – to form antibodies that will recognize and destroy those antigens whenever the dog comes into contact with them again.

When a dog has been vaccinated and his immune system has formed antibodies to the disease antigens in the vaccines he received, he is considered **immunized** against those diseases.

MOTHERS OFTEN INTERFERE!

Immunizing puppies is a tiny bit more complicated due to a mechanism called **maternal interference**.

All puppies who are nursed adequately by their mother in the first two or three days after birth receive some of her protective antibodies from drinking her “colostrum” – the yellowish substance that the mother produces before she starts actual milk production.

The mother’s antibodies protect the puppies for a *highly* variable amount of time – anywhere from about three weeks to about 12 weeks. These antibodies gradually “fade” from the puppies’ systems as the puppies’ own immune systems develop.



Given their mothers’ unknown vaccination status, puppies in shelters often receive more vaccinations, with the first ones administered earlier and the last ones administered later, than puppies bred and raised by professional breeders.

When a puppy is vaccinated during the period of time that his mother's antibodies are still active in his system, those maternal antibodies will detect and destroy the disease antigen in the vaccine, rendering that particular vaccine useless to the puppy. He can't develop his own antibodies to disease antigens until his mother's antibodies have faded from his system. Also, while some puppies may have received a whopping dose of antibodies from their mom, others may have received few or none. If the mother was never vaccinated herself, and never came into contact with those disease antigens, she would have none of these antigens to pass along to the pups in her colostrum.

So, should puppy owners just wait to vaccinate puppies, until the time when any amount of maternal antibodies are *sure* to have faded (12 to 14 weeks is generally considered as the outer limit of any maternal interference)? The answer is NO, because we don't know when any given puppy's maternal immunity is going to fade, and he would have no protection from disease in the period between the fading of his mom's antibodies and receiving his first vaccination.

A mother's antibodies might fade when he's three weeks old, when he's 12 weeks old, or any time in between. If the protection he got from his mom fades at three weeks, and we don't vaccinate him until he's 14 weeks old, he is vulnerable and without any protection whatsoever, until at least a few days after his vaccination. That's too long to go without protection, unless you plan to raise him in a sterile bubble. And there are *many* compelling reasons having to do with his behavioral development to not just keep him home.

CLOSING THE WINDOW

Instead, we give the puppy a series of vaccinations, about three to four weeks apart, starting when the puppy is four to six weeks old. The idea is to try to reduce the size of the "window of opportunity" when the mom's antibodies fade (leaving the puppy unprotected) and the next vaccine is given, to reduce the chances that he comes into contact with disease antigen when he is unprotected.

It might be that the mother's antibodies faded early, and the first vaccine was given at four weeks, and he developed his own protective antibodies. In this case,

he doesn't actually need any further vaccines, but we don't know that, so he is given additional vaccinations every three to four weeks until he's about 20 weeks old. It's more than he needs, but at least he was protected.

Or it might be that the puppy was vaccinated at five weeks, again at eight weeks, and again at 11 weeks, but his mother's antibodies were still circulating until he was about 12 weeks old. The mom's antibodies would have neutralized all those first vaccines, so when the antibodies finally faded, he was left without protection from disease until his next vaccine was received at 14 weeks. This is actually the worst-case scenario, because many puppy owners are taking their pups into high-risk environments at this age, thinking, no doubt, "He's had three shots already; he must have at least some immunity by now!"

There is no practical way to know whether the mother's antibodies are still circulating in a puppy's body or when they have faded. And each mother and each puppy is an individual; she will pass along a variable amount of antibodies, and these will fade at different times in each puppy. So we vaccinate several times, until we are past the point in time when any maternal antibodies can interfere with proper immunization.

THE LAST SHOT

A puppy is considered fully immunized against the "core" (the most common, and most problematic) diseases of adenovirus (hepatitis), distemper, and parvovirus when he has received a vaccination for these diseases after the age of 16 to 18 weeks. (Note: Until recently, the "puppy shots" were considered complete when the last one was given at 16 weeks. New research states that final puppy parvovirus vaccine should be at or after 18 weeks of age.)

Rabies is another "core" vaccination, but it is not given to puppies before 12 weeks of age. A puppy can receive his first rabies vaccine at 12 weeks (but no sooner), and should be given another rabies vaccine a year later. A vaccination is required by most states every three years afterward. (This is a matter of state law, put in place for the protection of human health; a dog who has received two or more rabies vaccines is likely protected from that disease for life.)

Until the final "puppy" vaccines are given at 16-18 weeks, the puppy should

be protected from potential exposure to disease antigens, but this doesn't mean he shouldn't ever leave the house until the time of his final "puppy shot." It just means that his exposure to the outside world should be carefully considered. *Do* bring him to the homes of relatives and friends whose dogs are demonstrably healthy, vaccinated, and friendly. *Do not* take the puppy for walks in places that are highly trafficked by unknown dogs, such as sidewalks, parks (especially dog parks), pet supply stores, and so on.

Also, if someone in your home has tracked through places that are likely to be covered with agents of contagious disease – such as a dog park or veterinary clinic – keep their shoes outside the front door, and ask them to wash their hands before they play with the puppy.

If you attend puppy training or socialization classes, be sure the instructor takes the following precautions:

- The puppy school should require each puppy's vaccine records, to make sure all the puppies are in the process of receiving veterinary care and proper protection from either catching or spreading disease

- A puppy with any signs of illness (such as lethargy, vomiting, diarrhea, and/or an increased temperature) should be disallowed from attending class.

- There should be equipment on hand so that every "accident" that a puppy has in class can be quickly cleaned up with a proper antibacterial solution.

PASSING THE TITER TEST

The vast majority of puppies will be successfully immunized after the series of vaccinations described here, but a tiny percentage will be what are called "non responders" – incapable of developing protective antibodies in response to vaccines. These dogs will be vulnerable to infection by these diseases, no matter how many times they are vaccinated, and thus should be protected from high-risk environments (wherever a lot of dogs congregate).

There is a way to determine whether the final vaccination (at least) that was administered to your puppy triggered his immune system to develop protective antibodies for the "core" diseases he was vaccinated for. At least two weeks after what is hoped will be the puppy's final vaccination – at approximately 18 to 20

weeks of age – you can ask your veterinarian for a “vaccine titer test.” A blood sample is taken, sent to a laboratory, and tested for the presence of antibodies that protect the puppy against parvovirus and distemper. If these antibodies are detected, he’s done with his core vaccinations.

