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The Results Are In

Pets are healthy for us

A poll from the University of Michigan Institute for Healthcare Policy and Innovation shows that one in six people put their animals' needs ahead of their own. This figure was closer to one in four among those with health issues.

In all, 55 percent of adults ages 50 to 80 have at least one pet. Around 75 percent say animals reduce stress and give them a sense of purpose, and 18 percent say their pet strains their budget.

Among dog owners, 78 percent say a dog helps them be physically active. Of those who reported fair/poor health, more than 70 percent say their pet helps them cope with physical or emotional symptoms and 46 percent say their pets help take their mind off of pain.

"Helping older adults find low-cost ways to support pet ownership while not sacrificing other important relationships and priorities is an investment in overall mental and physical health," says Cathleen Connell, Ph.D., a professor at the U-M School of Public Health.

Michigan Medicine - University of Michigan. "Poll: Pets help older adults cope with health issues, get active and connect with others: For some, time commitment, cost, and allergies stand in the way of pet ownership." ScienceDaily.



Lean Dogs Live Longer

Study looked at over 57,000 dogs over 20 years

A retrospective study reported in the January 2019 *Journal of Veterinary Internal Medicine* makes a strong argument for keeping dogs trim and fit. Researchers at the University of Liverpool in Great Britain looked at over 57,000 middle-age spayed/neutered dogs from 900 American veterinary hospitals.

Study dogs were 5.5 to 9.5 years of age at the start. The dogs' regular veterinarians classified them as normal or overweight and researchers predicted longevity using risk and statistical evaluations. Factors like the higher risk of arthritis in heavy dogs and less chance of diseases like diabetes in normal dogs were used. Lifetime predictions ranged

from five months longer on average for male German Shepherd Dogs to 2 ½ years longer for male Yorkshire Terriers.

Limitations of the study include that various veterinarians categorized the dogs, possibly using differing criteria. In addition, dogs were classified on their weight in middle age. Any effects of being overweight as a young dog weren't considered. During the 20-year span of the study, refinements were made

in classifying body condition scores for dogs, so there could be variation from that adjustment.

Still, the fact remains that for every breed, dogs of normal body weight had longer, or were predicted to have longer, lives than overweight dogs. ■



img004881 | Deposit Photos

Sleepovers Reduce Stress in Shelter Dogs

Reduced cortisol levels and increased rest were noted

The Arizona State University's Canine Science Collaboratory research team looked at how sleepovers, or short-term foster care, impact the stress response and rest patterns of shelter dogs. The study, published in *PeerJ*, was conducted in collaboration with shelters in Arizona, Utah, Texas, Montana, and Georgia.

The research team tracked stress by measuring the stress hormone cortisol before, during, and after sleepovers. Even though the five participating shelters were very different—some care for 600 dogs a year and others more than 6,000—the cortisol levels for all the dogs decreased during a sleepover. When the dogs returned to the shelter, their cortisol levels were the same as before.

The researchers believe sleepovers were like a weekend away from work: They provided a short break from the stress of living in a shelter. Dogs who live in homes sleep approximately 14 hours each day, while dogs in shelters only sleep just under 11 hours each day.

To understand the impact of short-term foster care on the rest patterns of shelter dogs, the dogs wore an activity-tracking collar during the study. The longest rest period was during the sleepover period, but even after returning to the shelter, the dogs rested longer than before, say the researchers. ■

Gunter, L.M. et al. Evaluating the effects of a temporary fostering program on shelter dog welfare. *PeerJ*, 2019; 7: e6620
DOI: 10.7717/peerj.6620. Science Daily.



INSIDE THIS ISSUE

Page

Preliminary Study: Mercury Not a Risk in Foods.....	2
Reappearance of Distemper Strain.....	2
Dental Sprays May Help.....	3
The Battle Against Fleas and Ticks.....	4
Make Weight Loss Happen.....	6
Wolves More Prosocial Than Dogs.....	8
Dog Breeds and Barking Propensity.....	8
Happening Now.....	8

Preliminary Study: Mercury Not a Risk in Foods

Study looked at methylmercury levels in 24 dog diets

Researchers at the University of California, Davis, looked at levels of methylmercury in a small sampling of commercial dog foods. Of the 24 diets tested, only three were positive for low concentrations of total mercury, and only one of those contained detectable methylmercury.

