

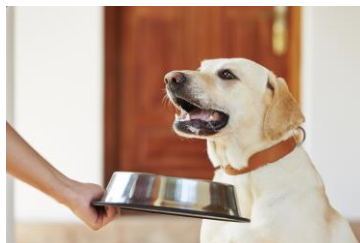


Small Animal Nutrition Mini Series

Session Two: Alternative and Raw Diets – What is the Evidence?

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Alternative and Raw Diets – What is the Evidence?
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Fresh wholesome foods sound like a wonderful thing to feed our pets, and many pets appear to do well on these diets, but are there hidden risks? If feeding bones and raw foods is your owner's choice for feeding their dog, you should be able to discuss the potential problems as well as the any possible benefits of these diets.

What are the benefits? By choosing the foods to feed, the owner is in control of the ingredients fed to their pet. There are not likely to be preservatives or additives if you are feeding organic foods. Some people also enjoy preparing foods for their pets. Some pets require a homemade diet due to complicated health problems which make choosing a commercial diet difficult. Occasionally pets do have improved gastrointestinal signs on homemade or raw diets due to the increased digestibility.

Do be aware that there are a lot of false stories about the ingredients of commercial pet foods. They do not contain road kill! They may contain "offal", or "by-products" of animals, although this is what wild animals will eat. By products are healthy parts of the animals which humans chose not to eat, usually do to cultural reasons, such as lungs or intestines (although some cultures do eat some of these). Pet foods do contain antioxidant preservatives to prevent them from becoming rancid. Some of them also contain textured vegetable proteins that appear to be meat and are not, and some of them do contain colourings to make them appear more appealing. These are the same colourings added to processed human foods and must be generally considered safe, although each of us need to decide if we want to eat them or feed them to our dogs and cats.

The "Natural Diet" Concept

Firstly, there is no legal definition of the term natural for pet foods. Some owners wish to feed a diet which appears to be closer to what wolves would eat naturally. There are several problems with this concept. Wolves would eat more of the carcass than most owners are willing to feed. They also eat (and expend) more calories than the average dog, so by eating larger amounts of food are also able to ingest larger amounts of other nutrients in the carcass. Wolves and other wild animals also only need to live long enough to procreate, and we expect more of our pets. Finally, research has shown that dogs have changed genetically from wolves, and are more able to digest starches and other carbohydrates.

Is it a Complete and Balanced Diet?

The feeding plan for some the homemade diets programmes is meant to balance the diet over a couple of weeks, rather than for each meal. This is similar to the way many of us feed ourselves and our families, and with the right blend of ingredients this might work; however a study examining 200 recipes of homemade foods found 95% had at least 1 essential nutrient at levels below NRC or AAFCO guidelines and 83.5% had multiple deficiencies. Of the 9 diets which were complete, 8 were formulated by a veterinary nutritionist.

This study also found the rotating diets using evaluation of 3 recipe groups, each of which comprised 7 separate recipes, did not eliminate deficiencies, so varying the foods may not balance out the deficiencies. If all of the diets have the same deficiency, e.g. zinc, then rotating them does not help.

A nutritional study of the BARF diet showed the diet to be deficient in calcium, phosphorus, potassium, and zinc, and excessively high in vitamin D. It is likely that some adult dogs could cope with some of these calcium and phosphorus imbalances, but they may affect the strength of the bones of growing dogs. Zinc deficiencies may cause skin disorders. It is possible that pets won't show deficiencies in the short term or if not stressed.

Contamination of Raw Food- It's "Natural", but is it Safe?

Salmonella

Studies in the USA and Canada on bacterial contamination of raw foods and shedding of bacterial in the faeces of dogs fed raw foods have shown that 20-35% of raw poultry test and 80% of raw food diets for dogs tested were positive for *Salmonella* and 30% of the dogs' stool samples were positive for *Salmonella*. In the UK, *Salmonella* contamination of poultry was very prevalent in the 1990s, resulting in a programme which has reduced the prevalence to the targeted <2%.

Campylobacter

While bacterial contamination of poultry with *Salmonella* has decreased, the British Food Standards Agency (FSA) has reported that 73% of chickens sold in the UK are contaminated with *Campylobacter*, with 19% having >1000cfu/g (the highest level of contamination). *Campylobacter* causes vomiting and diarrhoea among around 280,000 healthy people every year and can kill those with vulnerable immune systems.

MRSA

It has been reported recently that pigs infected with Livestock Associated Methicillin Resistant *Streptococcus Aureus* (LA-MRSA) CC398 have been imported from Denmark to the UK, and may infect British pigs. An MRSA variant has also been found in British pork in UK supermarkets. LA-MRSA CC398 can be passed to humans when they work with infected livestock, but it can also be passed on when humans handle contaminated meat.