However, if the vaccine titer test comes back with a negative result, it’s recommended that the puppy be vaccinated one more time, perhaps with a different brand of vaccine than was used previously. Two weeks later, the vaccine titer test should be repeated. If the result is still negative, the puppy will be considered a non-responder, vulnerable to contracting any of the core diseases he may be exposed to.

Vaccine titer tests are being increasingly used by knowledgeable owners who want confirmation that their puppy is protected from disease, but there are still many veterinarians who are unfamiliar with the tests, and/or skeptical of their usefulness. Some clinic managers may be unable to quote a price for this test, or unsure of what test to order from the laboratory they use. We’ve heard of clinics charging as much as \$200 for the test, which is ridiculous. In contrast, highly progressive clinics may offer a SNAP (in-office) test that will reveal the results within a half-hour.

Alternatively, ask your veterinarian to take a blood sample, and send it to the Dr. Ronald D. Schultz Laboratory at the University of Wisconsin (Madison) School of Veterinary Medicine. This lab charges just \$25 for the test (though you will need to pay for the blood to be drawn and shipping the to lab). See vetmed.wisc.edu/lab/schultz/ for instructions and an order form. 🐾

SHELTER PROTOCOLS MAY VARY

Puppies who have been bred and raised by a professional, responsible breeder are likely to be given far fewer vaccines than puppies who came from a shelter environment. In a professional breeding program, the mother dog’s vaccination status will be known, and her first nursing session will be observed, so better assumptions can be made about how much protection the puppies will receive from her maternal antibodies. Further, the breeder will likely have experience with keeping the puppies from being exposed to disease antigens, by requiring visitors to remove their shoes, wash their hands, and so on. These protections may allow the breeder to administer the first puppy vaccines at eight weeks or later, and perhaps just one or two more vaccines (with the last one given after 16 or 18 weeks).

Puppies who have the misfortune to be born in or surrendered to a shelter after birth may not receive any antibodies from their mothers; if their mothers were not vaccinated or otherwise exposed to the core diseases, they wouldn’t have antibodies to pass along. Also, puppies may not have had sufficient access to colostrum. In addition, shelters are often teeming with infectious disease agents. For all of these reasons, puppies who are born and/or raised in a shelter environment may be vaccinated much more aggressively – some might say excessively – than puppies who were born with more advantages.

Shelters often vaccinate puppies for the first time at just four to six weeks of age. At four weeks, the puppies’ immune systems are just barely mature enough to develop antibodies following exposure to disease antigens; this is done in an effort to immunize puppies who didn’t receive any maternal antibodies as quickly as possible.

Another vaccination protocol common in shelters is vaccinating every three weeks until the puppies are 16 to 18 or even 20 weeks of age. In this case, it’s the possibility that the puppies received far *more* than the usual amount of maternal antibodies than usual that causes shelters to take this tack.

If an unvaccinated dog contracts and then survives a disease like parvovirus, she actually develops far stronger immunity to the disease than she would had she been vaccinated against the disease in the first place – and she will pass along this very robust protection to her puppies (as long as they receive an adequate amount of her colostrum). Her antibodies will likely take the longest amount of time to fade in her puppies, so her puppies need to have their final vaccines a bit later in order to prevent this strong maternal antibody interference.

Finally, there is the sad fact shelter staffers often have to guess at the age of the puppies in their care. Shelter immunization protocols are usually designed with enough overlap to ensure that a puppy has every possible chance of receiving adequate protection from contagious disease.

Shelter vaccination protocols are often relatively aggressive, as even with the best disinfecting protocols, shelters may be teeming with contagious diseases.



Please Don't Leave!

Dogs whose destructive or disruptive behavior is caused by separation anxiety and isolation distress are not “misbehaving” – they need help.

BY PAT MILLER, CBCC-KA, CPDT-KA

Open our back door to let the dogs outside for one of their many daily bathroom breaks. Two of our dogs dash off the deck to explore our fenced yard and hunt for the groundhog who has foolishly taken up residence under the garage. In contrast, our third dog, a Cardigan Corgi named Lucy, suffers from isolation distress, a relatively mild form of separation anxiety. When she steps out onto the deck, she always looks to see whether I am following her. If I come out, she saunters off the deck, relieves her bowels and bladder, and returns to my side. If, instead, I stay inside and close the door, she nervously waits on the deck, staring through the glass panels in the door, shifting back and forth on her front paws, clearly uncomfortable, yet reluctant to venture a few feet farther away from me so she can go potty.

Separation anxiety is my least favorite behavior to deal with, as both a dog owner and a dog behavior and training professional. It is challenging to manage, has a significant negative impact on quality of life for dogs and their humans, requires a real commitment to behavior modification for a considerable period

of time, and all too often results in the dog losing his happy home. That's the bad news.

The good news is that the behavior *can* be modified. With a committed human in his corner, patience, and appropriate interventions, the dog suffering from this behavior *can* be helped.

DEFINITIONS

Separation anxiety is a condition in which the dog becomes upset when separated from one or more humans with whom he has hyper-bonded. A dog with true separation anxiety experiences a severe panic attack when he is left alone. Escape attempts by a dog with separation anxiety can be extreme and may result in self-injury. Household destruction often occurs, especially around exit points like windows and doors. Some dogs have even jumped through windows in their desperate attempts to find their humans.

Dogs with separation anxiety often also urinate and/or defecate in the house when left alone. This is a stress response, and is not an attempt to “get even” with their humans for being left alone. Dogs should never be punished or even scolded for their separation-related behaviors. This will only stress them more and worsen their anxiety.

Separation-related behaviors vary in intensity from one dog to the next. Milder forms of the behavior are more appropriately called “separation distress,” while the full-blown panic attack truly deserves the label “separation anxiety.”

A slightly less difficult presentation of this behavior is known as isolation distress or anxiety. With true separation distress or anxiety, the dog must specifically be with one of the humans to whom he has hyper-bonded. A dog with isolation distress or anxiety only needs not to be left alone. For some dogs, this need can even be met by the presence of another animal. Clearly, this is an easier

Dogs with milder isolation distress might “only” chew furnishings or other household items or urinate in the house when left alone. Dogs with severe separation anxiety might scratch or chew through doors or window frames in an effort to escape. These dogs are genuinely panicking, not “acting out.”