Methylmercury is a very poisonous form of mercury that forms when bacteria react with mercury in water, soil, or plants, according to MedLinePlus.gov. "The concentrations detected are unlikely to pose a risk to healthy adult dogs," says author Rae Sires, a nutrition resident at the UC Davis Veterinary Medical Teaching Hospital.

Excess mercury exposure is a health hazard for people and animals. Depending on the method of exposure (skin contact, ingestion, inhalation), exposure can lead to respiratory and gastrointestinal disease, kidney injury, impacted fetal development, and neurologic issues. While previous studies have measured total mercury in commercial pet foods, additional testing for methylmercury had not been done.

"That is the form where we worry about bioaccumulation or the ability to become more concentrated in animal tissues as it moves through the food chain," says Sires. "We know there is some level of total mercury in commercial dog foods based on recent studies, but we didn't yet know whether it is cause for concern."

Because methylmercury is known for its presence in aquatic species, the researchers evaluated diets containing fish (mostly salmon) and control samples, which didn't have fish-based ingredients. Surprisingly, Sires says they found two of the three positive samples among the non-fish diets, suggesting that common sources of mercury in pet foods may not originate from seafood.

Additional testing is needed. "We need more data to determine where the total mercury detected in dog foods is coming from, but our study doesn't support avoiding fish or salmon-based diets," Sires says. ■

Sires, RA, et al. Determination of Total Mercury and Methylmercury Concentrations in Commercial Canine Diets. Topics in Companion Animal Medicine, 2019; 35: 6 DOI: 10.1053/j.tcam.2019.02.002. Science Daily.



Reappearance of Distemper Strain

Last documented case was in 2004

A distinct strain of canine distemper virus has been identified in wild animals in New Hampshire and Vermont, according to pathologists with the New Hampshire Veterinary Diagnostic Lab. This strain is in addition to the Asia-1 strain found in Canada, which we reported on in June 2019. Unlike the Asia-1, this distemper strain has not yet been reported in a dog. The new strain of canine distemper virus was identified by UNH pathologists in collaboration with Cornell University, University of Georgia, Northeast Wildlife Disease Cooperative, N.H. Fish and Game, and Vermont Fish and Game.

"A distinct strain of canine distemper virus is circulating in multiple wildlife species in two contiguous states in Northern New England," says David Needle, senior veterinary pathologist. "This strain is significantly distinct from the vaccine strains. A member of genus *Morbillivirus* that includes measles, canine distemper virus is highly contagious and causes severe disease in infected animals."

Over the course of one year, the virus was found in three fishers, two gray foxes, one skunk, one raccoon, and one mink. The last identification of this strain of distemper was in a single raccoon in Rhode Island in 2004. ■

Needle, David B et al. Infection of eight mesocarnivores in New Hampshire and Vermont with a distinct clade of canine distemper virus in 2016–2017. Journal of Veterinary Diagnostic Investigation, 2019; 104063871984751 DOI: 10.1177/1040638719847510. Science Daily.



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Dental Sprays May Help

But it doesn't eliminate the task of brushing teeth

Few dog owners don't know they should brush their dogs' teeth. Daily is best; weekly is acceptable. Problem is, many dogs resist it. It isn't easy to do, either, which makes advertisements about dental sprays very appealing.

Most dental products, including dental sprays, target plaque formation to keep your dog's mouth healthy. That's good because plaque is bad. The basic progression of periodontal disease is that the bacterial film called plaque forms on the teeth, and over time, layers of plaque harden into calculus (tartar). Plaque is transparent and easy to remove, while calculus is firmly attached to the teeth.

What Are They?

Dental sprays claim to prevent and/or break down plaque buildup. Most products do not need to be sprayed onto the teeth, as they will mix with the dog's saliva and be moved around the mouth as the dog licks and swallows.

Instructions should be followed closely. Some products have different dosages based on the size of the dog, while others have different frequency protocols depending on the condition of the dog's teeth. As with any product, you are more likely to achieve positive results if you use it consistently.

