

**FACT OR FICTION?**

We examine some of the misperceptions surrounding grain-free diets.

**MEET THE AUTHOR**

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Grain-Free Diets and Dilated Cardiomyopathy

Over the past 10 years, people have been focusing more on their pets' nutrition. Although a concern about nutrition sounds positive, people are often getting their information from nonveterinary personnel and/or from the internet. According to data from the U.S. Bureau of Labor and Statistics, the pet food market is on a growth trajectory; in 2017, \$31.1 billion was spent on pet food,¹ which includes growing niche markets such as grain-free diets.

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People tend to believe these are better for their pets, assuming these foods are more natural, carbohydrate-free, and less likely to result in health problems such as allergies, but this belief is not supported by evidence.²

To date, no credible evidence has shown that grain-free diets are better for companion animals, and no nutritional foundations support this claim. On the contrary, what has been found is a correlation between grain-free diets and cardiac disease. Heart disease is not uncommon in companion animals; the prevalence rate for dogs and cats is reportedly 10% to 15%, and even higher for certain breeds.

Frequently, the treatment of cardiac disease includes a nutritional component.³ However, the cause of some heart disease may also have a nutritional component. An increase in heart disease among dogs eating certain types of diets has been observed and is being investigated; certain types of diet may increase dogs' risk for heart disease (**FIGURE 1**). These diets are boutique, exotic-ingredient, and grain-free diets (referred to as BEG diets).³ Exotic ingredients include kangaroo, lentils, duck, peas, fava beans, tapioca, salmon, lamb, barley, bison, venison, and chickpeas.

Remember, as clients are investigating nutrition for their pets, they are also believing many of the circulating myths and misperceptions about pet food. Therefore, veterinary healthcare teams must educate clients about proper nutrition and the difference between nutrients and ingredients. This article focuses on the grain-free category of BEG diets.

MYTHS AND TRUTHS

Pet owners hear misinformation about grains in pet foods. Some of the most common misperceptions are the following:

- **Misperception: Whole grains are used as fillers in pet foods.**

Clarification: "Filler" implies that the ingredient has little or no nutritional value,^{2,4,5} but whole grains *do* contribute key nutrients, such as vitamins, minerals, and essential fatty acids.^{2,6} Various grain products also provide protein, and plant-based protein may be easier for animals to digest than some meat-based proteins. Most dogs and cats (~90%) can use and digest nutrients from grains typically found in pet foods.⁴⁻⁶

The variety of grain-free diets on the market means that products differ in nutritional profiles, varying not only in sources and amounts of carbohydrates but also protein, fat, and other nutrients.

- **Misperception: Grain-free pet foods are carbohydrate-free.**

Clarification: Grains are carbohydrates, and removing them from a diet does indeed remove a carbohydrate source. However, removing grain from a diet does not necessarily remove carbohydrates. Grain-free pet foods typically contain carbohydrates from other sources, such as sweet potatoes, which have a relatively high carbohydrate level (higher than corn). Some grain-free diets merely substitute grain with highly refined starches (e.g., potatoes, cassava) that may deliver fewer nutrients and less fiber than whole grains and are not considered cost-efficient.⁶ In other grain-free products, the grains are replaced with beans, peas, or lentils, which may provide carbohydrates but are not necessarily any better for pets than grains and may lead to gastrointestinal upset. Veterinary teams must remember that carbohydrates are an essential energy source, and constitute one of the 6 basic nutrients (i.e., water, protein, fat, carbohydrates, vitamins, minerals). The variety of grain-free diets on the market means that products differ in nutritional profiles, varying not only in sources and amounts of carbohydrates but also in protein, fat, and other nutrients. Grain-free diets lower in carbohydrates may contain a higher amount of fat and calories.

- **Misperception: Grains cause food allergies.**

Clarification: Food allergies and insensitivities are abnormal responses to a commonly fed food or ingredient.⁷ Allergies to food are uncommon in companion animals (i.e., <1% of skin disease, <10% of all allergies^{8,9}), and allergies to grains are even more uncommon. The few food allergy diagnoses probably result from the pet eating animal protein (e.g., chicken, beef, or dairy products).¹⁰ These allergies are more a reflection of the commonality of



ingredients in pet foods than an increased tendency for these ingredients to cause allergies.

