



To Mix or Not to Mix? That is the Question...

By Laura Duclos, PhD

There are various opinions being expressed on the internet and among professionals regarding the practice of mixing raw with kibble. Some advocate mixing while many others contend raw should be fed separately. While there is little scientific evidence dealing directly with this topic, there is a lot of information and published papers discussing animal digestion and physiology. We know a lot about what influences gastric emptying and residence time.

The primary reason many don't feel it is okay to mix raw with kibble has to do with digestion rates, arguing that kibble is digested more slowly and would prevent raw from emptying into the intestinal tract. One could argue that there are many pet parents that mix kibble and canned and many pet food companies that have been selling "mixers" or "toppers" for years, so the different digestive rates must not be the main reason for suggesting owners do not mix. The main reason seems to be the fear that raw food, if not allowed to leave the stomach quickly, will somehow "rot" inside the stomach or that nutrients in the raw will not be absorbed properly.

If the raw lingers in the stomach, can the bacteria in raw meat actually proliferate and cause disease? Can slowed gastric emptying actually impair nutrient uptake? At present, there is no scientific evidence that supports or refutes this theory. What we do know is that the canine and feline digestive tract is designed to handle raw meat, even fermented or partially spoiled meat. More importantly, canines are known scavengers and will eat a variety of foods, not just raw meat. But just to be sure, and to provide pet parents with safe food for their pet, Nature's Variety pasteurizes and pathogen tests the raw and freeze-dried foods, virtually eliminating the risk of food borne illness from raw food.

The following sections provide more detail about digestion, gastric emptying, and nutrient absorption relative to canines and felines.

The Basic Process of Digestion

The digestive tract begins in the mouth; chewing reduces food particle size and mixes the food with salivary enzymes that begin to breakdown carbohydrates. Once swallowed, the chewed food enters the stomach where it mixes with strong acids, mucus, and proteases (enzymes that break down proteins). The stomach mixes and churns the food, reducing it to a slurry. If the slurry is the right acidity, viscosity, and particle size, the pyloric sphincter (a muscular ring-like valve) opens and the food enters the small intestine where fats and carbohydrates are broken down. The small intestine is the site of more enzymatic digestion and finally, nutrient absorption.

The digestive process is a catabolic event meaning that fat, carbohydrates, and proteins are broken down into smaller constituents which are absorbed and used by the body to provide energy or build new tissues in a process called anabolism. The process may appear simple, but digestion is really a complex interaction of mechanical and chemical processes under hormonal control. In addition to physiological controls, the type of food ingested and its chemical composition influence digestion.

Factors That Affect Gastric Emptying

In general, moisture content and particle size will drive gastric emptying; small particles will exit the stomach faster than solids or large particles because liquids and small particles are more quickly turned to a slurry. However, that is where generalities stop. We cannot definitely say canned food exits the stomach faster than kibble since food composition and hormonal controls play a large role in how quickly the stomach can make the slurry.

The amount of fiber, fat and protein will either increase or decrease gastric emptying independently of the food's moisture content.

- High fat diets typically neutralize stomach acids and delay emptying.
- High soluble fiber diets will act like a sponge, reducing the amount of liquid and increasing the length of time food remains in the stomach.
- Protein digestion begins in the stomach, so diets high in protein will tend to linger in the stomach giving the proteases more time to breakdown the proteins.

Lastly, meal size and emotional status of the animal can influence gastric emptying. The stomach needs to properly mix the food before it can empty; large meals fill-up the stomach and impede thorough mixing. Mixing of the stomach contents along with gastric secretions such as acids, mucus, and enzymes, is controlled by a complex series of nerve impulses and hormone releases. Animals that are stressed, anxious, or have an endocrine disorder may have delayed or even increased gastric emptying.

Nutrient Absorption and Utilization

The goal of digestion is to release nutrients locked in food. Absorption is the process of gathering those nutrients, shuttling them from the GI tract into the body where they are used for energy and tissue growth. The stomach and small intestine are the major sites of digestion. The stomach does not absorb nutrients; it releases them from the food matrix. The longer food spends in the stomach, the greater the amount of breakdown. The entire small intestine is the site of nutrient absorption, not the stomach. Nutrients released from the food are absorbed through the intestinal wall into the bloodstream. The speed of food flowing through the intestine will impact the amount of nutrients that can be absorbed. Fast moving nutrients may not be completely utilized.

Summary

Mixing raw with kibble or canned with kibble are common feeding practices that have been practiced for years without negative effects. Mixing raw with kibble does not lead to an increased risk of bacterial disease nor does it impair nutrient utilization. While mixing may influence the length of time food remains in the stomach, rates of gastric emptying cannot be broadly applied to categories of food such as "wet" or "dry." Emptying depends on many factors, not just the amount of moisture in the food such that if two foods are mixed, the resulting emptying rate is not simply the result of adding the two rates together. Food interacts with other physiological processes.

Dogs and cats thrive on a diet of raw meat. Many pet parents are beginning to understand the transformational benefits and have begun offering their pets raw food. But raw has inherent challenges, so for some pet parents, feeding exclusively raw may not be financially feasible or fit into their lifestyle. We believe that feeding any amount of raw, even as a topper on kibble is better than not feeding raw at all. But it is critical that the raw food is Complete and Balanced. Nature's Variety Instinct brand is the first and only line of raw pet foods to offer a variety of flavors that have passed AAFCO feeding trials, ensuring complete and balanced nutrition for dogs and cats. Our raw diets are made from quality ingredients, supply 100% natural nutrition, and are produced safely in our own facility; each batch is tested for pathogens prior to sale. Mixing Nature's Variety raw with kibble using a rotation diet is a great way to feed raw food so that your pet can receive the benefits of raw while still providing convenience and cost-effectiveness for the pet parent. At Nature's Variety, we believe in offering a variety of nutritional options to help transform the lives of pets.

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