Use with Brushing

Lindsey Schneider, DVM, Dentistry and Oral Surgery Resident at the Cornell University Hospital for Animals, says, "Daily tooth brushing is the most effective way of maintaining our pets' oral health and minimizing the progression of periodontal disease, and other home care strategies (such as dental chews, water additives, sprays, etc.) work best when used in conjunction with tooth brushing."

Many dental sprays tout that brushing is not necessary, but combining the two may be beneficial. "I think it would be fine to use the spray at the same time as tooth brushing (either immediately before or after), but I would refer to the manufacturer instructions for their recommendation," says Dr. Schneider.

Choosing a Product

"When discussing oral home care with clients, I refer them to the Veterinary Oral Health Council's website, vohc.org,



Plaque can be brushed away, while tartar will require a dentist appointment.

which contains a list of products that have been awarded the VOHC Seal of Acceptance," says Dr. Schneider. "These products are awarded the seal only if they meet pre-set standards of plaque and calculus control in clinical trials. However, the results must be considered with a healthy dose of skepticism, as the trials are typically funded by the company selling the product." The Essential HealthyMouth anti-plaque oral spray is the only oral spray on the list. At healthymouth.com, it's listed at \$56.67 for eight ounces.

Even with companies funding their own studies, few studies have evaluated the effectiveness of various substances for controlling plaque and calculus in pets. Most of the ingredients used in pet dental products are chosen based on studies in humans. While some may cross over and have beneficial effects for dogs too, it is important to remember that dogs and humans are not biologically the same and may not respond in the same way.

Read the ingredients labels carefully. One of the few ingredients that has scientific backing for canine dental benefits is chlorhexidine. Chlorhexidine has antimicrobial properties that help to decrease the bacteria in your dog's mouth and disrupt the plaque formation process. It is most commonly used as a rinse in conjunction with a professional dental cleaning, but can be found in home care products as well.

"One ingredient I recommend avoiding is xylitol, a sugar alcohol that can cause life-threatening hypoglycemia in pets," says Dr. Schneider. "The amount

of xylitol in dental products is low enough that it shouldn't cause problems, but accidental overdosing is theoretically possible." She notes that menthol, eugenol, and thymol, commonly found in dental hygiene products for humans, can taste bad to dogs.

Bottom Line

There isn't sufficient scientific data to support the effectiveness of dental sprays, but a carefully chosen dental spray product is unlikely to do harm and may help. Dr. Schneider says, "Ultimately, all home care products are most effective when used as part of an overall dental care program that begins with a veterinarian examination and professional treatment." ■

What You Should Know

How to evaluate dental health

Healthy mouth:

- ▶ White teeth with minimal staining
- ▶ Pink, moist gums

Early periodontitis:

- ▶ Calculus (tartar) buildup on the sides of larger teeth
- ▶ Red along the gumline
- ▶ Possibly bad breath

Advanced periodontal disease:

- ▶ Stained teeth
- ▶ Thick layers of calculus on the teeth
- ▶ Angry red gums
- ▶ Bleeding gums
- ▶ Gum recession, exposing tooth roots
- ▶ Loose teeth
- ▶ Missing teeth

If your dog's teeth are in the first category, you want to keep them that way. The second category indicates a need for more help in the dental health department. If your dog is in the third category, she needs a professional cleaning to get her mouth back under control.

The Battle Against Fleas and Ticks

Choose a brand easy to use and safe for your dog

With so many brands on the market, it can be hard to decide which flea and tick product to use. Topical and oral products each have different mechanisms of action, duration, and time before they become effective. Cost, ease and frequency of application, lifestyle, and the parasiticide's spectrum are important considerations.

Many, but not all, modern parasiticide medications are broad-spectrum, which means they may be able to prevent against heartworms, hookworms, roundworms, whipworms, and tapeworms, as well as ectoparasites such as fleas and ticks. Some can treat mites and lice, as well. Other products only treat a single species of pest. Reading labels is vital.

Flea and Tick Topicals

Most topical preventives work by absorption into the skin rather than



the blood. Frontline Plus, Advantage II, and K9 Advantix II are widely available as over-the-counter flea and tick preventives. The liquid is applied to the skin at the base of the neck, but you must part the hair so as much of the product as possible is applied directly to the skin. This is critical for efficacy.