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Some dogs may be merely vigilant about the arrivals and departures of their humans until a traumatic event (such as a household move or the loss of a family member) triggers a major shift into dramatically anxious behavior.

behavior to work with. And thankfully, our Lucy only has a mild level of isolation distress.

BEHAVIORS

Typically, symptomatic behaviors may begin either as the anxious dog's human prepares to depart, or immediately after they leave. The behavior may continue for 30 to 60 minutes or longer, and in more extreme cases, for the entire length of the owner's absence – even as much as eight to 10 hours.

Destructive behavior is one of the most obvious and difficult signs of separation or isolation anxiety (SA or IA), but it is not the only one. Here are others that can be seen in some (but not all) dogs with SA or IA:

■ **VELCRO DOG** – SA and IA dogs tend to be clingy even when owners are home – following their humans from room to room, and lying as close as possible when owners are seated. The dog may also frantically try to follow his human every time she walks out the door, even if she's just going out to get the mail or newspaper.

■ **PACING** – As you make preparations to leave, your dog recognizes the pending event, and begins to stress – often pacing, panting, and whining in anticipation of your departure.

■ **VOCALIZATION** – It is not uncommon for SA/IA dogs to be very vocal when their humans are gone.

■ **HOUSE SOILING** – Extreme stress can cause your dog to urinate and defecate indoors. He can't help it.

■ **ANOREXIA** – Many dogs with SA/IA will not eat or drink when left alone. (This renders the often-given suggestion to give the dog a food-stuffed Kong or other toy relatively useless.)

■ **CRATE INTOLERANCE** – Dogs with SA/IA often will experience an even greater degree of panic if they are confined in a crate. Dogs who are destructive in the home due to immaturity and/or lack of house manners are often crated to protect the home, but this is generally not a viable option for SA/IA dogs. Panicked dogs have injured themselves and even died in the process of trying to escape from their crates.

■ **EXCESSIVE EXCITEMENT UPON OWNER'S RETURN** – Of course, lots of our dogs are excited when we come home. The SA/IA dog may present an extreme level of arousal and excitement upon his human's return; owners are cautioned to remain very calm, rather than getting excited in response.

CAUSES

We don't really know what causes separation and isolation anxiety, although it's likely that dogs who do develop the behavior have a genetic propensity for it. Some dogs show evidence of the behaviors from early puppyhood; others not until later in life.

We do know that this behavior is overrepresented in dogs adopted from shelters, but we don't know if it's because the stress of being in the shelter triggers the anxiety, or if they are surrendered to shelters in greater numbers because of their difficult behaviors. We also know that the behaviors can be brought on by other dramatic or traumatic events in a dog's living environment. These dogs often also have other anxiety-related behaviors, such as storm sensitivities.

Here are some known triggers for canine SA and IA:

■ **SCHEDULE CHANGE** – A sudden change in the length of time a dog is left alone, or in the time of day he is left alone, can sometimes trigger SA or IA. When a schedule change is anticipated in advance, if possible, take time to help your dog acclimate gradually. If you're switching from day shift to night shift at your job, take several days off work and use them to gradually change the hours you are away from home. As you transition to later hours, you might even think about spending a night or two at a motel or a friend's house, so your dog can experience your absence at night in progressively longer stretches.

■ **MOVING** – The stress involved in a household move, combined with the lack of familiarity with the new home, can trigger SA or IA in some dogs. Of course it's not always possible, but if you're planning a move and you have the luxury of being able to spend time in the new home with your dog prior to the actual move, the change will be less traumatic for him, and less likely to trigger anxiety-related behaviors.

■ **LOSS OF FAMILY MEMBERS** – The sudden loss of a family member – a child going off to college, someone moving away, or a death in the family – can elicit anxiety in your dog, especially if the person leaving was particularly well loved by the dog. Again, when possible, make these transitions gradual, so your dog has time to adjust to the change.

■ **REHOMING** – Whether he’s been surrendered to a shelter or privately rehomed, getting a new home and owner is a huge life change for a dog. As much as we would love for all dogs to spend their entire lives in one forever home, there are some legitimate circumstances that require rehoming. Again, the more that can be done to prepare a dog for a new home, the better. If you know the person who will be adopting your dog, arrange for her to meet your dog and share several enjoyable outings with him, so your dog gets to know her before the move, and so you can be sure they are compatible.

If you’re surrendering your dog to a shelter, there’s not a lot you can do to help him acclimate to a shelter environment. But you should, at least, do some research to be sure you are giving him to a well-run, bona fide shelter or rescue group, not a hoarder posing as a rescue, or a flipper who sells dogs (they exist!).

If *you* are the new home, schedule gradually increasing departures for the first week or two when you bring the puppy or dog home to help prevent this.

■ **TRAUMATIC EVENT** – Anything that creates a high degree of stress for your dog has the potential to trigger SA or IA. A burglar breaking into the house while the dog is home, a fire in the house next door with loud sirens and general chaos nearby, an earthquake, even a close lightning strike, can have long-term effects on a dog’s anxiety level.

BEHAVIOR MODIFICATION

Behavior professionals generally agree that it’s difficult if not impossible to modify unwanted behaviors if the dog is allowed to continue to practice them. Management is generally the answer to preventing your dog from practicing unwanted behaviors.

That said, management for IA and especially SA can be very difficult. This makes behavior modification for SA and IA a real challenge, as most people don’t have the luxury to be able to take several weeks off work to implement a gradual program of counter-conditioning and desensitization for their dogs. However, the closer you can come to that ideal, the more successful you will be at helping your dog learn to be comfortable staying home alone.

The management piece is the main reason isolation anxiety is easier to deal with than separation anxiety. You can

leave a dog who has IA at a good doggie daycare facility, with a friend or family member, or sometimes with other dogs for sufficient companionship, and he will be perfectly happy. Not so with dogs who have SA. Because this dog has to be with *you*, he will be just as unhappy at daycare or your mom’s house as he is at home – and the daycare operators and your mother are likely to be very unhappy as well!