● **Misperception: Grains cause gluten intolerance.**

Clarification: Celiac disease in humans is an inherited autoimmune condition associated with hypersensitivity to gluten proteins in wheat and related grains such as barley and rye. However, gluten intolerance is extremely rare in dogs and nonexistent in cats. Gastrointestinal signs from consuming gluten have been reported for only one inbred family of Irish setters.¹¹

DILATED CARDIOMYOPATHY

Dilated cardiomyopathy (DCM) is a disease of the heart muscle, characterized by heart enlargement resulting in poor cardiac function. Patients with DCM often have abnormal heart rhythms, may have

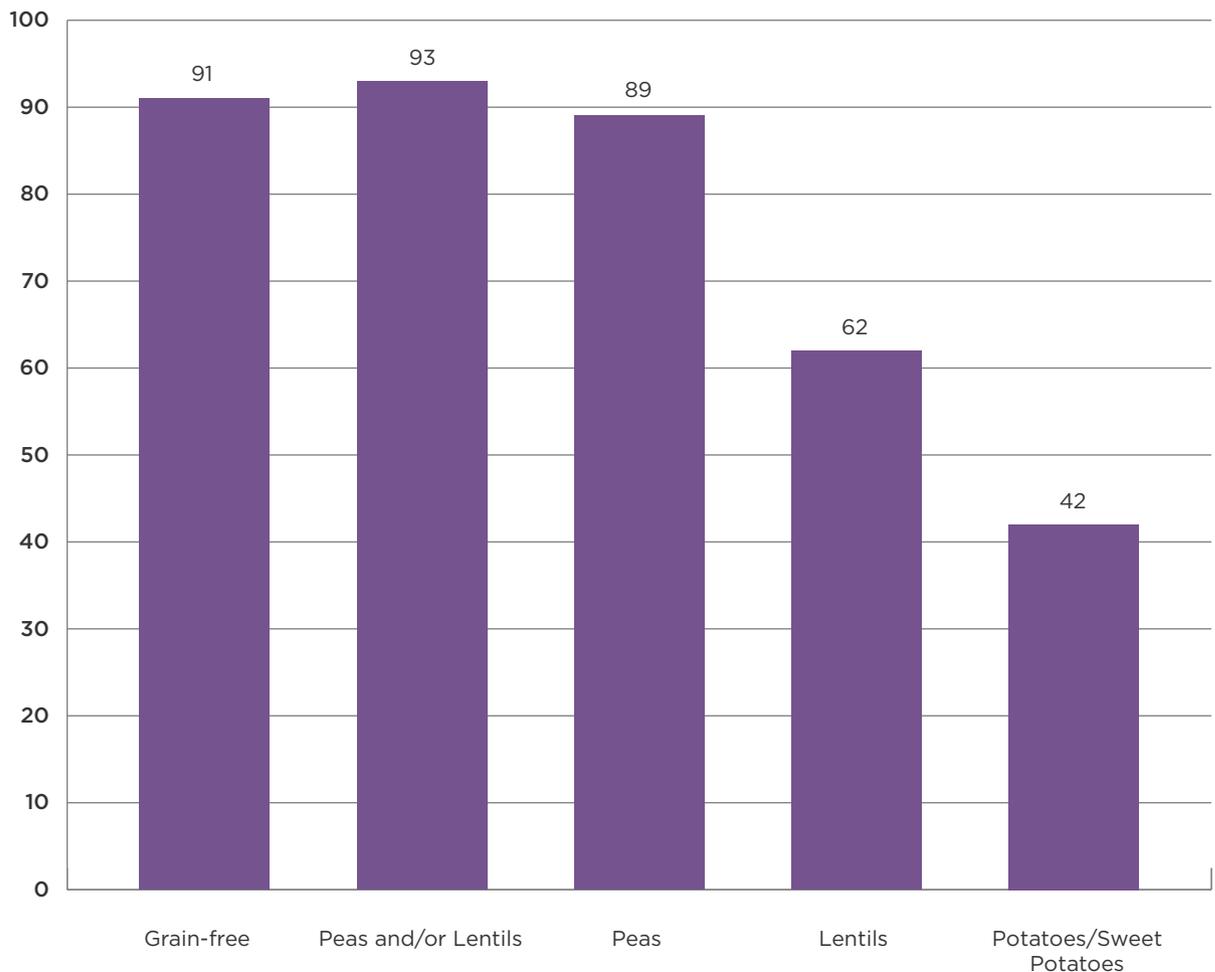
congestive heart failure, and sometimes even experience sudden death. Among dogs, DCM is typically diagnosed in large and giant breeds, for whom it is believed to have a genetic component.