As it is absorbed, the medication is stored in the oil glands or fat layer and "self-distributes" over the course of a month. When a flea or tick bites the dog, it consumes chemicals and dies. Since these topicals rely on distribution through the skin, full effectiveness may be delayed by as much as 48 hours.

Topicals are usually distributed through the skin and do not protect against internal parasites. Revolution, however, is absorbed into the bloodstream, so it can mimic the behavior of the oral medications. Available only by prescription, Revolution protects against heartworms, as well as fleas and ticks.

Advantage Multi is a newer product

that also undergoes blood absorption after topical application. It protects against heartworms, fleas, hookworms, roundworms, and whipworms, as well as the Demodex mite.

In recent years, there have been scattered reports of failure with the older topical treatments, but it's difficult to know why. Improper administration, the development of parasite resistance, and bathing the dog too soon after application are all suspected factors.

Flea and Tick Collars

While there are many flea and tick collars, Seresto is commonly recommended by veterinarians. Released in 2013, this medication-impregnated collar can last up to eight months. The collar is made from a polymer that holds two different medications to kill fleas and ticks. These are diffused over the body on the skin's surface and hair coat. Because Seresto doesn't protect against internal parasites, it should be used in conjunction with another product.

Seresto can be used with your dog's normal collar, and it does not have to be removed if the dog swims or is bathed.

The downsides to the collar are the risks that it will be lost and need to be replaced or another dog might chew it off your pet. You do not need a prescription to purchase Seresto.

Oral Medications

Many veterinarians switched to predominantly prescribing oral medications because they are simpler to use. Most of the orals are also flavored chews. The increased palatability makes administration easier in picky dogs.

Oral preventatives work by absorption into the bloodstream. Once a pill is given, metabolism occurs within a few hours. Protection occurs soon after administration, usually within four to six hours. A parasite bites, ingests a blood meal, and dies.

What You Should Know

Discuss the products you're considering with your veterinarian. Some products are less effective in certain geographic areas, and your veterinarian may be aware.

Read product labels to determine exactly what parasites the product kills and/or repels against.

Watch for waiting periods before your dog can swim or be bathed. Read label instructions carefully. If you wash it off before it's absorbed, it won't work.

Winter doesn't help. While fleas and ticks thrive in warm weather, they're still active when it's cold, even at below-freezing temperatures (fleas are more susceptible to freezing weather, but ticks do OK in it). This makes year-round protection for your dog important.

EPA and FDA. Flea and tick products for pets are regulated by either the Food and Drug Administration (drugs) or the Environmental Protection Agency (pesticides).

Read the Labels for Warnings

Take care with isoxazoline drugs. In late 2018, the U.S. Food and Drug Administration (FDA) warned pet owners that the products using drugs in the isoxazoline class of medicines, such as fluralaner and lotilaner, may be linked to neurologic adverse events in some dogs, including muscle tremors, ataxia, and seizures. They did not pull the products from the market. Instead, they updated label requirements due to the potential for these adverse neurologic events, so veterinarians and dog owners are aware and can make a more informed decision on whether the drug is appropriate for individual dogs (based on medical history). See our December 2018 and January 2019 issues for additional information.



If you've already seen fleas, start with a bath with a canine flea shampoo.

Currently, the market is dominated by the isoxazolines (see sidebar): Bravecto, Nexgard, Simparica, and Credelio. They have excellent activity against fleas and ticks. There also are other, older oral drugs with excellent efficacy. Most oral products need a prescription.

Fido's Choice

When choosing whether to use topical or oral medication, consider your lifestyle. For instance, in a house with children, topicals (including collars) might not be the best choice. While these medications are safe and used at low doses to kill parasites, exposure to humans should be minimized. In addition, some canine topicals such as K9 Advantix II have medications that can have life-threatening effects on felines, so you must

If They've Invaded

Ridding the environment of fleas is critical to your fight:

- ▶ Give the dog a flea shampoo bath that kills fleas or use Capstar, which is an over-the-counter pill that kills all fleas on your dog within 24 hours
- ▶ Thoroughly vacuum upholstery, mattresses, and carpets; throw away the vacuum bag
- ▶ Wash all bedding and other washables in hot water and dry on high heat
- ▶ Treat all the pets in the house with a species-specific flea-control product
- ▶ Rid the outside of fleas, larva, and eggs using an outdoor product

keep cats away from the K9 Advantix II application site for 24 hours.

