

FEEDING PETS IN THE 90'S

(Introductory Notes from 1997 lecture)

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Is Pet food Safe?

“Holistic veterinarians” claim that dogs and cats should be fed home cooked food because commercial pet food is potentially harmful to dogs and cats. This is a dangerous misrepresentation of the truth.

The safest way to feed a dog or cat is to use a commercial pet food made by a major name-brand pet food manufacturer. Use a pet food that says on the back of the can that it has undergone AAFCO feeding trials and is complete and balanced. There is a lot of science behind pet food manufacture. Pet food manufacturers try to avoid problems but there is still much to know. Manufacturers keep abreast of the latest information and change their diets to prevent deficiencies. It is not in the interest of pet food manufacturers to make pets sick.

Home-cooked food can be fed to dogs and cats if properly balanced. Nevertheless, most home-cooked diets fed to pets are deficient in vitamins, minerals and other essential nutrients. Human cooked food is also time consuming to prepare. Some people prefer to cook human food for their animals but advice from a veterinary nutritionist is essential to ensure that diets are nutritionally balanced. Cats, in particular, are very specialized carnivores and I strongly advise against feeding a home-cooked diet to cats. Veterinarians do recommend home-cooked diets for some specific purposes. For example, home cooked diets are used to treat dogs with food allergies but food allergies are rare. If an owner is concerned about a food allergy then they should first consult a veterinarian to establish whether their animal does have a food allergy.

Nutritional problems usually occur in my veterinary practice because of feeding human foods and supplements and do not occur from feeding pet food.

Are pet foods digestible?

Pet foods are mostly made from good quality ingredients. Most pet foods are more than 80% digestible. It is recognized that pet food ingredients are slightly less digestible than human foods but the difference is small. For example, the amount of energy derived from pet food ingredients is generally accepted as being slightly less than that from human food. Pet food contains extra ingredients to make up for this difference.

	<u>Human food</u>	<u>Pet food</u>	<u>Unit</u>
Protein	4	3.5	kcal/g
Carbohydrate	4	3.5	kcal/g
Fat	9	8.5	kcal/g

What are byproducts?

Byproducts consist of parts of the animal not used as human food such as lung, liver, tripe and kidney. These are good quality digestible ingredients. They are just not popular human foods.

Should we worry about “processed” pet food?

Processed food for people has a bad press because it is often high in salt and fat and is not balanced so if you eat too much then your diet becomes unbalanced. Processed pet food is balanced so does not have excess salt and fat. Also heart attacks and high blood pressure are extremely rare in dogs and cats so salt and fat are not usually a problem. A higher amount of fat is good for dogs that undertake a lot of exercise.

Should only one pet food be fed or can a variety be fed to dogs and cats?

Animals do not require changes in diet. If you want to change the diet, it is better to change slowly over a week or two, not quickly. If you wish to feed a variety of foods then feed a variety all the time so the animal is used to it.

Where should pet food be kept?

Keep pet food as you would your own food. Keep it in a cool dry environment. Do not feed cans of food that have been open for a week. Keep fresh meat away from cooked meat.

Are treats OK?

Many people like to give human food as treats to their pet. Try to keep these to a minimum. The bulk of an animal's diet should come from pet food.

Are supplements necessary?

No! A pet food that is complete and balanced does not require supplements. Do not feed extra meat, calcium or vitamin supplements especially in growing or pregnant animals.

Is more expensive dog food better than less expensive dog food?

Not necessarily. Pet foods are often made out of similar ingredients. Inexpensive dog food is often OK for the average 'couch potato', but dogs which exercise a lot, growing dogs, sick dogs and very old dogs may need more expensive food. Inexpensive dry food contains less fat and may not give optimum performance in an exercising dog. A high fat dry dog food or canned food is recommended for a Frisbee dog, hunting dog or a search dog.

Does it matter if it is dog food or cat food?