THE DIET/DISEASE CONNECTION

Over the past several years, veterinary cardiologists have been reporting increased rates of DCM in dogs—in both the typically affected large and giant breeds as well as in atypically affected small breeds^{3,12} (FIGURE 2). It is thought that the disease is associated with eating BEG diets. Researchers have documented that both typically and atypically affected breeds were more likely to have been eating BEG diets (FIGURE 2).

This hypothesis is supported by improvements in the dogs' condition seen after diet change. The U.S. Food

FIGURE 1 DCM Cases: Ingredients or Characteristics of Reported Diets (%)
1/1/14–4/30/19



Source: [fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy](https://www.fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy)

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3. Share stories based on your own experience about how clients benefitted from pet health insurance.
4. If desired, submit claims on behalf of your client

Best Practices To Promote Pet Health Insurance

1. Keep it simple. Do not discuss specific plan details with your clients. Rather, endorse the concept of pet insurance, then refer clients to call the pet insurance provider with any questions about their insurance plan.
2. Ask the client who their pet insurance provider is on intake forms
3. See if clients need an extra invoice to submit a pet insurance claim
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*North American Pet Health Insurance Association (NAPHIA), Research Report 2016, "Driving Growth of Pet Health Insurance"

**Consumer Preferences for Pet Health Insurance, Mississippi State and AVMA internal data, 2018

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Helps your clients design a plan that fits their own budget and coverage needs	Exams are an important diagnostic tool	Our annual deductible helps maximize claim reimbursement

Feature	Feature	Feature
Coverage includes prescription food*, vitamins, supplements and dental disease	Our claim form does not require your signature	Claim reimbursement can be paid to the vet directly or to the pet owner

Benefit	Benefit	Benefit
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*Foods and vitamins prescribed for general diets or weight maintenance are not covered

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Start an Effective Team to Pet Owner Conversation
If engaging in an initial discussion, start with:

Ms. Jones, being unprepared for the health needs of your pet can be stressful and heartbreaking.

STATE THE SOLUTION

We recommend that our clients consider pet health insurance for their pet.

MAKE YOUR RECOMMENDATION

Ms. Jones, the customer service department for your preferred insurance provider can answer questions specific to you and your pet's needs.



and Drug Administration (FDA) Center for Veterinary Medicine, veterinary nutritionists, and veterinary cardiologists are investigating this issue.