Dog owners have long been counseled to desensitize their dogs to pieces of the departure routine, so that each piece is less likely to raise the dog’s stress level. Pick up your keys and set them down throughout the day. Put on your coat and take it off. Put your shoes on and take them off. All this can be helpful, especially with milder cases. However, it’s not likely to deter a dog who has a significant case of SA or IA.

Serious SA/IA modification consists of very gradual counter-conditioning and desensitization to small increases in distance between the dog and his human. We have a saying in behavior modification, “If you think you are going too slow, slow down.” For SA and IA modification, you need to slow down even more.

Trainer/author Malena DeMartini-Price has specialized in separation anxiety since 2001, and has written an excellent book on the subject, *Treating Separation Anxiety in Dogs*. She also offers a training program that certifies trainers who seek to work with cases of SA and IA. Her treatment protocol is divided into five phases. To highlight how slowly a successful modification program goes, she says, “You won’t progress to the next phase until the dog is truly successful in the previous one . . . For example, if a dog can’t successfully stay behind a baby gate for a few minutes while Mom is out of sight (Phase 3), you can’t advance to the next phase.”

If you are looking for a trainer to help you with your dog’s SA/IA behavior, you can connect with a Certified Separation Anxiety Trainer (CSAT) by going here: <http://malenademartini.com/for-owners/how-we-help>.

Veterinary Behaviorist Dr. Karen Overall has created a 15-day protocol (she calls it “Protocol for Relaxation”) that is perfect for SA and IA (although I caution my clients that it is likely to take far longer than 15 days). For each task on the list, you ask your dog to sit and stay,

or lie down and stay. At the conclusion of each task in the list, you feed your dog a treat, tell him stay again, and perform the next task. The protocol can also be helpful for modifying crate anxiety behaviors.

To give you an idea of how slowly you move through the exercises, here is Dr. Overall’s list of tasks to do with your dog on day one:

Day 1: Dog’s Task

- Sit for 5 seconds
- Sit for 10 seconds
- Sit while you take 1 step back and return
- Sit while you take 2 steps back and return
- Sit for 10 seconds
- Sit while you take 1 step to the right and return
- Sit while you take 1 step to the left and return
- Sit for 10 seconds
- Sit while you take 2 steps back and return
- Sit while you take 2 steps to the right and return
- Sit for 15 seconds
- Sit while you take 2 steps to the left and return
- Sit while you clap your hands softly once
- Sit while you take 3 steps back and return
- Sit while you count out loud to 10
- Sit while you clap your hands softly once
- Sit while you count out loud to 20
- Sit while you take 3 steps to the right and return
- Sit while you clap your hands softly twice
- Sit for 3 seconds
- Sit for 5 seconds
- Sit while you take 1 step back and return
- Sit for 3 seconds
- Sit for 10 seconds
- Sit for 5 seconds
- Sit for 3 seconds

Slow going, right? Each of the subsequent days takes you gradually farther and farther away from your dog, for increasingly long periods of time. At the end of the protocol you are out of sight (in another room) for 10 seconds. Obviously, you would need to continue your work from there to gradually build up to leaving the house for increasing periods of time. It’s not an easy task.

I also tell my clients they can break it down into even smaller steps if necessary to help their dog succeed. For example, rather than going from 5 seconds (the first task below) to 10 seconds (the second task) they could start at 3 seconds and just increase the difficulty by one second at a time.

The entire protocol is available online: www.dogdaysnw.com/doc/Protocol_for_Relaxation-_Karen_Overall.pdf.

MEDICATION

Some humans are reluctant, for various reasons, to use medication for canine behavior problems. With most of my clients whose dogs do not have IA or SA, we agree to implement a behavior modification plan, and we usually start to see changes in behavior in reasonably short order. Not so with dogs who have severe anxiety issues. The quality of life for these dogs (and for their humans) is usually so poor that we need to relieve their anxiety as quickly as possible – and the right medication can go a long way

toward doing that.

However, medication alone won't fix the problem. The purpose of behavior modification drugs is to increase the ability of your dog's brain to receive behavior modification efforts. Stress impairs learning ability, and a dog who is super-stressed (anxious) can't learn well or easily, so the appropriate medication can be a lifesaver for these dogs.

Identifying SA or IA in your dog early on and addressing it appropriately can make a huge difference in his quality of life – and yours. Hoping that your dog's undesirable behavior is due to some other cause, and delaying the implementation of effective steps to manage his anxiety may worsen the situation dramatically.

I know this from personal experience. We misjudged the reason for our Lucy's barking on the back deck when she was young (a year old) and left her outdoors for a period of time in order to not reinforce what we thought was her demand barking to come in. Later, we ascertained that the barking was, in fact, due to iso-

lation anxiety – but this was only after Lucy, in her frantic efforts to get to us, fell off a stone wall, ruptured her left ACL, sprained her left front wrist, and tore the ligaments in her left shoulder. She recovered from her injuries, and sadder but wiser, we took a much gentler approach to helping her learn to be alone.

We still don't leave her in the backyard unattended, but she is able to be crated and/or left in my office with a baby gate across the door. She won't eat or drink when left alone, but she doesn't bark, isn't destructive, and doesn't hurt herself. And that's a huge improvement! We're all much happier. 🐾

Author Pat Miller, CBCC-KA, CPDT-KA, is WDJ's Training Editor. She and her husband Paul live in Fairplay, Maryland, site of her Peaceable Paws training center, where Pat offers dog-training classes and courses for trainers. Miller is also the author of many books on positive training, including How to Foster Dogs; From Homeless to Homeward Bound. See "Resources," page 24, for contact and book-

THE RIGHT MEDICATION

I am not a veterinarian. Therefore, I should not – and legally cannot – tell you what medication or medications you should use for your dog's isolation or separation anxiety.

I can tell you, however, that most veterinarians do not study behavior in vet school (it is not required at most colleges that offer veterinary medical degrees), and many of them have no more idea than I do (and some of them less) what medications might be appropriate. Many of them are likely to just reach for the same drug they've always used, or the one that was promoted most effectively during a recent visit by a drug company representative. I can also tell you that Dr. Karen Overall says that acepromazine is exactly the wrong drug for most behavior modification purposes, and yet it's the one that many veterinarians reach for simply because it's been around a long, long time.

