

Nutrition Myths: Navigating the waters of misinformation

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Consumers face a plethora of information regarding their pet's diet from a variety of sources. It is advantageous for veterinary professions to understand what motivates pet food purchasing decisions before making recommendations. Many owners are making pet food choices because they believe it is in the best interest of their pet. In a survey of pet owners, 53% reported giving equal and 44% more priority to buying healthy food for their pets compared to themselves.¹ This same survey reported that health and nutrition were the most important pet food characteristic among cat and dog owners. Across a range of studies, common factors that influence pet food purchasing decisions range from the ingredients, quality, cost, company reputation, veterinary recommendation, and ease of purchasing.¹⁻³ Not surprisingly however, the majority of dog owners indicated that choosing the right pet food is the most difficult part of pet ownership and that their dog's nutrition is more confusing than their own.⁴

Fortunately, veterinary professionals remain an important source for nutritional information among pet owners.¹ This may not be the case however for some pet owners feeding non-traditional diets.⁵ A survey of pet owners found of those feeding a raw meat based diet, only 9% consulted with a veterinarian prior to feeding this type of diet and most did not trust veterinary advice in general or with respect to nutrition.⁶ A common nutrition myth is that providing an ancestral type diet, i.e. one that mimics that of wild animals such as a raw meat based diet, is nutritionally superior to conventional pet diets. The diet of wolves or wild cats are based on what is currently available to support survival and the ability to pass along their genes. The diet of our domesticated, primarily indoor, reproductively altered cats and dogs should not only support survival but optimize health and wellness for a long life. An evidence based nutritional strategy promotes our current knowledge for disease prevention and modification to promote overall wellbeing and longevity.

While dogs are members of the order Carnivora, their metabolism and nutritional needs approach those of omnivores. Domesticated dogs differ from wolves in that they are adapted to thrive on a starch rich diet. This is likely due to their scavenger like behavior as they have been integrated with human populations. Genes that play a role in starch digestion including pancreatic amylase (AMY2B), maltase-glucoamylase (MGAM), and the sodium/glucose cotransporter (SGLT1) demonstrate changes including expression and activity that favor starch digestion in the dog when compared to wolves.⁷ Cats, as true carnivores, are closer to their wild counterparts than dogs to wolves. Whole prey diets may be desired to mimic a wild-type diet but these types of diets may not provide optimal nutrition.^{8,9} Pet owners should be advised of possible nutritional deficiencies that may occur and consultation with a board certified veterinary nutritionist® or individual with similar training is recommended.

Fresh and minimally processed pet foods are growing in popularity among consumers and sometimes these are marketed with grand health claims that are not yet supported by science. Heat processing of pet foods can result in Maillard reactions (i.e., the non-enzymatic reaction between proteins and sugars responsible for the browning of foods through heating). This reaction influences the taste, smell and color of food which is important for the food industry in general. The formation of Maillard reaction products (MRPs) and advanced glycation end-products (AGEs) have become a concern however due to negative biologic effects and their influence the gut microbiota.^{10,11} A study found that dogs and cats had an average daily intake of one MRP 122 and 38 times higher, respectively, than the average daily intake for adult humans.¹² Further studies are needed to investigate the long-term health implication of MRP and AGE consumption in dogs and cats however this presents an opportunity for potentially improve food quality.

A popular myth in pet nutrition is the assumption that the ingredient list is the best way to judge the quality of pet food. One study found the most influential factor regarding selection of pet food was the ingredient list (60.3%).² The ingredient list is listed in descending order by weight. This list can be manipulated by the pet food formulator to favor the consumer. Typically wet ingredients contribute more water while dry ingredients contribute more nutrients. Ingredients with equal weight can be listed in the preferred order by the formulator. For example, if beef, rice, and peas have equal weight in a diet formulation, the beef can

be listed first. Additionally, ingredients can appear further down the ingredient list when multiple ingredients with a similar nutritional profile are used or an ingredient is split into its different fractions. The marketing of pet food often focuses on exclusion of various ingredients such as grain-free, by-product free, corn-free, etc. Sixty-three percent of responders described a grain free diet as a diet free of “fillers.”² The term filler implies an ingredient with no nutritional value. This is also a myth as cereal grain can provide energy and various nutrient including dietary fiber, essential fatty acids, essential amino acids, and minerals.¹³ Complementary sources of amino acids may reduce the need to animal-based proteins which can reduce costs and improve sustainability.