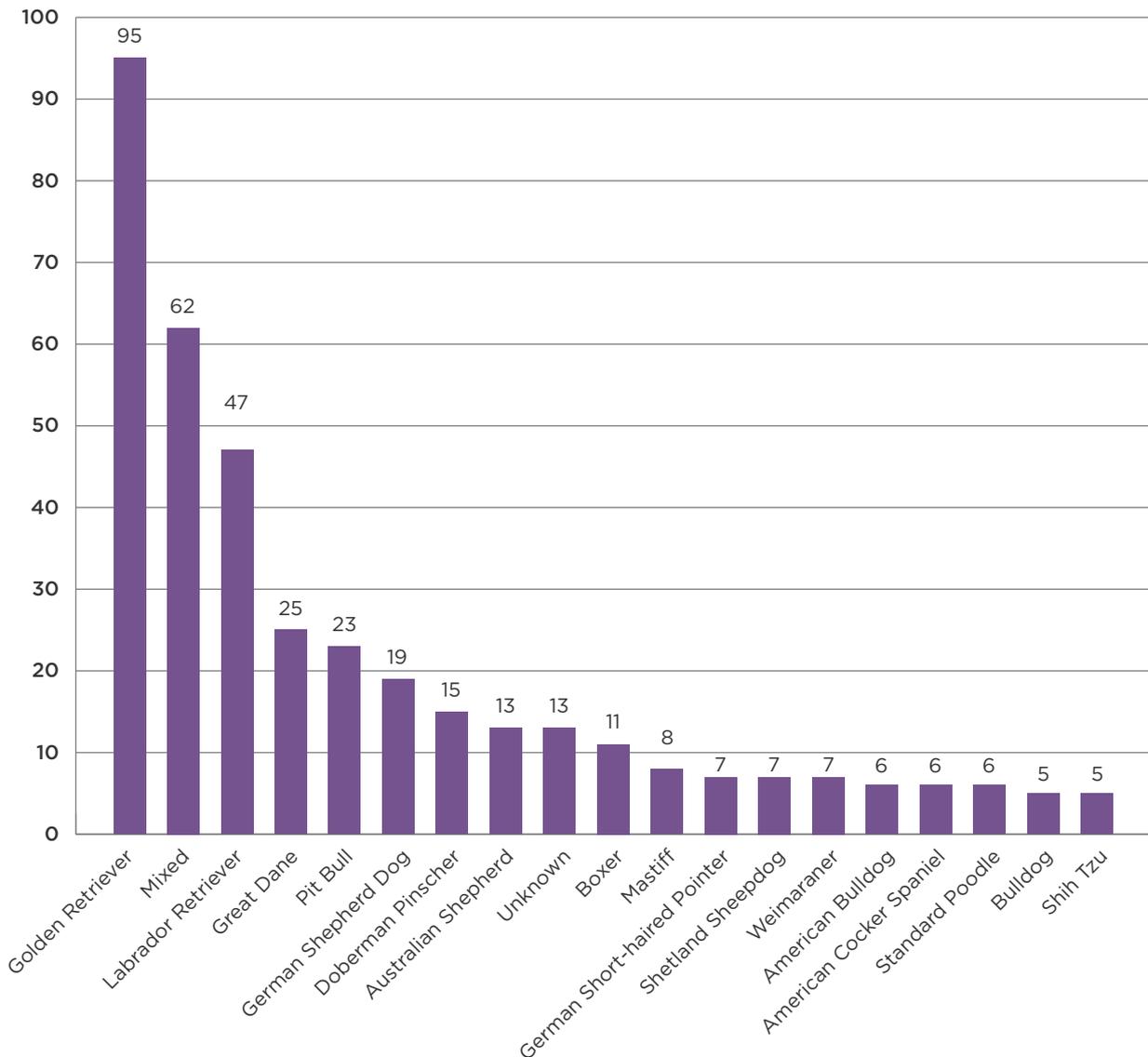
WHAT THE RESEARCH SAYS

So what is causing the increase in DCM? One of the first considerations was taurine deficiency. Historically, DCM was common among cats; in the late 1980s, the cause was found to be insufficient taurine in the diet, and with dietary taurine supplementation, DCM in cats could be reversed. This finding led to reformulations of taurine levels in the diet such that

reputable commercial cat foods now contain enough taurine to prevent DCM.¹³

In the 1990s, golden retrievers and cocker spaniels were found to be at risk for DCM caused by taurine deficiency; after taurine supplementation, DCM in cocker spaniels improved.¹⁴ Additional studies have since shown associations between taurine deficiency in dogs and dietary factors (e.g., lamb, rice bran, high-fiber diets, and very low-protein diets). Although the reasons for taurine deficiency in dogs are not completely understood, suggestions include dietary deficiency, reduced taurine production or reduced

FIGURE 2 DCM Cases: Breeds Most Frequently Reported to FDA



Source: [fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy](https://www.fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy)



bioavailability of taurine or its building blocks, increased losses of taurine in the feces, or altered metabolism of taurine in the body.^{3,12}

As mentioned earlier, higher rates of DCM are now being seen in golden retrievers and in some atypically affected dog breeds. Many affected dogs were eating BEG diets. Some dogs had low taurine levels and their DCM improved after taurine supplementation, but even some of those dogs that were not taurine deficient experienced DCM improvement after taurine supplementation and diet change.