The disease is resistant to human and veterinary antibiotics. While many people and animals can carry the bacterium without getting ill, LA-MRSA CC398 can cause skin disorders as well as more serious and life-threatening infections, mainly in individuals with underlying conditions such as pneumonia or who are immunocompromised (e.g. on chemotherapy). Normally it does not pose a significant risk to human health because the bacteria are killed when meat is properly cooked. The risk to the pet population fed raw foods or to their owners has not been examined. Farm workers who work with infected animals have a much higher prevalence of carrier the bacteria, so exposure from pets could also be a potential method of transmission.

Parasites

Parasites that may be present in raw meat include *Toxoplasma gondii*, *Sarcocystis*, *Neospora caninum*, *Toxocara canis* (round worms), *Taenia* and *Echinococcus* (tape worms).

Handling Raw Food

When handling raw foods, either in preparation for human or pet consumption, the cook must be scrupulous in hygiene, washing all surfaces and hands before touching anything or anyone else. Small children, the elderly, and the immuno-compromised (e.g. anyone ill or on immunosuppressive medications) should not be handling the raw meat.

The FSA recommendations for decreasing the risk of *Campylobacter* when handling chicken are:

- Cover and chill raw chicken: Cover raw chicken and store on the bottom shelf of the fridge so juices cannot drip on to other foods and contaminate them with food poisoning bacteria such as *campylobacter*.
- Don't wash raw chicken: Cooking will kill any bacteria present, including *campylobacter*, while washing chicken can spread germs by splashing.
- Wash hands and used utensils: Thoroughly wash and clean all utensils, chopping boards and surfaces used to prepare raw chicken. Wash hands thoroughly with soap and warm water, after handling raw chicken. This helps stop the spread of *campylobacter* by avoiding cross contamination.
- Cook chicken thoroughly: Make sure chicken is steaming hot all the way through before serving. Cut in to the thickest part of the meat and check that it is steaming hot with no pink meat and that the juices run clear.

Hospitalizing Raw Fed Pets

You should be aware of the risk of shedding of pathogenic bacteria from pets which are fed raw food. While the cat or dog may not be showing clinical signs, they may infect immunocompromised, elderly or post-surgical pets belonging to others. There is also a risk to staff. Some clinics reverse barrier nurse or isolate raw food fed pets.

Feeding bones

Proponents of natural foods or feeding bones have claimed improvement in the cleanliness of pet's teeth; further claims are sometimes made that feeding commercial petfood contributes to the prevalence of periodontal disease. However, a study in foxhounds fed raw carcasses, including raw bones, showed varying degrees of periodontal disease as well as a high prevalence of tooth fractures. The skulls of 29 African wild dogs eating a "natural diet", mostly wild antelope, showed evidence of periodontal disease (41%), teeth wearing (83%) and fractured teeth (48%). Small feral cats on Marion Island (South Africa) which had been eating a variety of natural foods (mostly birds) showed periodontal disease in 61%, although only 9% had evidence of calculus. Australian feral cats eating a mixed natural diet had less calculus compared to domestic cats fed dry or canned commercial food, although again there was no difference in the prevalence of periodontal disease.

These studies show that a natural diet, or one containing raw bones, does appear to confer some protection against dental calculus, but not against the more destructive periodontal disease. Plaque, which is not decreased by feeding bones, is what leads to periodontal disease and tooth loss. Dental calculus is mostly cosmetic, so while the teeth may look better, the mouth is not healthier.

Are raw bones safe? Raw bones may be added to the diet as a calcium source as well as for perceived dental health. Chewing on a large meaty bone does seem a source of joy for many dogs and some cats, and if it is large enough that it cannot be chewed up is generally considered safe. Analysis of the BARF diet has not confirmed that feeding bones is an adequate source of calcium. As well as tooth fractures, one of the major risks is that of bones becoming stuck in the oesophagus, stomach or intestines. There is a conception that feeding raw bones is safer than feeding cooked bones, although no studies have examined this. Bones that become stuck in the stomach, or more likely in the intestine, may perforate the gut causing a potentially fatal peritonitis or abdominal infection. If your owners feed bones, either raw or cooked, that can be ingested by your dog, they should be aware of the risk of oesophageal or gastrointestinal obstructions. It may be possible to chop or grind the bone up small enough (e.g. less than 0.5 cm, or even smaller for cats) that they are less likely to get stuck. Alternatively, consider consulting a veterinary nutritionist to determine the amount of calcium (and other nutrients) to add to his diet and skip the bones.

Summary

In summary, if you chose to feed the BARF diet or any other diet involving raw foods, we recommend that very special hygienic care is used in handling the food and the dog's faeces. Remember to de-worm your dog regularly, and tell your veterinary surgeon what diet you are feeding so that if your dog develops gastrointestinal disorders they will know to look for the bacteria and parasites mentioned above. Ideally, the diet should be balanced by a veterinary nutritionist and supplemented as necessary.