

Problems with Raw-Meat Diets

Feeding raw meat is a hot topic in veterinary medicine. Sled dogs and racing greyhounds have long been fed raw meat. Now, intensive promotion in books and especially on the Internet is generating widespread enthusiasm and discussion. Advocates claim that raw meat is nutritionally superior to processed foods and is “what nature intended dogs and cats to eat”. Since their wild relatives ate raw meat, promoters insist, domesticated species tolerate bacterial contamination in food without problems, even if they are pediatric, geriatric, or critically ill animals.

However, recent reports of deaths in cats from salmonella septicemia and greyhound pups at a breeding facility from a *Salmonella* Newport outbreak indicate that animals can and do become ill from organisms in raw meat. In fact, the U.S. Food and Drug Association’s Center for Veterinary Medicine (FDA CVM) states, in a 2002 draft guidance for industry document, that “The FDA does not believe raw meat foods are consistent with the goal of protecting the public from significant health risks, particularly when such products are brought into the home and/or used to feed domestic pets.”

Three typical sources of raw meat for animals exist: 1) meat intended for human consumption; 2) meat condemned for human consumption, from “4-D” animals (dead, dying, diseased, or disabled); and 3) meat from animals who died by means other than slaughter (hunting, roadkill, etc.). All pose a risk of being contaminated with pathogens, as summarized in Table 1. Risks to household members via contact with pets or cross-contamination from utensils and dishes is especially worrisome for children, seniors, and immunocompromised family members.

Raw meat promoters claim, too, that uncooked food is more easily digested because it still contains enzymes that cooking destroys. What enzymes are these? What is their source? This information has yet to be specified. The digestibility of tough, fibrous meat may, in fact, improve with cooking, because collagen in the meat coagulates above 80°C to form gelatin. For raw diets containing plant matter, cooking improves digestibility by rupturing cells, softening cellulose, reducing size of macromolecular compounds, and denaturing toxins and digestion-reducing compounds.

Raw meat proponents often supplement food with vitamins and minerals, although an evaluation of raw food diets for dogs by Freeman and Michel (JAVMA 2001;218(5):705-709) still demonstrated that “All the [raw] diets tested had nutrient deficiencies or excesses that could cause serious health problems when used in a long-term feeding program.” Ideally, clients should consult a reliably credentialed veterinary nutritionist about proper dietary formulation. The most common imbalances involve calcium, phosphorus, essential fatty acids, trace minerals, and vitamins. Hypervitaminosis A appears if raw liver comprises

a large proportion of the diet. Some clients assume that feeding bones will provide dietary calcium, but large pieces of bone make digestion and absorption difficult. The FDA CVM advises against feeding animals bone in any form other than ground, because of the risk of dental and gastrointestinal trauma.

Veterinarians should communicate the risks of raw meat to well-meaning clients who may otherwise be convinced that these diets will keep their animals in peak condition. Veterinarians also need to be aware that recommending raw meat diets could have legal consequences if untoward consequences result. Clients insisting on raw diets should learn about the infectious organisms contained therein and take adequate precautions to prevent cross-contamination to other family members. Handwashing is essential, and children feeding the meat should receive supervision and instruction on proper food and utensil handling. Dishes require thorough disinfection, and clients should remove uneaten food promptly.

Table 1, Agents of Infectious Disease Found in Raw Meat Diets for Dogs. Adapted from: "Public health concerns associated with feeding raw meat diets to dogs". *JAVMA*. 2001;219(9): 1222-1225.

Salmonella spp.

- A frequent contaminant in raw meat
- *Salmonella*-related gastroenteritis outbreaks in dogs fed raw meat are well-documented
- Zoonotic potential if proper hygienic practices ignored
- Dogs may become subclinical carriers

E. coli 0157:H7

- Identified in dog feces
- Documented to cause illness in Greyhounds fed raw meat

Campylobacter spp.

- Frequent cause of human enteric infection in the U.S.
- Household contact with dogs is significant risk factor for humans for campylobacteriosis
- Common contaminant of raw poultry

Yersinia enterocolitica

- Contaminates as much as 89% of commercially available raw meat
- Household transmission from dogs to people can occur

Listeria monocytogenes

- Reported to cause abortion in dogs

Clostridium perfringens

- Common cause of enteritis in dogs

Clostridium botulinum

- *C. botulinum* toxin may occur in bacon and harm dogs if not destroyed by cooking

Staphylococcus aureus and *Bacillus cereus*

- May produce toxin in moist food that incubates before feeding

Bacillus anthracis

- Occasionally occurs in North America

Francisella tularensis

- Endemic in rabbits, muskrats, and beavers

Mycobacterium bovis and *M tuberculosis*

- From infected organ meat in infected livestock, wildlife reservoirs, where it still occurs

Burholderia (Pseudomonas) pseudomallei

- May be present in meat from horses with glanders

Pseudorabies (Aujeszky's disease)

- Documented in dogs fed lungs from infected pigs

Rabies

- Potential public health risk

Diphyllobothrium latum, *Opisthorchis tenuicollis*, *Dioctophyme renale*, and *Nanophyetus salmincola* (the vector of *Neorickettsia helminthoeca*)

- Food-borne parasites in raw fish

Toxoplasma gondii

- From swine; can infect dogs

Sarcocystis spp.

- Dogs eating infected meat may excrete sporocysts into the environment and present hazard for livestock

Neospora caninum

- Dogs eating infected tissues (aborted fetuses and placentas) can become ill and shed oocysts in feces, passing infection to cattle

Toxacara canis and *Baylisascaris procyonis*

- Infected dogs may shed infective eggs into the environment and transmit disease to other dogs or humans, where it can cause visceral larval migrans

Trichinella spiralis

- From undercooked pork, walrus, seal, and bear meat

Taenia hydatigena and *T. ovis*

- Causes lesions in livestock that result in tissue condemnation at slaughter; dogs ingesting these tissues contaminate environment with eggs infectious to livestock

Echinococcus multilocularis, and *E granulosus*

- Transmissible from dogs to humans, cattle, swine, and sheep