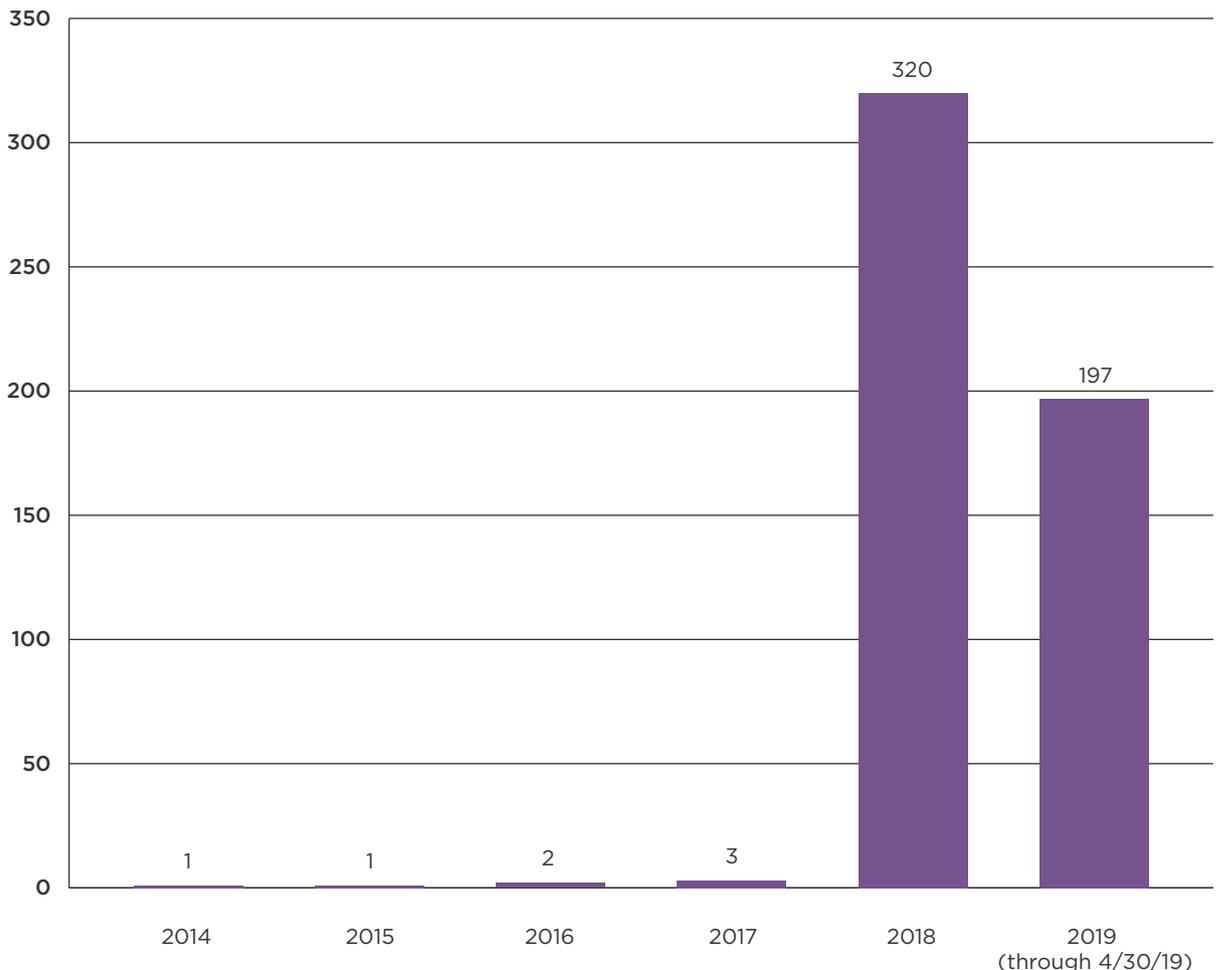
In June 2019, the FDA issued an update to its ongoing investigation of the potential connection between certain diets and DCM in dogs.¹⁵ The FDA continues to look at diets that list peas, lentils, other legume seeds, and potatoes among the first 10 ingredients on the label. The FDA update provides a list of pet food

brands most commonly named in DCM cases reported to the FDA. For the complete report, visit [fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy](https://www.fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy).

In addition, the FDA has received 524 reports of DCM from January 1, 2014, through April 30, 2019 (FIGURE 3). These DCM cases—515 dogs and 9 cats—were diagnosed by veterinarians, and some reports include more than 1 affected animal in the same house (TABLE 1).

Veterinary healthcare teams are asked to report potential cases to the FDA Center for Veterinary Medicine ([fda.gov/animal-veterinary](https://www.fda.gov/animal-veterinary)). These teams should also take in-depth nutritional histories and make a nutritional recommendation for every animal that comes to the hospital and for every visit. Clients

FIGURE 3 DCM Reports to FDA—By Year (Dogs & Cats)



Source: [fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy](https://www.fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy)



want to do what is right for their pet. It is heartbreaking to see clients who thought they were feeding their pet the best food be told that their pet has DCM and that it may be directly related to the food. Education and communication are extremely valuable when working with a client whose pet has a diagnosis of nutrition-related DCM.

ASSESS THE NUTRITIONAL HISTORY

Every animal brought to the hospital should be assessed to establish nutritional needs and feeding goals, which depend on the patient's physiology and/or disease condition. The role of the veterinary nurse is to ascertain patient history, score the patient's body condition, work with the veterinarian to determine proper nutritional recommendations, and communicate this information to the client. A nutritional history is crucial for all patients, especially when the client may be or has been looking for advice and has been feeding a BEG type of diet.