It is best to give dog food to dogs and cat food to cats. Dog food should not be given to cats but cat food may be OK for dogs.

What is the best way to judge pet food?

Choose a pet food that says it is complete and balanced. A name-brand manufacturer is probably best because they have a vested interest in the well being of your dog and know a lot about making safe pet food. Look on the back of the can and see if it has undergone feeding

trials.

Call the 1-800 number on the back or look at the manufacturers web site.

Is a preservative-free pet food better?

No. Preservatives prevent oxidation of fat. Fat is needed by dogs and cats. Oxidation of fat makes food smell bad and causes toxicity. Preservatives prevent this. Vitamin E, for example, is a preservative. It prevents oxidation of fat in the body and plays a similar role in pet foods.

Are there carcinogens in pet food?

Not to our knowledge. Most controversy surrounds the synthetic preservative ethoxyquin. Nevertheless, ethoxyquin has undergone long-term multigenerational trials in dogs and other species. Ethoxyquin was fed at twice the maximum levels allowed in human and dog food without causing any problems. Some veterinarians believe that ethoxyquin may cause itchiness but there is no scientific evidence to support this claim and the FDA has said there is no evidence for any concern. Other artificial preservatives such as BHA and BHT have undergone extensive toxicity trials in dogs.

What is the most important nutrient in pet food?

No single nutrient is the most important. A balance of all nutrients is essential for health. Pet food designed to be complete and balanced makes those decisions for you whereas home-cooked food can easily be deficient in one or more nutrients.

How much protein should be fed to dogs and cats?

Animals should not be fed too little or too much protein. Fortunately, the upper and lower limits are quite far apart. Major manufacturers aim to shoot between these two goal posts so the amount of protein in most pet foods is not a problem. Nevertheless, animals with kidney failure sometimes require less protein and sick and working animals need more protein. There are specialized diets made for this purpose so owners of animals with special problems should consult their veterinarian.

Working dogs need extra fat:

Either a high fat, greasy to the touch dry food or a canned food

Obese animals:

Severe obesity is dangerous. There is only one treatment: feed fewer calories. Minimize treats and table scraps. If an animal is gaining weight despite eating only small amounts of food then a special diet designed for weight loss must be fed. "Lite" diets are not sufficient.

General Recommendations:

1. Feed a national brand dog food that is complete and balanced for the particular life stage and has undergone feeding trials.
2. Are supplements necessary? Answer: No! A pet food that is complete and balanced does not require supplements. Do not feed extra meat, calcium or vitamin supplements especially in growing or pregnant animals.
3. Are treats OK? Answer: Yes, but try to keep these to a minimum (<10% of diet). Many

people like to give human food as treats to their pet. The bulk of an animal's diet should come from pet food.

Fiction 1: Feeding uncooked meat is OK.

Why feed uncooked meat?

'Holistic' veterinarians are advocating the feeding of uncooked food because pet foods contain less or less available nutrients. Any difference, however, is small or unproven.

1. Proprietary brand name dog foods produced in the US are very (80-90%) digestible. Generic foods made by local mills may be less digestible (60-70%)
2. Pet food ingredients are slightly less digestible than human foods but the difference is small. Dogs simply eat slightly more food to compensate.
3. Cooking increases the digestibility of protein and starch. Excess cooking reduces digestibility so the heat processing of pet foods is very carefully controlled.
4. Cooking destroys some vitamins especially B vitamins. An excess of these vitamins is, therefore, added to the food mixture so there will be enough left in the mix after processing. The final product, therefore, contains enough of all known essential nutrients.
5. Some potentially beneficial nutrients, such as creatine, are destroyed by cooking. Nutrients destroyed by cooking, such as creatine, that are of unproven value are not currently added to pet foods. In this respect, therefore, it is possible that uncooked food is different from pet food but any claim that uncooked food is better on this account must be regarded as speculative. For example, a study at UF did not show any effect of creatine added to the diet on the amount of creatine in muscle or the performance of racing greyhounds.