There is a small group of veterinarians who have studied behavior and have taken and passed the "boards" – an examination that allows them legally to call themselves "veterinary behaviorists." There is another small group

of veterinarians who specialize in behavior and, although they are not "boarded" in behavior, are educated enough (and know when to ask for help) to make good decisions about the best, most appropriate medication for your dog's behavioral issues. Prescribing behavior drugs is an art as well as a science. These veterinarians who specialize in behavior are the artists, and fortunately for us they are happy to share their talents.

Most of them are more than willing to do free phone consultations with other veterinarians who are seeking advice on which drugs (and what dosages) they should use for client dogs with behavioral issues such as SA and IA. Any time I start talking drugs with my clients, I urge them to insist their vet take advantage of this service and reach out to a veterinary behaviorist for guidance. I urge you to do the same.

There aren't very many of them – and your vet may not be able to find one local to you. But they don't have to be, since they are all just a phone call away. The current list of veterinary behaviorists can be found here: <http://www.dacvb.org/about/member-directory>.

Remember ... *insist*.



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Canine Arthritis

Osteoarthritis affects the majority of older dogs. Watch for signs of this life-altering condition.

BY CJ PUOTINEN

If you're one of the 50 million Americans who have arthritis, you know the symptoms. It hurts to stand, sit, jump, run, climb, or turn your head. You're more sedentary, and inactivity can lead to weight gain. You might limp, and because everything hurts, you feel grumpy. We aren't alone, for our dogs share these symptoms. Arthritis affects one in five adult dogs, and a full 80 percent of dogs who are 8 years old or older!

Conventional medicine considers arthritis a chronic disease that progresses and has no cure but which can be managed with symptom-suppressing drugs and other therapies. Holistic veterinarians manage arthritis with diet, nutritional supplements, medicinal herbs, and a variety of noninvasive treatments, many of which dog lovers can provide at home.

Whatever the type of arthritis or its complications, early diagnosis helps keep symptoms from progressing, and understanding the disease may help you slow or prevent its development in your dog.

TYPES OF ARTHRITIS

There are a number of types of arthritis that affect dogs:

■ OSTEOARTHRITIS

Primary osteoarthritis results from inherited anatomical problems that put excessive stress on joints. Most dogs develop secondary osteoarthritis, which is caused by damage from vigorous exercise, injuries, excessive jumping, torn ligaments, and other accidents.

Osteoarthritis is also known as "wear and tear" arthritis or degenerative joint disease (DJD). It develops gradually over months or years, and its symptoms can wax and wane. The cause is a loss of cartilage, the slippery material that covers the ends of bones. Cartilage is the body's shock absorber, and without its protec-

tive cushion, bone-on-bone movement creates serious discomfort.

The main symptoms of osteoarthritis are a deep, aching pain; difficulty climbing stairs; morning stiffness; pain while walking; and stiffness after resting. Joints may be warm to the touch, swollen, and restricted in their range of motion.

■ RHEUMATOID ARTHRITIS (RA)

RA is an autoimmune disease, meaning that the body's immune system attacks

joints and other body parts, leading to inflammation that can cause severe damage. It's unusual in dogs, occurring mainly in small and toy breeds between two and six years of age. Nova Scotia Duck Tolling Retrievers may also have a genetic predisposition to developing RA.

RA affects multiple joints, including wrists, elbows, shoulders, knees, ankles, feet, and even the jaw and neck. Stiffness that begins in the morning can last for hours or the rest of the day. Other symptoms include fatigue and a loss of appetite.

■ SEPTIC OR INFECTIVE ARTHRITIS

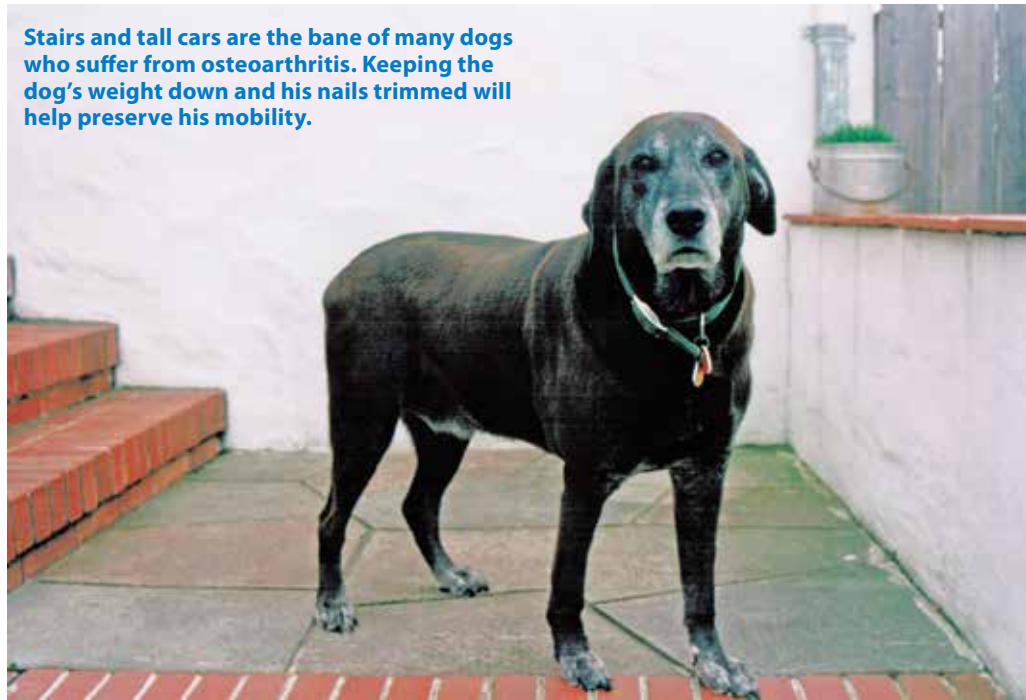
This type of arthritis is caused by infections that enter joints through the bloodstream. An insect or tick bite, road accident, cut, abrasion, puncture wound, or similar injury can allow infective organisms to cause inflammation and discomfort.

■ SPINAL STENOSIS, SPONDYLITIS, AND SPONDYLOSIS

All three of these disorders are degenerative spine conditions that often accompany arthritis.