The first step in evaluating a patient and determining its nutritional status is to obtain a complete history, including species, signalment (i.e., age, breed, sex), reproductive status, activity level, and environment. Next, take a nutritional history to determine the quality and adequacy of the food being fed, the feeding protocol (e.g., whether the pet eats at designated mealtimes or free choice, the amount of food given, the family member responsible for feeding), and the type or types of food given. When evaluating a patient, the veterinary nurse should ask the client the following questions (**SEE ALSO THE NUTRITIONAL HISTORY QUESTIONNAIRE ON PAGE 20**):

- What brand and type of food do you feed your pet?
- Why is this brand and type important to you?
- What brand and type of snacks or treats do you give your pet?
- Do you give your pet any supplements? If so, what kind?

- Is your pet receiving any chewable medications? If so, what are they?
- What type of chew toys does your pet play with?
- What human foods does your pet consume?
- Does your pet have access to other sources of food?

The client should also be asked about their pet's access to foods, supplements, and medications and how much of each the pet consumes each day. They should also be asked whether the pet is being fed by more than 1 family member or receiving numerous treats throughout the day. All these factors, including why a specific food or dietary type (grain-free, vegetarian, etc.) is important to the client, play a role in determining what the pet eats.

All members of the healthcare team should be familiar with taking a nutritional history. Through this mechanism, the team can pinpoint a breakdown in client compliance (e.g., if more than 1 person in the household is feeding the pet, if the pet is getting more calories than recommended) and begin to establish a feeding protocol to ensure proper calorie consumption.

If a patient is found to be eating a BEG diet, the healthcare team should discuss the concerns associated with the diet, how it can affect the patient, and make a nutritional recommendation based on the findings of the nutritional history and the veterinarian's diagnosis.

CONCLUSION

The growing grain-free category of the expanding pet food market is perpetuating the misperception that grain is bad for pets. People increasingly consider their pet's diet to be as important as their own. Consequently, various human food trends have found their way into the pet food market, especially those believed to center on pets' wellness. Remember, grain-free diets offer no more health benefits than diets with grains, and each diet should be considered on the basis of the overall nutrient profile rather than individual ingredients. However, some clients adamantly believe that their pet should eat only

TABLE 1 Animal Numbers in DCM Reports Received Between January 1, 2014, and April 30, 2019

	NUMBER OF REPORTS	NUMBER OF ANIMALS AFFECTED	NUMBER OF DEATHS
Dogs	515	560	119
Cats	9	14	5

Source: [fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy](https://www.fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy)



Nutritional History Questionnaire

Date _____ Pet's name _____ Species _____

Breed _____ Date of Birth _____

Gender _____ Neutered/Spayed No Yes

1. Tell me about your pet's living environment. Indoor Outdoor Both

2. Tell me about your pet's activity level.
Plays/walks 3 times/day 1-2 times/day Never

3. Do you have other pets? No Yes
If yes, list here _____

4. Are pets fed separately? No Yes

5. Does your pet have access to other, unmonitored food sources? No Yes
If yes, please describe _____

6. Tell me about your pet's appetite. _____

7. Who feeds your pet? _____

8. Tell me about any changes that have been made to your pet's diet in the past 30 days. _____

Please list the brands and product names (if applicable) and amounts of ALL foods, treats, snacks, dental hygiene products, rawhides, and any other foods that your pet is currently eating.

Food/Treat	Form	Amount	How Often	Date Started

Tell me what supplements your pet receives. _____

What medications is your pet taking and how is each administered? _____

Tell me about the toys your pet enjoys. _____

Tell me about food or treats not formulated for pets that your pet receives. _____

Tell me what foods/treats are NOT tolerated by your pet. _____

If you are going on vacation and I am your pet sitter, tell me everything I need to do for your pet while you are gone.



grain-free food; for these clients, the veterinary team should follow and apply the World Small Animal Veterinary Association recommendations for selecting foods from the grain-free pet foods that are available (wsava.org/wsava/media/documents/committee_resources/global_nutrition_committee/english/selecting-the-best-food-for-your-pet.pdf). **TVN**

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Additional Resources

- Taurine + DCM: taurinedcm.org
- Petfoodology: vetnutrition.tufts.edu/2019/07/dcmupdate/
- FDA: [fda.gov/animal-veterinary/cvm-updates/fda-provides-third-status-report-investigation-potential-connection-between-certain-diets-and-cases](https://www.fda.gov/animal-veterinary/cvm-updates/fda-provides-third-status-report-investigation-potential-connection-between-certain-diets-and-cases)



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