

THEY WANT TO FEED WHAT?! ALTERNATIVE DIETS

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Popular human diet trends such as gluten-free, ketogenic, paleo, vegetarian, vegan, and natural are being more commonly applied to pets and have been embraced by pet food manufacturers. Many pet owners also desire to feed their dogs or cats more like their wild relatives and feel strongly that raw, “evolutionary” diets offer superior nutrition. It is important for veterinarians to understand the pros and cons of various alternative feeding strategies so that they can appropriately advise their clients.

Vegetarian/Vegan

Vegetarian and vegan lifestyles are becoming more mainstream. These lifestyles are often adopted for ethical reasons, but many people also choose to eat this way for both perceived and demonstrated health benefits. Both of these motivations can drive pet owners to want to feed their pets in a similar manner. Diets based on dairy or egg protein, while uncommonly available commercially, can be nutritionally complete and meet the needs of both dogs and cats if properly supplemented, just like meat-based diets.

Vegan diets add an extra layer of complication and must be treated with additional care. Many nutritional supplements commonly used in pet foods are derived from animals (such as vitamin D3 and most omega-3 fatty acids). Therefore, while vegan diets generally require careful supplementation, the options available to do so are more limited and may not be available in ideal forms. Meat-free diets for both dogs and cats typically require supplementation with carnitine and taurine and possibly methionine as well as methionine is typically limiting in plant proteins and is used to make both taurine and carnitine. Deficiencies have been reported in dogs eating low protein or predominately plant-protein based diets and can be clinically important (e.g. dilated cardiomyopathy)

Dogs, as omnivores, may adapt better to vegan diets than cats and often appear to do well on carefully designed vegan diets. However, long-term studies of vegan (or vegetarian) dog diets have not been performed. There are an increasing number of vegan or vegetarian dog foods on the market, including some veterinary therapeutic diets used to treat certain health conditions (e.g. food allergies, cystine and urate uroliths, hepatic encephalopathy).

Cats, by virtue of their status as obligate carnivores, have high protein and amino acid needs relative to other domestic animals and also require a number of nutrients that are not readily obtained from plant sources, such as arachidonic acid, preformed vitamin A rather than beta-carotene, and taurine. Vitamin D3 from animals is more bioavailable than D2 from plants for cats. For these reasons, vegan diets, whether commercial or home-made, are not recommended for cats and serious nutritional concerns have been demonstrated for many commercial vegan cat diets and pretty much all home-prepared vegan cat diets.

Quality control of commercial vegan and vegetarian pet foods, especially over-the-counter options, has been questioned by two recent studies that found inadequate levels of protein and/or amino acids, labels that did not conform to Association of American Feed Control Officials (AAFCO) regulations, and presumed contamination with animal DNA in a substantial percentage of commercial vegan and vegetarian pet foods.^{1,2}

Vegan homemade diets for dogs and cats are almost always deficient in protein and amino acids as well as all of the other essential nutrients that are commonly deficient in meat-containing home-prepared diets^{3,4} developed by pet owners, or found on the internet and in pet cookbooks.

Owners determined to feed their dogs a vegan diet should be steered towards veterinary therapeutic diets that are appropriate for long-term feeding of systemically healthy dogs as these diets typically undergo much more extensive testing than over-the-counter diets. Alternatively, these clients can be referred to a board-certified nutritionist for a balanced home-cooked diet recipe. These owners should be advised that long-term health effects are not known.

Cat owners should be counseled that this diet strategy is not in the cat's best interest and is likely to lead to serious health concerns.

Raw Diets

Commercial raw diets are one of the fastest growing market sectors of the pet food industry. The ready availability of glowing testimonials from other pet owners online, as well as recommendations from pet store employees and sometimes veterinarians have increased the number of clients who may consider feeding these diets. More and more companies, many of which never previously sold raw foods, are now offering hybrid diets - mixtures of dehydrated raw and kibble or raw-coated kibble, which can be hard to distinguish from cooked kibble diets. Many pet owners also do not realize that freeze-dried raw diets are still considered to be raw with regards to pathogen contamination.

Nutritional adequacy is a concern with both commercial (mainly the all-raw ones rather than the kibble hybrids) and home-prepared raw diets (often referred to as 'BARF' – Bones And Raw Flesh or Biologically Appropriate Raw Food). For commercial products, it may not always be clear to the consumer whether the diet is actually designed to be complete and balanced and even some of those that are intended to be may have apparent nutritional gaps when subjected to increased scrutiny (be especially wary if no concentrated supplements are listed on the ingredient list and/or the AAFCO nutritional adequacy statement is not clear and properly worded).