Spinal stenosis, which can be caused by osteoarthritis of the spine, describes the narrowing of the spinal canal. Symptoms can include changes

Stairs and tall cars are the bane of many dogs who suffer from osteoarthritis. Keeping the dog's weight down and his nails trimmed will help preserve his mobility.



The hallmarks of severe osteoarthritis are painfully obvious – the abnormal, stiff gait and stance – but consider arthritis as a possibility any time a formerly active dog slows down or begins to show reluctance to join you on walks.

in bowel and bladder function, leading to incontinence, as well as poor mobility, increased fatigue, reluctance to go on walks or play, and obvious pain when touched on the hind legs, back, or tail. The most common symptom of lumbosacral stenosis in dogs is difficulty standing after lying down, which can worsen as muscles in the hind legs atrophy.

Spondylitis can cause an overgrowth of bones leading to their abnormal joining, called “bony fusion.” Fusion that affects bones of the neck, back, or hips may impair movement. Calcium deposits can create a bony spur or bridge between vertebrae.

Spondylosis develops in older dogs as the spine’s soft tissues degenerate and wear away, leading to pain. Herniated discs, degenerative disc disease, and spinal stenosis can develop as a result. Spondylosis typically occurs with no outward symptoms, and the condition is often discovered through X-rays taken for unrelated conditions.

DOES YOUR DOG HAVE ARTHRITIS?

Your veterinarian can tell for sure, but here are some common symptoms.

- Intermittent lameness or a limp
- A three-legged or “hopping” four-legged gait
- Stiffness after rest or after vigorous exercise
- An unusual or abnormal stance when walking
- Exaggerated hind leg movement
- Dragging the back feet
- Reluctance to rise or move
- Swollen joints, which can be warm to the touch and tender
- Joints that hurt when touched, moved, or palpated



- Visible joint deformities
- A lack of interest in play or physical activity
- An inability to jump onto familiar beds, sofas, car seats, or the back of an SUV
- Increased inactivity or sleep
- Weight gain from inactivity or weight loss from lack of appetite
- Depression or lack of interest
- Irritability
- Snapping or growling when joints are touched

RISK FACTORS

Some dogs get arthritis and others don’t, and there’s no way to predict whether a puppy will eventually develop the disease. At the same time, understanding risk factors can help caregivers anticipate, recognize, document, and treat arthritis symptoms before they become incapacitating.

- ✓ **SIZE.** Larger dogs are more likely to develop joint problems. This includes large breeds and dogs that are overweight.
- ✓ **AGE.** The risk of arthritis increases with age.

✓ **GENETICS.** Any breed can develop arthritis, but some are well known for the illness, including those mentioned earlier, Labrador Retrievers, Golden Retrievers, and German Shepherd Dogs, along with breeds associated with joint abnormalities.

✓ **JOINT ABNORMALITIES.** Hip and elbow dysplasia stress the joints, as do injuries that interfere with proper alignment.

✓ **STRESS AND TRAUMA.** In addition to injuries and illnesses that damage ligaments, tissues, or bones, repeated stress on joints can make high-activity or working dogs susceptible to arthritis.

✓ **INFLAMMATORY DIET.** Food is an important factor because some common foods trigger arthritis flare-ups in humans and canines.

✓ **TICK BITES.** These arachnids sometimes carry bacteria that can infect joints with Lyme disease, Rocky Mountain spotted fever, or Ehrlichiosis, all of which can cause arthritis.

✓ **DIABETES.** Dogs with diabetes are more likely to develop arthritis than those with normal blood sugar.

✓ **VITAMIN D DEFICIENCY.** Dogs with arthritis tend to have low D levels, and when their levels improve, so does their range of motion. (See “D is for Dogs,” a

review of vitamin D supplementation, in the July 2016 issue of WDJ, for more information.)

WHAT TO DO

In addition to discussing options with your veterinarian, look for strategies you can use to help your dog avoid arthritis or improve its symptoms. One is helping your overweight dog lose weight, since excess weight on arthritic joints can trigger or worsen the condition.

Diet is an obvious first step, not only for weight control but also because many widely used foods have an inflammatory effect on dogs. Individual responses vary, so a food that causes acute discomfort in one dog may have no effect on another, and vice versa. Experimenting with your pet's diet can make a difference.

For example, polyunsaturated fatty acids (PUFAs) from soybean, corn, sunflower, and other vegetable oils, along with shortening and margarine, can trigger inflammation. Although cayenne (a member of the nightshade family) is often used to relieve joint pain in dogs and humans, nightshade plants (tomato, pepper, eggplant, tobacco, and potato, among others) may trigger inflammation in some individuals. Several grain-free foods contain potato, which might be a problem for your dog.

Compare pet food labels, whose ingredients are listed in order of quantity. Look for foods that contain high-quality, named animal protein sources in the first few positions on the ingredients list. Corn gluten meal and meat by-products from unnamed species indicate that the food has been made with low-quality protein sources.

Raw diets are increasingly popular, and many veterinarians and some pet owners report improved canine health as a result of adopting a balanced raw diet. Raw diets are almost all high in fat, however, which can lead to weight gain that makes arthritis worse. High-fat diets are inappropriate for inactive dogs who eat less than normal for their size.

If you feed a commercial diet, check WDJ's annual reviews of dry and canned foods for help. Feeding a home-prepared diet makes it easier to avoid any ingredients to which your dog may be sensitive. See "You Can Make It" by Mary Straus (WDJ July 2012) for guidelines. If feeding a commercially prepared raw diet, see "Cold, Raw Truth" by Karen Becker, DVM; Steve Brown; and Mary Straus

(WDJ, September 2015). See also "Counting Calories" by Mary Straus (WDJ, September 2009) for how best to help your dog lose weight.

Dehydration complicates joint problems, so it's important to provide fresh, good-quality water in clean bowls at all times. To encourage a dog to drink more water, add small amounts of bone broth or other flavorings.

GAG ORDER

The most widely prescribed supplements for dogs with arthritis are glycosaminoglycans or GAGs. Also known as mucopolysaccharides, these nutraceutical supplements include glucosamine sulfate, glucosamine HCl, chondroitin sulfate; sometimes, the unprocessed sources of these GAG supplements, such as beef cartilage and green-lipped mussels, are used.

