PVMA Article #7

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Homemade Diets

The use of homemade diets has increased dramatically in the last several years, especially since the recent pet food recall. Aside from a client's philosophical reasons for choosing to make their own pet food (e.g. desire to use all organic ingredients and support local farmers), and concerns about pet food manufacturing practices and outsourcing, there are several medical situations for which homemade diets are ideal. One is for patients with food allergies or food intolerances; clients can prepare diets using only those proteins and glycoproteins their pet handles well, and avoid additives and preservatives that may cause reactions. Another is for patients with multiple medical conditions whose dietary needs are not met by one commercial diet; an example is a pet with hyperlipidemia and calcium oxalate stones. And for pets needing a prescription formula that they refuse to eat, a homemade diet can be designed to meet the pet's medical needs in a more palatable form.

While commercial diets aren't perfect in terms of assuring safety and quality (e.g. lack of a strong FDA presence in monitoring imported ingredients and domestic manufacturing plants) most veterinary nutritionists recommend commercial over homemade diets. Their greatest concern is ensuring complete and balanced nutrition for the lifestage of the pet since most published recipes have not been formulated by a nutritionist, nor have they undergone laboratory analysis or animal feeding trials. Many have been found lacking in some nutrients or excessive in others. Nutritionists are consequently receiving more reports of symptoms related to nutritional imbalance as homemade diets become more popular. Common recipes for dogs and cats typically include the addition of human or animal supplements, neither of which is usually appropriate. With few exceptions[(1)], human supplements do not have the right balance of vitamins and minerals needed by our furry companions; most animal supplements are formulated for pets eating commercial diets that already contain additional nutrients, and are consequently insufficient for pets on homemade diets. Lastly, there is the common problem of "diet drift" when clients begin with what may have been a balanced recipe but over time make changes or substitutions without understanding the long-term impact on their pet's health.

Many clients ask why sticking to the recommended recipe and supplement is so important for their pet when he or she appears healthy on the previous diet they've eaten for years, and when humans don't stick to specific diets and do fine. In fact, even though pets may appear healthy clinically and have normal bloodwork, they may be in one of the earlier stages of deficiency for quite some time until it's too late to reverse. The stages of nutritional deficiency are: 1) Initial Depletion Phase in which compensatory mechanisms are still sufficient to maintain normal structure and function, 2) Compensated Metabolic Phase in which biochemical impairment is compensated by other systems, 3) Decompensated Metabolic Phase in which biochemical and physiologic functions begin to fail, and 4) Clinical Phase in which noticeable signs finally manifest. Adult animals compensate well enough that it may take years for symptoms to develop; puppies and kittens manifest malnutrition much faster. For any pet on a homemade diet, nutritionists recommend frequent physical exams, bloodwork, urinalysis and fecal tests. Optimally, a baseline profile should be obtained prior to starting the diet, at 2-3 months, at 6 months, at 12 months, and then for healthy animals every 6-12 months (more often when treating a medical condition).

Humans also suffer from nutritional imbalances, and not just in third world countries. Deficiencies in nutrients such as iron and vitamin A are well documented, and in

developed countries where more people are spending more time indoors or wearing sunblock, vitamin D deficiency has become a significant concern. Most people vary their diet enough that temporary deficiencies from day to day are balanced in the long run but many do not, and don't notice consequences until serious disease ensues. As human doctors become more cognizant of this, they are no longer limiting their supplement recommendations to their compromised patients.

To ensure the nutritional value of a homemade diet, it should ideally be formulated or evaluated by a veterinary nutritionist. Clients can locate a board certified individual through the American College of Veterinary Nutrition (ACVN); their website is www.acvn.org, and contains information for both the general public and referring veterinarians. Another recommended site is www.petdiets.com, the consulting service of Dr. Rebecca Remillard. And for clients seeking an inexpensive option for healthy pets who don't re quire intricate dietary management, there's www.BalanceIt.com which provides simple recipes with pre-made supplements. Most nutritional services at the university level only do consultations with practitioners, but the University of California at Davis (530-752-1393) does work with clients directly either through appointments there or via videoconference. It is important to remember that although most nutritionists use sophisticated computer programs to guide their recommendations, there are also nuances involved in cases of disease that require clinical experience.

In addition to homemade diets, commercial diets whose labels don't mention adherence to AAFCO[2] nutritional standards or completion of AAFCO feeding trials should also be evaluated by a nutritionist, as they may not contain ingredient levels appropriate for the lifestage or breed of the pet. Since package labels typically provide insufficient information to assess nutrient content, clients are encouraged to first ask the manufacturer for a complete analysis of the formulation that the nutritionist can then study; if further data is required the food can be analyzed by laboratories such as www.eurofinsus.com or one of the universities that has their own lab. Of course, despite an adequate nutrient profile, no diet can guarantee bioavailability or performance without a feeding trial. Manufacturers that don't have their own kennels can outsource trials, though for the smaller companies this may be cost-prohibitive. AAFCO feeding trials can be completed in 26 weeks for a maintenance claim, and 10 weeks for growth; this ensures that at least short-term deficiencies and toxicities are detected. Diets that have been on the market for several years from manufacturers who maintain good customer feedback records are also likely to provide adequate long-term nutrition.