Remember that oral products cannot repel fleas and ticks and not all topicals repel either, which means the flea or tick will remain on your dog until it bites and dies. This means tick inspection will remain an important part of your post-walk routine. Although the tick will die once it bites your dog, you don't want it to jump off the dog and onto you.

Parasite prevention is important with a mostly indoor dog, too. Parasites can come in on the shoes and clothing of humans in the house, dogs can be exposed in the yard within minutes, and mosquitoes are often found indoors. Since the overall cost of parasiticides is low and so many safe products are available, almost all dogs should be kept on year-round preventatives.

Finally, read and follow label instructions on the product. If you have

a question or a concern, consult your veterinarian or the manufacturer of the product you're considering using or currently using. ■

Report Reactions

When you start using a product, if you see any reactions, call your veterinarian.

- ▶ Vomiting and/or diarrhea
- ▶ Anxious attitude
- ▶ Itching and/or red skin
- ▶ Lack of appetite
- ▶ Depression
- ▶ Excessive drooling
- ▶ Tremors, seizure

Finding the Right Brand

The Companion Animal Parasite Council lists the brands in this chart as safe and highly effective, although other products are available. Our marks are for killing fleas, ticks, and larvae/eggs. Check package labels if you need it to repel.

Brand	Drug	Application	Fleas	Ticks	Larvae and/or eggs
Activyl	Indoxacarb	monthly topical spot-on	x	x	x
Advantage II	Imidacloprid	monthly topical spot-on	x		x
Bravecto	Fluralaner	every 3 months oral	x	x	
Capstar	Nitenpyram	daily or as-needed oral	x		
Comfortis	Spinosad	monthly oral	x		
Effipro Plus	Fipronil, pyriproxyfen	monthly topical spot-on	x		x
Effitix Plus	Fipronil, permethrin, pyriproxyfen	monthly topical spot-on	x	x	x
Frontline	Fipronil	monthly topical spot-on or spray	x		
K9 Advantix II	Imidacloprid, permethrin	monthly topical spot-on	x	x	x
Nexgard	Afoxolaner	monthly oral	x	x	x
Revolution	Selamectin	monthly topical spot-on	x	x	
Seresto	Synthetic pyrethroids (flumethrin, imidacloprid)	8-month collar	x	x	x
Simparica	Sarolaner	monthly oral	x	x	
Trifexis	Spinosad	monthly oral	x		
Vectra 3D	Dinotefuran and permethrin	monthly topical spot-on	x	x	x

Make Weight Loss Happen

You need to dole out some tough love

Obesity in humans is on the rise, increasing our risk of diabetes, heart disease, cancer, joint problems, exercise intolerance, and more. Our dogs are in the same boat. The Association for Pet Obesity Prevention (petobesityprevention.org) states that, in 2018, 56 percent of dogs in the United States were overweight or obese. That's staggering. One out of every two dogs is too heavy. It's even more horrifying when you put it into perspective as the Pet Obesity Prevention site does: "Did you realize a 12-pound Yorkie is the same as an average female weighing 218?"

Fortunately, long gone are the days of "starvation" diets. They don't work, and they can be dangerous. The best way to help your pooch lose weight is to implement a diet and exercise plan to help her lose weight gradually.

Ideal Weight

A dog at her ideal weight has palpable ribs and hip bones with a thin layer of fat



A daily walk is good for body and soul.

over them. Her waist—the area just in front of the rear legs—should be visible from both the side and above (some breeds may vary slightly in appearance due to their conformation).