As Mary Straus reported in "Joint Decisions," WDJ March 2007, "GAGs are important because they actually protect the joint rather than just reduce symptoms, by helping to rebuild cartilage and restore synovial (joint) fluid. GAGs may also have some preventive effect on arthritis, though this is speculative."

GAG supplements may be most effective given between meals, though they can be fed with food if needed. "Always start with high doses, so you will be able to tell whether or not your dog responds," Straus says. "If you see improvement, reduce the dosage to see if the improvement can be maintained at a lower dose. If you don't see any change within three to four weeks, try another supplement."

Straus listed Arthroplex from Thorne Veterinary, SynFlex from Synflex America, Synovi G3 from DVM Pharmaceuticals, and K9 Glucosamine from Liquid Health. Products labeled for human use that contain glucosamine, chondroitin sulfate, and green-lipped mussel can be used as well, and manganese in the supplement may improve absorption.

GAGs work by decreasing the production of harmful inflammatory compounds that adversely affect the cartilage matrix. In addition to reducing pain and inflammation, GAGs stimulate cartilage synthesis, support new joint cartilage, and increase the synthesis of proteoglycans, the joint lubricant hyaluronic acid, and collagen, all of which are needed for proper joint structure and function.

Individual responses vary, and GAGs are not effective in all animals. A dog may have to take a GAG supplement for one to two months before noticing improvement.

Oral supplements are affordable, convenient, and often effective, but injectable GAGs can be used in addition for faster results. Injectable GAGs include Adequan and Cartrophen Vet, which are administered by veterinarians.

Treatment with Adequan (Polysulfated Glycosaminoglycan) involves twice-weekly intramuscular injections for a month, during which it prevents the breakdown of cartilage and may promote the development of new cartilage.

Cartrophen Vet, given in weekly subcutaneous injections, reduces pain and lameness in 80 percent of pets. The series of four injections is given once a year for mild cases and up to three times per year for severe cases. Cartrophen Vet is said to prevent destructive enzymes from breaking down collagen, stimulate the body's production of cartilage and joint lubricant, clear blood-vessel blockages to deliver nutrition to joints and bones, and stimulate the production of anti-oxidants.

OTHER NUTRACEUTICALS

S-adenosylmethionine (SAMe), pronounced SAM-ee) is manufactured by the body when the essential amino acid methionine reacts with adenosine triphosphate, a molecule that carries energy. SAMe is used to treat a variety of conditions, including osteoarthritis.

Products containing 200 mg SAM-e are appropriate for most dogs weighing more than 15 pounds.

Methyl-sulfonyl-methane (MSM) is a naturally occurring form of sulfur produced by ocean planktons and that can also be found in cow's milk, meat, sea vegetables, fruits, nuts, and vegetables. Low concentrations of MSM in the body may result in physical and psychological stress, organ and tissue malfunction, and fatigue. Sulfur deficiencies result in canine skin and coat problems, poor GI and immune systems, joint pain, and arthritis.

MSM supplements are sold as powders and capsules with a recommended dose for dogs of 50 to 100 mg per 10 pounds of body weight. MSM powder can be mixed with food.

DL-Phenylalanine (DLPA) is an essential amino acid used to treat both

depression and chronic pain. It works by intensifying and prolonging the body's natural painkilling response. Studies have shown that the D-form inhibits several enzymes that are responsible for the destruction of endorphins, the body's endogenously produced pain-killing hormones.

The suggested human dose, which can be adjusted for your dog's weight, is 750 mg three times a day, taken 15 to 30 minutes before each meal. Most patients respond within one to two weeks. Rather than dosing continuously, DLPA can be given for one week per month to maintain results. Do not combine DLPA with MAOI drugs like Anipryl, used to treat

Cushing's Disease and canine cognitive dysfunction, or amitraz, an ingredient in tick collars.

Hyaluronic acid, a naturally occurring polyanionic, polysaccharide consisting of N-acetyl-d-glucosamine and beta-glucuronic acid, is a constituent of joint fluid. It acts as a protective structure stabilizer and shock absorber. Use a product labeled for pet use, such as ActiPet Hyaluronic Acid for Dogs, which contains 20 mg per tablet, or adjust a human product for your dog's weight.

Cetyl myristoleate or **cis-9-cetyl myristoleate** is a fatty acid derivative discovered in 1972. It has been shown to help with several health conditions, including chronic back pain, osteoarthritis, and rheumatoid arthritis, and is usually taken as a supplement but can be applied externally. Popular products for dogs include Cetyl M from Response Products (which contains Cetyl myristoleate, marine-source glucosamine HCl, garlic, bromelain, and ginger root) and Myristin Hip and Joint Formula from EHP Products, Inc., (which contains Cetyl myristoleate, glucosamine sulfate, MSM, bromelain, curcumin, vitamin C, manganese citrate, lipase, and lecithin).

THE RIGHT FATS

Polyunsaturated vegetable oils like soy and corn oil contain linoleic acid, an omega-6 fatty acid that is essential in the diet. Note, though, that too much can trigger inflammation, especially if the ratio of omega-6 to the omega-3 fatty acids found in fish and fish oil is too high. Never add vegetable oils to a commercial diet, and add only the amount needed to a homemade diet.

Coconut oil, which has become a popular pet supplement, contains saturated fats. No one has tested its effect on dogs in clinical trials, but reports published on Internet forums and Dr. Bruce Fife's book *Coconut Therapy for Pets* (Picadilly Books, 2014) document how adding coconut oil to food has helped overweight dogs and dogs with arthritis grow leaner, stronger, and more lively. The recommended dose is 1 teaspoon per 10 pounds of body weight daily, but start with less,

as too much too fast can produce diarrhea. Inactive dogs should receive less in order to avoid weight gain, as each teaspoon of oil adds 40 calories. (See "Crazy about Coconut Oil," October 2005, and "Even More Favorite Remedies," November 2013, for more information.)

FISH OILS

Salmon and other fish oils are rich sources of omega-3 fatty acids that reduce inflammation, in contrast to the omega-6 fatty acids in polyunsaturated vegetable oils. Fish oils contain EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid), which block inflammatory cytokines and prostaglandins. They are converted by the body into powerful anti-inflammatory chemicals called resolvins.