Evaluating the quality of pet food is a challenge. Unfortunately, the pet food label tells the consumer very little about product safety and quality. Looking for foods “approved” by the Association of American Feed Control Officials (AAFCO) is incorrect because this organization does not regulate, test, approve or certify pet foods. The quality of pet food is better reflected in the nutrient profile, digestibility, freshness of ingredients, bioavailability of nutrients, safety surrounding the manufacture of the product, and the nutritional knowledge and skill of the pet food company and manufacture. The World Small Animal Veterinary Association (WSAVA) has released a list of questions/guidelines to help consumers and veterinarians select commercial pet food.¹⁴ While these questions are not the panacea for pet food quality, they are a good place to start beyond what is provided on a label. The Pet Nutrition Alliance have published a survey of pet food company responses to some of the questions listed in the WSAVA guidelines.¹⁵

Many pet owners are choosing their pet’s food because, ultimately, they believe it is in the best interest of their pet. The same can be said for many of those providing recommendations including breeders, pet store employees, Facebook groups, family members and friends. It is important for us to recognize and acknowledge this shared belief before entering what could potentially be contentious conversations surrounding pet nutrition. Myths are prevalent in numerous scientific fields and ways to debunk these myths effectively have been suggested.¹⁶ Avoid mentioning a myth unnecessarily when providing correct information to avoid familiarity with the myth. The focus of the conversation should be on the new and correct information without overwhelming the pet owner. Simple myths are easier for owners to process that over-complicated counter arguments, therefore offer a few ideally simple and brief alternatives to the myth. For those pet owners who cannot be persuaded, recommend focusing on your shared goals of providing optimal nutrition to find areas common ground.

References

1. Schleicher M, Cash SB, Freeman LM. Determinants of pet food purchasing decisions. *Can Vet J* 2019;60: 644–650.
2. Conway DMP, Saker KE. Consumer Attitude Toward the Environmental Sustainability of Grain-Free Pet Foods. *Front Vet Sci* 2018;5: 170.
3. Simonsen JE, Fassenko GM, Lillywhite JM. The value-added dog food market: do dog owners prefer natural or organic dog foods? *J Agric Sci* 2014;6: 86–97.
4. Gantz A. Survey: Dog owners have difficulty choosing pet food. 2015. Available at: <https://www.petfoodindustry.com/articles/5407-survey-dog-owners-have-difficulty-choosing-pet-food>. Accessed August 23, 2019.
5. Michel KE, Willoughby KN, Abood SK, et al. Attitudes of pet owners toward pet foods and feeding management of cats and dogs. *J Am Vet Med Assoc* 2008;233: 1699–1703.
6. Morgan SK, Willis S, Shepherd ML. Survey of owner motivations and veterinary input of owners feeding diets containing raw animal products. *PeerJ* 2017;5: e3031.
7. Axelsson E, Ratnakumar A, Arendt M-L, et al. The genomic signature of dog domestication reveals adaptation to a starch-rich diet. *Nature* 2013;495: 360–364.

8. Kerr KR, Morris CL, Burke SL, et al. Apparent total tract energy and macronutrient digestibility of one- to three-day-old, adult ground, extruded, and canned chicken-based diets in domestic cats (*Felis silvestris catus*). *J Anim Sci* 2014;92: 3441-8..
9. Glasgow AG, Cave NJ, Marks SL, et al. Role of Diet in the Health of the Feline Intestinal Tract and in Inflammatory Bowel Disease. Available at: https://ccah.vetmed.ucdavis.edu/sites/g/files/dgvnsk4586/files/inline-files/role-of-diet-feline-health-Glasgow_0.pdf. Accessed August 23, 2019.
10. Friedman M. Biological effects of Maillard browning products that may affect acrylamide safety in food: biological effects of Maillard products. *Adv Exp Med Biol* 2005;561: 135–156.
11. Teodorowicz M, Hendriks WH, Wichers HJ, et al. Immunomodulation by Processed Animal Feed: The Role of Maillard Reaction Products and Advanced Glycation End-Products (AGEs). *Front Immunol* 2018;9: 2088.
12. van Rooijen C, Bosch G, van der Poel AFB, et al. Quantitation of Maillard reaction products in commercially available pet foods. *J Agric Food Chem* 2014;62: 8883–8891.
13. Beloshapka AN, Buff PR, Fahey GC, et al. Compositional analysis of whole grains, processed grains, grain co-products, and other carbohydrate sources with applicability to pet animal nutrition. *Foods* 2016;5: 23.
14. WSAVA Global Nutrition Committee: Recommendations on Selecting Pet Foods. Available at: <https://wsava.org/wp-content/uploads/2020/01/Selecting-the-Best-Food-for-your-Pet.pdf>. Accessed April 10, 2020.
15. Pet Nutrition Alliance: Dare to Ask...We did! 2019. Available at: <https://petnutritionalliance.org/site/pnatool/dare-to-ask-we-did/>. Accessed April 10, 2020.
16. Cook J & Lewandowsky L. (2011) *The Debunking Handbook*. St. Lucia, Australia: University of Queensland. November 5. ISBN 978-0-646-56812-6. Available at: <https://www.skepticalscience.com/Debunking-Handbook-now-freely-available-download.html>. Accessed April 10, 2020.