John Loftus, PhD, DVM, DACVIM, Associate Professor Section of Small Animal Medicine at Cornell, explains that there are several steps to estimating a dog's ideal weight: "Body condition charts help start the process. Once we've figured out how overweight a pet is based on body condition, we can then convert that into percentage overweight. I generally recommend the nine point scale. The Pet Nutrition Alliance calculator can then calculate ideal weights based on a current weight and body condition." Looking up your dog's breed (or likely breed if a mixed breed dog) can give you a ballpark idea of how much she should weigh.

"I think before any pet owner embarks on a weight-loss plan, they should consult with a veterinarian," says Dr. Loftus.

If your dog is obese, your veterinarian may start by setting a target weight that is not her ideal weight, but still less than her current weight. This promotes gradual weight loss, allows for periodic reassessments of the weight-loss plan

once the target weight has been reached, and promotes success, as you and your dog achieve each target weight.

Slow But Steady

The ideal rate of weight loss for dogs is 1 to 2 percent of their body weight per week. If Fluffy (see calories sidebar) weighs 103 pounds, this means losing one to two pounds a week initially. Smaller dogs should lose smaller amounts per week (for example, a 50-pound dog should only lose a half to one pound per week). Rapid weight loss can cause nutritional deficiencies, behavioral issues (dogs get hangry too), and serious illness.

When adjusting your dog's food, start by evaluating how much she currently eats, and compare it to the serving recommendations on your dog-food bag for her ideal weight (or better yet, the RER you calculated out). Determining how much to cut your dog's rations initially is something of an art. Dr. Loftus says, "This depends on a number of factors, such as how overweight a pet is, what the current diet is, how much they are being fed, and what proportion of that is from treats. For example, a mildly overweight dog that is eating greater than 10 percent of its calories from treats may just need the treats reduced. For some other dogs that are mildly overweight, a reduction of 10 percent may be a good starting point. For pets that are obese, a more substantial reduction is often required, and I generally recommend guidance from a veterinarian."

It may be necessary to change your dog's food to get weight off and keep it off. "In many of these cases, a therapeutic weight-loss diet will help the dogs maintain muscle and feel more full while they're on their diet," says Dr. Loftus. "There are a number of veterinary therapeutic prescription weight-loss formulas on the market, and I consider the patient and the pet owner when I choose a specific one. There are also some lite over-the-counter diets that work well for some pets. Some dogs only need to be on these special diets for the weight-loss period. In other cases, there

What You Should Do

- ▶ Feed small, frequent meals to help prevent hunger between meals.
- ▶ Set aside some of your dog's regular food to use as treats.
- ▶ Use other activities to distract her from begging for food. For example, if she starts getting fussy an hour before dinner, take her for a long walk. This will give her exercise and also distract her from begging. You can also train her, play with her, or groom her.
- ▶ Buy a dog puzzle toy to help make meals take longer and give your dog some physical and mental exercise.
- ▶ Feed all pets separately to prevent thievery. Crates are your friend!
- ▶ Use low-calorie treats, such as carrots, broccoli, or green beans.
- ▶ Don't forget exercise! A daily brisk walk (half hour or more) will help to burn calories.

Medical Causes of Weight Gain

Several systemic diseases can cause weight gain in dogs, including hypothyroidism, diabetes, and Cushing's disease. Regular veterinary exams and routine bloodwork will help to catch these problems as they develop. Some medications, including the steroid prednisone, also can cause weight gain. If your dog starts to gain weight after starting a new medication, discuss the best strategy with your vet.

are pets that do best on the weight-loss diet indefinitely.” Your veterinarian or a veterinary nutritionist can help you determine if you need to make a switch.

Weight Checks

Regular weight checks are necessary to help you track your dog's weight and make sure that she is not losing weight too fast or too slow. Most veterinary clinics have a scale so you can drop in with your dog every week or two for a weight check. If your dog is losing weight too quickly, you can add a little food back in her rations. If she remains stable or is starting to gain weight, it is time for another decrease.

You can do weight checks at home, too. Pick up your dog and weigh yourself while you are holding her. Then weigh yourself alone and subtract that from the first number to get your dog's weight.

How You Feed

Consider how your dog is fed. Free-feeding, with a full bowl of food available at all times, is a poor strategy for weight loss because it prevents you from tracking her calorie intake.