Many dog owners have reported that uncooked meat improves coat quality

1. Increased fat in the diet may be responsible for this affect. Beef contains 25-40% of energy (%ME) as protein and 60-75%ME as fat. Most dry kibble dog foods contain only 25-30%ME as protein and 35-45% ME as fat. Adding meat to a dry diet, therefore, increases dietary protein and fat. Canned diets can be added to a dry diet for the same effect without any risk of infection. Simply adding oil to the food may also work but unbalances a balanced diet
2. Many greyhound owners feed meat mixed with a dry diet because they believe that meat improves performance.
3. A study here at UF showed that meat added to a dry diet did improve performance but this was probably due to the associated increase in fat in the diet.
4. The meat fed to greyhounds (4D beef) frequently (30-40%) contains procaine. Procaine is derived from procaine penicillin used to treat cattle before their death. Procaine in meat probably has a beneficial effect on performance because it appears to improve fitness in human athletes. For this reason, it is a banned substance in racing greyhounds. Fortunately, little to no procaine can be detected in the urine 24 hours after feeding meat, so greyhounds can race if meat is

withheld from dogs on the day of a race. There are probably other antibiotic residues in the meat that may promote resistance in animals to which this meat is fed.

Why you should not feed uncooked meat or unpasteurized milk?

1. Greyhound owners feed 4D (dead, diseased, dying and down) beef because it is inexpensive. It is labeled with charcoal as being not for human consumption. It comes in frozen logs that are thawed before feeding. The prevalence of food-borne pathogens in this meat is very high (44% culture positive, 66% PCR positive for *Salmonella* spp.).
2. Fatal salmonellosis may occur in young animals given live virus vaccine if they or their mothers are chronic carriers of *Salmonella*.
3. The disease of racing greyhounds called "Alabama rot" is caused by a Shiga-like toxin produced by *E. coli* H157:O7 found in uncooked meat. It causes a severe vasculitis, cutaneous necrosis, renal failure and death. This same pathogen caused renal failure in kids who ate undercooked hamburger in the "Jack in the Box" chain of restaurants.
4. Other food-borne pathogens that affect humans are also likely to affect dogs fed uncooked or unpasteurized food. These include *Shigella*, *Campylobacter*, *Listeria*, *Clostridium perfringens*, *Mycobacterium bovis* and *Staphylococci*.

How to reduce the risk of problems when feeding meat?

1. Defrosting meat in a refrigerator or cooler reduces the proliferation of bacteria, but the risk of infection is still high unless food is cooked.
2. Cook the meat: Hamburger is a greater risk than steak because chopping up the meat carries bacteria into the center of the food so it has to be cooked all the way through to kill all the bacteria whereas searing the outside of steak kills the bacteria on the outside and there are few inside
3. Do not mix uncooked meat with cooked food or other foods that will not be cooked
4. Add calcium to meat to ensure proper bone mineralization.

Fiction 2: All dogs require the same amount of food.

There is great individual variation between dogs.

How much to feed?

Adjust food intake to maintain optimum body weight and condition. Do not feed too much. The slim-line model is best. *Ribs should be felt but not seen.*

Fiction 3: Pregnant animals need special food

Feeding pregnant animals

Feed a pet food formulated for *all life stages*. **Do not feed supplements.** A pregnant bitch does not need extra food for the first 5 weeks of pregnancy. Her intake should be increased by 10-15%/week for the last 3 weeks of pregnancy. Lactation requires a very large increase in food intake up to 3-4 times normal. Feeding calcium supplements during pregnancy before pups are born may promote eclampsia (calcium deficiency) during lactation.

Fiction 4: Pups can be weaned early and should have a roly-poly appearance.