Home-prepared raw diets have similar nutritional adequacy issues to those of home-cooked diets. Commercial raw diets have been associated with pancreatitis (they are usually very high in fat) and both home-made and commercial products have been associated with hyperthyroidism in dogs, as well as constipation, gastrointestinal obstruction and dental fractures.

An additional, significant concern with raw diets is biological contamination. Many producers and promoters of raw diets either deny that their products potentially contain pathogenic bacteria such as *Salmonella* or *E.coli* or state in their marketing materials that animals do not get sick from these bacteria. Contamination of meat intended for human consumption has been a serious concern for many years with large recalls every couple of years becoming commonplace.

Similarly, major raw pet food producers have recalled numerous raw pet diets due to contamination with *Salmonella* and other pathogens over the years (27 recalls for diets alone in 2018). It is currently both reasonable and safest to assume that all raw meat is contaminated, whether intended for human or animal consumption.

While dogs and cats may be less sensitive to food borne illness than people, there are numerous documented cases of severe and even fatal disease attributed to bacterial contamination of foods.⁵⁻⁷ Consumption of raw chicken has been linked to acute polyradiculoneuritis in a report out of Australia⁸ and a recent case series reported a number of pet cats who were infected with *M.bovis* from their raw diet.⁷

Although some diet manufacturers have started using high pressure processing (HPP) or other non-traditional processes to kill bacteria in raw diets, these techniques are rather new to the pet food industry and efficacy is still uncertain (not much published). There have been recalls of raw diets treated with HPP although it is not always clear which diets are treated and which are not.

Raw food-fed pets have been shown to shed viable pathogenic bacteria⁹⁻¹¹, sometimes asymptotically, putting all people in the household at risk. Of particular concern are households with young children, the elderly, or people with weak or suppressed immune systems (such as HIV or cancer patients). The CDC and FDA both have put out strong statements discouraging the use of raw meat diets for pets due to concerns for human health. Several raw pet food recalls in the past few years have been instituted because of human illness rather than pet illness.

In summary, there is so far no scientific evidence to substantiate the majority of the anecdotal benefits of feeding raw versus cooked diets. However, there is clear evidence to suggest that these diets and raw meat treats can cause harm to both pets and their human companions. A comprehensive, although somewhat dated, review outlines what is known about raw diets – both the pros and the cons.¹²

Natural/Holistic diets

AAFCO defines natural as “a feed or ingredient derived solely from plant, animal or mined sources, either in its unprocessed state or having been subject to physical processing, heat processing, rendering, purification, extraction, hydrolysis, enzymolysis or fermentation, but not having been produced by or subject to a chemically synthetic process...”. To label a pet food as “natural” requires that no synthetic compounds of any kind be

included. However, phrasing such as “natural diet with added vitamins” can be used to acknowledge the fact that many diets contain natural ingredients but are supplemented with synthetic vitamins, amino acids or mineral complexes.

The current definition of natural gives no information about ingredient or product quality. It is important to keep in mind that natural sources of many vitamins, minerals and amino acids used in commercial pet foods are not always practical and many synthetic sources are metabolically indistinguishable from natural forms.

Some commercial diets attempt to provide for all required nutrients using only whole foods. This approach, while emotionally appealing, presents several problems. First, these diets generally contain large numbers of ingredients sourced from many different vendors. Vitamin and mineral contents of ingredients such as fruits, vegetables and kelp (a commonly used iodine source) tend to vary, sometimes substantially, between sources and even by season. Ingredient analysis can be quite expensive, so individual shipments of ingredients may not be thoroughly screened, especially by smaller companies that purchase many different ingredients and lack the ability to do in-house analysis.

Whole food ingredients never provide only one nutrient, thus adding enough of an ingredient to meet one nutrient requirement can result in an excess of another nutrient. Similarly, some nutrients, such as taurine, become less bioavailable with cooking (others become more available); it may be difficult or impossible to provide adequate amounts of these nutrients from whole food sources.

Artificial preservatives are becoming uncommon in pet foods, mostly due to public opinion rather than any documented adverse effects. The most common “natural” preservatives used in pet foods are the antioxidants vitamin C, vitamin E (mixed tocopherols), and rosemary extract. These preservatives may be less effective than their synthetic counterparts and necessitate more attention be paid to setting appropriate expiration dates, proper storage and monitoring for spoilage.

The term ‘holistic’ has no AAFCO definition and the term can be applied to any pet food product.

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