Instead, at each meal, offer her portion and give her five to 10 minutes to eat it. If she does not, pick up the bowl and try again at the next meal time. Most dogs adjust to this schedule quickly. Note: If your dog is on medications that require food and/or has a condition such as diabetes, consult with your veterinarian about the best feeding schedule to prevent an upset stomach or insulin overdoses.

Be sure you consider treats! Treats have calories, too, and should make up at most 10 percent of your dog's daily calories. Decrease the amount of treats given overall (for example, instead of a whole biscuit at bedtime, break one in half) and try lower-calorie snacks.

“Many dogs that are overweight will consider just about anything a treat, so they usually love green beans!” says Dr. Loftus. “Fresh or frozen green beans are OK, avoid canned as they often have a lot of salt.” Baby carrots and broccoli are two other healthy options, and you also can set aside some of your dog's regular food to use as treats throughout the day.

If you need more help formulating your dog's ideal diet, calculating calories, or devising a safe diet plan, you can talk with your own veterinarian about a referral to the Loftus Nutritional Services at the New York State College of

Calculating Calories

Many of us aren't keen on counting calories, and we've provided ways to help your dog lose weight without this extra effort. But, if you're game, calories are definitely the way to go. Here's how to do it:

Resting Energy Requirement, or RER, is the number of calories that your dog needs each day to maintain her weight at rest. Large dogs will have a higher RER than small dogs, because larger bodies require more food to work properly. RER can be calculated using this formula:

$$30 \times (\text{body weight in kilograms}) + 70 = \text{RER in kcal/day}$$

To get your dog's weight in kilograms, divide her weight in pounds by 2.2. For example, a 44-pound dog weighs 20 kilograms. $20 \times 30 + 70 = 670$ kcal. That 44-pound dog needs 670 Calories a day to maintain her weight if all she is doing is lounging around.

While activity level and life stage affect your dog's energy needs, for the purpose of dieting to achieve weight loss, RER is the number you need to know.

And the RER you need to know is the one for your dog's ideal weight, not her current weight. Feeding for her ideal weight limits her calories to just what she needs to live her best life.

Your dog food bag should have calorie info somewhere on it. Look for “kcal/cup” or call the manufacturer and ask. That number tells you how many Calories are in one cup (eight ounces) of that food. Divide the RER for your dog by that number to get how many cups your dog should eat a day, and then divide again by the number of meals you feed to determine how much to feed at each meal.

Confusing? Let's do some math together:

Fluffy the Lab mix just tipped the scales at 103 pounds, and her vet says she is 30 pounds overweight. This puts her ideal weight at about 73 pounds, or 33.2 kilograms.

$$33.2 \times 30 + 70 = 1,066. \text{ Fluffy's ideal weight RER is 1,066 kcal per day.}$$

Fluffy is currently eating Purina Pro Plan Savor, lamb and rice formula, which has 389 kcal/cup.

$$1066 / 389 = 2.74. \text{ Fluffy should be eating } 2 \frac{3}{4} \text{ cups a day.}$$

Fluffy gets two meals a day, so at each meal she should be getting 1.4 cups, or a little less than 1 ½ cups.

If all this math is making you dizzy, check out the resources sidebar below for an online calorie calculator. Note: 1000 calories = 1 kcal = 1 Calorie. That capital C makes a big difference! Most dog foods list calorie content using the kcal unit.

Resources for Canine Weight-Loss Help

Dr. Loftus recommends these resources for healthy weight management:

- ▶ Pet Obesity Prevention: petobesityprevention.org
- ▶ Pet Nutrition Alliance calorie calculator: <https://www.petnutritionalliance.org/dog.php>
- ▶ Body Condition Scores: <http://bit.ly/dogbodyscore>
- ▶ Cornell Nutrition Service: www.loftuslab.vet.cornell.edu/nutrition-service.html

Wolves More Prosocial Than Dogs

Study shows helping pack members is ancestral

In a touchscreen-based task that allowed individual animals to provide food to others, wolves behaved more prosocially toward their fellow pack members than pack dogs, according to a study at the Wolf Science Center in Vienna, Austria.

Prosocial behaviors, which are actions intended to benefit others, are important for cooperation. Some scientists hypothesize that dog domestication has selected for cooperative tendencies, suggesting that dogs should be more prosocial than their closest living relatives: wolves.