Feeding puppies:

Pups must consume mother's milk (colostrum) immediately after birth. It is an important source of antibodies. If pups do not consume this colostrum, they may need to receive antibodies from their mother's blood by injection to protect against infection. Cow's milk contains less protein, fat and more water than milk from the bitch. Commercial milk replacers should, therefore, be fed to pups if mother's milk is inadequate. Milk replacers are not perfect substitutes for mother's milk, however, so constipation and diarrhea is common. Keep pups in warm and humid environment (85-90°F, >50% humidity). Offer puppy food 4 times daily at 3 weeks of age but throw away any not consumed soon after it is put down. Pups will gradually start to eat more puppy food and drink less mother's milk. Worm dogs every 2-3 weeks from 3 weeks of age. Wean at 8-12 weeks of age; do not wean earlier. Start heartworm medication at 6-8 weeks of age. Vaccinate from 6 weeks of age. Large breeds take 18mths to 2 years to reach adult weight whereas small breeds reach adult weight at 8 months.

Feed a puppy or growth pet food. Each pup should consume approximately what their mother eats but there is great variation. Adjust intake so the puppy maintains a lean conformation with a waist. **Food intake must be restricted irrespective of what type of dog food is fed.** Unrestricted growth in large breeds is associated with increased hip dysplasia and other growth deformities. **Do not feed supplements!** A well-formulated puppy food is complete and balanced so no supplements are necessary. Human foods, table scraps, meat or calcium supplements are not necessary and may cause problems.

Fiction 5: Fat causes loose feces: false

Factors which affect fecal firmness:

Firmer feces

Insoluble fiber
Fat
Calcium
Morning

Softer stool

Soluble fiber
Carbohydrate
Magnesium
Evening

Fiction 6: there is little regulation of the contents of pet food

1. **What is AAFCO?** The sale of pet food is regulated by the FDA and individually by the Department of Agriculture of each State. To establish uniform standards, the States formed an advisory body, the Association of American Feed Control Officials (AAFCO). **AAFCO** is a private organization and does not make or enforce any laws or regulations but reviews labels and sets standards to ensure compliance. The FDA and each state may or may not choose to adopt what AAFCO recommends. AAFCO has developed:
 2. uniform definitions for all feed ingredients
 3. some rules concerning labeling
 4. minimum and some maximum recommendations for nutrient requirements
 5. testing procedures for pet food claims of "complete and balanced"

Enforcement of the Regulations

1. There is no-one in Florida actively doing this
2. Survey: Only six of 24 responding states provided enforcement.
3. Texas is the most active and strict “policeman” so foods sold in Texas probably conform to the regulations. This is why I recommend “National Brands”

Fiction 7: There are large differences between dog foods

Pet foods tend to be similar because:

1. New brand names are created without changing the formula as a method of increasing the number of brands on the shelf.
2. The final composition is restricted by the nutrient requirements of the animal, the need to restrict price and maintain palatability
3. Most diets are made from similar ingredients.

The major differences are often not obvious:

1. **Dry v canned:** Brands with the same name may vary widely in nutrient composition between the dry and canned form e.g.
 - a. Dry d/d is egg-based, canned d/d is lamb-based
 - b. Amount of fat (%ME) in Cycle 1 canned diet is different from that in Cycle 1 dry diet
2. **Generic v proprietary:** Generic diets are usually made with poorer quality ingredients and are not necessarily tested on animals. Proprietary (popular & premium) brands are made with better ingredients and are usually tested on animals.
3. **A brand name dog food may be reformulated** over the years e.g. Hill’s k/d now is not the same as k/d 10 years ago.
4. **Several recipes** may be used for each brand name subject to nutrient availability.
5. **Ingredient quality also varies** (animal-based ingredients, such as beef, vary widely in amount of fat, water etc.; plant-based ingredients are usually more consistent), so one bag of food may vary in composition from the next.
6. **Life stage and therapeutic v proprietary:** Proprietary diets attempt to deliver average nutrients midway between maximum and minimum requirements established in normal animals. Therapeutic diets attempt to push the envelope of known maxima and minima for therapeutic purposes so tend to have some nutrients towards the edge of the range.