Omega-3 supplements with 300 mg combined EPA and DHA are widely prescribed for dogs. Give up to 1 gelcap per 10 pounds of body weight daily, or if using a product containing 500 mg EPA/DHA, give 1 gelcap per 15-20 pounds of body weight daily. Adjust liquid fish oil dosages to 300 mg combined EPA/DHA per 10 pounds of body weight. Higher doses can interfere with platelets and increase bleeding as well as increase rather than reduce inflammation.

Unless they are fermented products, refrigerate liquid fish oils to prevent rancidity.

One ounce of canned sardines, jack mackerel, or pink salmon with bones provides about 300 mg combined EPA and DHA. Krill oil and whole fish contain EPA and DHA that may provide similar benefits in smaller doses.

As Mary Straus explains, "You must supplement with vitamin E whenever you are giving PUFAs such as fish oils, otherwise the body will be depleted of this vitamin. Give up to 3 to 7 IUs per pound of body weight daily, with small dogs getting more per pound than large dogs. You can also give equivalent amounts less often. For example, a dog weighing 100 pounds might get as much as 400 IUs daily, while a 10-pound dog could be given 200 IUs every three or four days."

GELATIN AND COLLAGEN

Gelatin, a protein made from animal products, is familiar as a fruit-flavored dessert, but by itself, gelatin soothes the digestive tract and helps improve the assimilation of nutrients. Gelatin contains collagen, one of the materials that



Make sure you discuss the supplements and nutraceuticals you'd like to give your dog with your veterinarian, to ensure none are contraindicated with your dog's conventional veterinary treatments.

make up bone and cartilage, and Type II collagen supplements are derived from cartilage.

Extensive research in the early 20th century showed gelatin to be an important inflammation fighter, and its benefits are being rediscovered. In "Role of collagen hydrolysate in bone and joint disease" (*Seminars in Arthritis and Rheumatism*, October 2000), Dr. Roland Moskowitz published a literature review on collagen hydrolysate in the treatment of arthritis in humans, concluding, "Clinical studies suggest that the ingestion of 10 grams PCH [pharmaceutical grade collagen hydrolysate] daily reduces pain in patients with osteoarthritis of the knee or hip, and blood concentration of hydroxyproline is increased."

A double-blind, placebo-controlled, randomized clinical study of the effectiveness of collagen peptide (linked amino acids) on osteoarthritis published in the March 2015 *Journal of the Science of Food and Agriculture* concluded, "The study demonstrated that collagen peptides are potential therapeutic agents as nutritional supplements for the management of osteoarthritis and maintenance of joint health."

The Weston A. Price Foundation (westonaprice.org), which advocates traditional diets for humans and pets, promotes the use of bone broth, which is rich in collagen, as a daily digestive aid.

The recipe couldn't be simpler: just fill a stock or crock pot with bones (chicken, beef, lamb, etc.), cover them with water, add 2 tablespoons cider vinegar and wait for an hour to increase the broth's mineral content, then cover and cook on low heat for 12, 24, or 36 hours. Strain or remove the bones and store the broth in glass jars. Bone broth thickens when refrigerated and can be added to any dog's dinner for improved digestion, nutrient assimilation, and joint health. Add approximately 1 heaping tablespoon per 20 pounds of body weight per day.

Alternatively, mix a powdered gelatin or collagen hydrolysate with water before adding it to food. Start with 1 teaspoon for a 50-pound dog and gradually increase to 2 or 3 teaspoons. Adjust for smaller or larger dogs. Look for products made from grass-fed animals.

DIGESTIVE AND SYSTEMIC ORAL ENZYMES

Pancreatin, bromelain, papain, amylase, protease, lipase, and other enzymes

are familiar digestive aids. They can be added to your dog's dinner to improve the assimilation of nutrients.

Clinical trials and anecdotal reports support the use of digestive enzymes with food, digestive enzymes without food between meals, and enteric-coated enzymes between meals for the treatment of arthritis.

Prozyme Enzyme Supplement, manufactured by Lambert Kay, contains lactose, *Aspergillus oryzae*, *Aspergillus niger*, and pineapple stem and fruit. Begin with a small quantity and gradually increase to the recommended dose of ¼ teaspoon for every cup of food given. Double the dose for dogs age 8 and older.

NZymes Anti-Oxidant Treats for Pets, manufactured by Nzymes.com, contain dried ground soybean sprouts, heat-stabilized rice bran, vitamin A, ascorbic acid, vitamin E, selenium yeast, defatted liver natural beef flavor, stearic acid, cellulose, silicon dioxide, and magnesium stearate. Give one treat daily per 50 pounds of body weight.

Systemic oral enzyme therapy uses digestive enzymes but encases them in an enteric coating, which prevents the tablets from breaking down in the stomach. Instead, they release their contents in the small intestine, allowing the enzymes to circulate in the blood to all parts of the body, including inflamed joints.

Wobenzym contains pancreatin, bromelain, papain, trypsin, chymotrypsin, and rutin. Flavenzym, Medizym, and Medizym Fido have similar formulas. Because enzymes have a blood-thinning effect, they should not be given between meals to dogs with bleeding disorders and should be used with caution in combination with blood-thinning medications or immediately before surgery. (See "Favorite Remedies, Continued," WDJ October 2013, for more information about these products.)

All of the products mentioned here are sold online and in pet supply stores. 🐾

In the next issue, we'll look at traditional and modern plant-based treatments that use medicinal herbs and essential oils to help your best friend enjoy an active life despite arthritis.

CJ Puotinen is the author of The Encyclopedia of Natural Pet Care and other books. She and her husband live in Montana with a 13-year-old Labrador Retriever and 12-year-old Cairn Terrier.

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BOOKS AND DVDS

- ❖ WDJ Training Editor Pat Miller is author of many books on force-free, pain-free, fear-free training. All of these, and her newest book, **How to Foster Dogs: From Homeless to Homeward Bound**, are available from dogwise.com and wholedogjournal.com

HOLISTIC VETERINARIANS

- ❖ **American Holistic Veterinary Medical Association** (AHVMA). PO Box 630, Abingdon, MD 21009. Send a self-addressed, stamped envelope for a list of holistic veterinarians in your area, or search ahvma.org/find-a-holistic-veterinarian/



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WDJ's Training Editor says two new buzzwords – choice and empowerment – are worth exploring with your dog.

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What should puppies eat before and after weaning, and for their first year? And how much?