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In 2007 we witnessed the most significant pet food recall in the history of commercial pet food. Since that incident, more and more pet owners are taking interest in what their pets eat. Attention to pet food, treat and product recalls is a very serious part of responsible pet ownership. The most common cause of pet food recalls lately has been due to salmonella contamination. The centre for disease control (CDC), The Food and Drug Administration (FDA) and the US department of Agriculture (USDA) advise that salmonella can cause potential harm to humans handling these tainted pet products in addition to causing possible harm to their pets. Consequently, pet owners are now keenly aware of what is in fact, a naturally occurring bacteria which carries less risk for their dogs than what they may fear.

Good and Bad Bacteria

Every dog, (and human for that matter), has both "good" and "bad" bacteria in their intestines as part of its normal intestinal ecology. In order for the immune system to function well, the good bacteria or "probiotics" (translated meaning - "for life") should typically make up eighty percent of the intestinal flora. The "bad" bacteria (including naturally occurring salmonella and e.coli), will then make up the remaining twenty percent of the intestinal flora. Dogs, being opportunistic carnivores, designed to eat things we

humans shudder at the thought of, have gastrointestinal tracts which are designed with many unique features that prevent pathogenic bacteria such as salmonella and e.coli from taking over their body and upsetting the healthy balance of intestinal flora.

A dog's saliva has digestive enzymes that contain properties which neutralize bacteria and help prevent harmful pathogenic micro-organisms from migrating in significant numbers into the gut. Any remaining bacteria is then eliminated by strong hydrochloric acids designed, and specific to carnivores, to create just the right pH (1 to 2) for the inherent enzymes to kill any residual bacteria making their way into the gut.

When the pet's immune system is healthy, the few bacteria that might survive the high acid content of the stomach will then pass into the small intestine which in a healthy animal contains the naturally occurring digestive enzymes, bicarbonate and bile salts which are deposited by the liver and pancreas. These enzymes are designed to digest the cell walls of any harmful bacteria that may persist and the bile salts from the liver will digest fats (in their natural, raw state) and transport antimicrobial agents. The healthy digestive tract also secretes a potent enzyme called lysozyme which attacks bacterial cell walls. Any bacterium that may sur-

vive this arsenal will still need to adhere to the lining of the intestinal wall for illness to occur.

Bacteria naturally and symbiotically exist within the animal's body and generally do not cause harm. An individual dog's diet, environment, body chemistry, and immune system will influence their own particular floral balance.

The intestinal flora in a healthy dog is relatively stable. This stability of normal flora actually discourages any infection by outside pathogens such as salmonella and prevents their overgrowth.

A Healthy Diet

When our dogs are fed foods which have been cooked and/or processed (as is the case with commercial pet foods), they are void of the live enzymes that are critical to proper digestion and health. The dog's body must then call on the enzyme reserves within itself to process this unnatural food thereby rapidly depleting these critical enzymes.

Despite the dog's natural defenses against salmonella, only a small number of bacteria is required to create infection although, as previously stated, this number is directly related to the immune health of the dog.

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To decrease the dog's risk of salmonella related illness, it should be fed a species appropriate diet. Dogs are opportunistic carnivores requiring a diet of raw meat and bones. We are often asked if raw meat and bones also carry harmful bacteria such as salmonella, and the answer is yes. However, the fact that bacteria are present in raw meat shouldn't come as any surprise. There is simply no such thing as "bacteria-free" meat. Most of the 10 billion cows, pigs, and birds butchered every year for meat are contaminated with naturally occurring bacteria. It is fairly probable that the meat you bring into your home to feed yourself is potentially as contaminated with bacteria as raw meats fed to pets! For example, salmonella has been identified in samples of ground beef, ground chicken, and ground turkey.

"Meat from healthy animals becomes contaminated at slaughter. Meat surfaces become infected with microorganisms associated with food poisoning during handling, packaging, processing, storage, and transportation. Although many procedures have been incorporated into food processing procedures for both the meat and poultry industries to reduce the level of contamination, bacteria persists. All products should be considered contaminated.

The acidity of the dog's stomach is designed to kill pathogenic bacteria because it is implicitly designed to process raw meat. Grains and other foodstuffs which are not common to a carnivore's natural diet will alter the pH of the gut, making it more alkaline. This change in acidity will negatively impact the dog's ability to destroy potentially harmful bacteria such as salmonella.

The surviving bacteria that make their way into the intestinal tract are also more likely to flourish in a dog that is fed grains. Grains, cooked and processed foods, as well as vegetable matter languish in the intestinal tract much longer than meat protein because carnivores lack the enzymes necessary to break down, digest or properly assimilate any nutrition from these omnivorous foods. In turn, this slow movement creates an opportunity for harmful bacteria such as salmonella to quickly multiply and create illness.

Finally, dogs that are fed poor or inappropriate diets already have a weakened immune system due to the lack of vital enzymes and live nutrients that would be supplied by a fresh food diet; and this will certainly encourage an increased risk of bacteria related illnesses.

The Human Factor

The human intestinal tract does not share anywhere near the same efficiency as the dog's, so reducing the risk of salmonella related illness is of much greater importance for humans. To reduce salmonella risk in humans, it is necessary to practice good sanitation techniques whenever feeding dogs, whether it be kibble, treats or even raw meat or poultry products.

Hand-washing after handling pet food, treats, or meats is imperative. In addition, kitchen work surfaces or any utensils used, such as knives, dog dishes, etc., should be washed with a non-toxic, natural anti-bacterial product such as distilled white vinegar, fresh lemon juice, hydrogen peroxide, or grapefruit seed extract.

In conclusion, after taking the necessary precautions for human safety, salmonella should not be an issue for naturally raised, healthy dogs.

About the Authors

Dr. Kim & Dr. Jeannie are veterinary naturopaths who together host the Animal Talk Naturally Radio Show. Both are adjunct professors at Kingdom College of Natural Health. Dr. Kim is also co-author of the book Whole Health for Happy Dogs together with holistic veterinarian, Dr. Jill Elliot and author of Animals Taught Me That. Dr. Jeannie is the founder of the Natural Rearing Breeders Association and The Whole Dog. Both are available for pet nutrition & wellness consultations. Visit their websites at www.aspenbloompetcare.com and www.thewholedog.org