Competing hypotheses hold that prosocial behaviors observed in pet dogs arose from ancestral traits, and since wolves rely heavily on cooperation, they should be more prosocial than dogs.

To explore these differing hypotheses, researchers compared prosocial tendencies between nine wolves and six dogs raised and living in packs. They trained each animal to use its nose to press a "giving" symbol on a touchscreen in order to deliver food to an adjacent enclosure, where another animal of the same species may or may not be present.

Over multiple trials, the wolves opted to deliver significantly more food to the adjacent enclosure when it held a member of their own pack than when the same pack member was nearby but in a different enclosure. When the task was



Wolves may be more prosocial than dogs.

repeated with two wolves from different packs, there was no difference in the amount of food delivered to the adjacent enclosure when it was occupied by the other wolf than when the other wolf was merely nearby.

In contrast, the dogs delivered no more food to the adjacent enclosure when it was occupied by a pack member

than when the pack member was merely nearby. These findings suggest that wolves are more prosocial than dogs raised in similar pack conditions, supporting hypotheses that prosocial behaviors seen in pet dogs can be traced to ancestral traits.

The authors note that results of prosocial experiments can be sensitive to subtle differences in methods, so they advise caution in applying their work with pack dogs to pet dogs. Previous studies have revealed prosocial tendencies in pet dogs, and the authors suggest those tendencies could be the result of training or encouragement in pets. Additional research could directly address prosocial differences between pet dogs and pack dogs.

"This study shows that domestication did not necessarily make dogs more prosocial. Rather, it seems that tolerance and generosity toward group members help to produce high levels of cooperation, as seen in wolves," says lead author Rachel Dales.

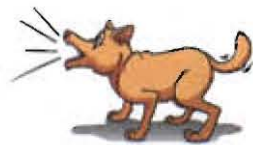
Dale, R. et al. Wolves, but not dogs, are prosocial in a touch screen task. *PLOS ONE*, 2019; 14 (5): e0215444 DOI: 10.1371/journal.pone.0215444. *Science Daily*.

Dog Breeds and Barking Propensity

If a quieter dog is important to you, Dr. Houpt has breed suggestions

There are big differences in the amount of excessive barking among the various breeds of dogs, says Katherine Houpt,

DVM, PhD. Terriers—Cairns, Westies, Yorkies, Fox terriers—are most likely to bark excessively, but so too are Beagles. "This information is found in a book by Ben and Lynette Hart, called *The Perfect Puppy (How to Choose Your Dog By Its Behavior)*," says Dr. Houpt. "In my clinical experience, though, Shelties are the worst offenders. When someone would call me and announce that they had a Sheltie, I would finish their sentence by saying, 'And he barks too much!' So, if barking really annoys you, you should avoid those breeds or—more importantly—you should not move next door to someone with those breeds. The dogs least likely to bark too much are the Rottweiler, Akita, and the Newfoundland. The retrievers (Golden, Chesapeake Bay, and Labrador) also are likely to be quiet," advises Dr. Houpt.



Do You Have a Behavior Concern?

Send your behavior questions to Cornell's renowned behavior expert Katherine Houpt, VMD, Ph.D., shown here with Yuki, her West Highland White Terrier. Email to dogwatcheditor@cornell.edu.



Coming Up ...

- ▶ Diarrhea - Worry or Wait?
- ▶ When and How to Use a Muzzle
- ▶ When Kennel Cough Gets Worse
- ▶ Dealing With Hot Spots

HAPPENING NOW...

Value of Produce - PetFoodIndustry.com says that Nielsen reported the top five fruits and vegetables found in U.S. pet foods as measured by 2018 value sales: carrots \$3.42 billion, beets \$1.85 billion, ancient grains \$1.80 billion, sweet potatoes \$1.07 billion, blueberries \$761 million.

First Canine Cancer Vaccine - On May 2, The University of Wisconsin-Madison administered the first general anti-cancer vaccine to a terrier. It is designed to arm the immune system to attack if it detects the start of any cancer cell. While hope for success is guarded, trials in mice were deemed successful.