Lastly, many clients opting for homemade diets are choosing to feed raw meats. The proposed merits of raw meat diets are widely debated (e.g. bioavailability, integrity of vitamins, retention of active enzymes) and require much more research, but the risks of bacterial exposure are clearly higher than for cooked foods. Pathogens such as Salmonella, Campylobacter, Clostridium, E. Coli, and many others may be present in food animals prior to slaughter but more likely enter the meat during slaughter, evisceration, processing, and packaging. Ground meats are more risky as any surface contaminants are spread throughout the sample. Freezing does not kill bacteria; it only prevents growth. (Freezing may reduce Campylobacter levels, as it does not survive well at conventional freezer temperatures. Freezing for at least 24 hours does kill Toxoplasma.) At temperatures even a few degrees above 4.4 celsius, bacteria can grow quickly.

Ingestion of contaminated meat may not result in illness, especially if the digestive and immune systems are healthy enough to kill potential pathogens. Susceptibility to bacterial infection is dose-dependent (large numbers are usually required to cause disease) and species-dependent (enterohemorrhagic E. Coli causes disease at much lower levels than Salmonella). An animal fed contaminated meat who appears healthy, however, may still be carrying and shedding colonizing organisms. One short-term study[3] using a commercial raw dog food naturally contaminated with Salmonella showed that 7/16 (44%) dogs fed a single meal shed the bacteria for up to 11 days, compared to 0/12 dogs fed uncontaminated samples. Shedding of pathogens presents a potential risk to those animals and humans sharing the environment who may not be sufficiently

immunocompetent (including patients visited by therapy dogs).

Clients feeding raw food are strongly encouraged to observe optimum hygiene, including thorough hand washing after handling, keeping raw meat away from other food items (preferably in a separate refrigerator from that used for human consumables), disinfecting all items used for preparation and serving shortly after use, and using a dedicated cutting board. Frozen raw meat should be thawed in the refrigerator to prevent the rapid bacterial growth that can occur at room temperature. And any food not eaten at mealtime should be discarded. In addition to food bowls, water bowls should also be treated with care as many pets drink soon after eating, carrying over bacteria from food residue around the mouth. Feces should be cleaned up promptly, followed again my immediate and thorough hand washing. And again, high risk groups are discouraged from feeding raw diets; CDC guidelines require cooked meats for the pets of people with any immune system compromise or who are taking immunosuppressive drugs. Veterinarians should document client education regarding the potential risks and necessary preventive measures associated with raw diets.

A complete dietary history will reveal educational opportunities whether the pet is receiving a commercial food lacking AAFCO guidelines, a cooked homemade diet, or a raw meat diet. The history should also include asking about anything added to the food, such as garlic or nutritional supplements; clients may not think to mention them as they just become a routine part of daily food preparation. A fairly common example of inappropriate supplementation is calcium added by clients who've been told that commercial foods have inadequate levels, resulting in calcium overload. And if clients are adding palatability enhancers such as beef broth, it should be checked for other ingredients like onions or salt. The more clients understand about the importance of proper nutrient balance, the more detail they provide when asked about diet, and the more involved they feel in their pet's welfare since a healthy diet is a precious gift they can give their pet every day.

(1) Nature Made: Multi For Her with Calcium & Iron. One-A-Day: Maximum Formula. Centrum: Advanced Formula High Potency. Dosages for dogs depend on body weight and medical condition; cats require additional taurine. Clients should consult a nutritionist to select optimum supplements and dosages to complement recipe design.

(2) For those who may not know, the Association of American Feed Control Officials is not a regulatory body. It's actually an association of state and federal regulatory agents set up to facilitate commercial interstate feed trade. (Most routine pet food regulation is done by individual states; the FDA is primarily concerned with interstate distribution.) AAFCO has created standardized definitions for feed ingredients, as well as model regulations and guidelines to aid state officials in adopting uniform codes governing animal feed production, labeling, distribution, sales, and inspections. It has also created model management practices for pet food manufacturers to use in developing their internal control systems.

(3) Finley R, et al. "The Risk of Salmonellae Shedding by Dogs fed Salmonella-contaminated Commercial Raw Food Diets" Can Vet J. 2007 January; 48(1):69-75. Further work is proposed to investigate the possibility of exchange of antimicrobial resistance genes between Salmonella and E. Coli in the dogs' intestinal tracts. This study also mentions two recent cases of septicemic salmonellosis in cats fed raw food; the strain found in the raw beef used was the same found in both fatally affected animals. In a previous related study, Salmonella was detected in 37% of commercial frozen raw food diets in Calgary. For more information on data related to raw food diets, see the VIN article "Infectious Disease Risks of Feeding Raw Diets" (ACVIM 2006) by J. Scott Weese, DVM, DVSc, DACVIM.