

Four Limitations of Extruded Dog Food

You have just switched dog foods and are feeding the best extruded dog food money can buy, but now you're asking, why has my dog started to itch? This is where a little education on the limitations of extruded dog food comes in.

The main concern with extruded dog food is the extruding, the process needed to create the "kibble". Heat created by the extrusion process is the source of these limitations.

1. Vitamin Destruction:

Extruding can destroy the water soluble B-vitamins thiamine, pantothenic acid, folic acid, and biotin. Up to 90% of thiamin is destroyed by processing of extruded dog food. (*AAFCO Dog Food Standards*) Thiamin deficiency may show up as stool eating (*Reed and Harrington 1981*), but there are various reasons for stool eating other than a thiamin deficiency, like imprinting and inherited instinct. Other B-vitamin deficiency symptoms include muscle weakness, anemia, and loss of appetite. Fat soluble vitamins like A, D and E are much more stable, but up to 15-20% losses are not uncommon.

2. Flax Seed Oil Oxidation:

Omega-3 fatty acids have long been known to have a direct effect on skin and coat condition of dogs. An animal fed a diet deficient in an essential fatty acid (EFA) for 2-3 months will develop a dull, dry coat with fine scaling of the skin (*Watson, 1998*). Flax seed and flax seed oil are a great source of omega-3 fatty acids, but heat (created by extruding) and light need to be avoided to prevent oxidation (rancidity). Refrigeration has been recommended as a way of keeping flax seed fresh. Flax seed oil that has gone rancid should not be fed to dogs.

3. Enzyme Denaturing:

Enzymes are important to the digestive process increasing nutrient availability to the dog. Nutrients like phosphorus, calcium, iron, zinc, protein, and energy are more available to boost the dog's immune system. Enzymes are proteins and are denatured (destroyed) when exposed to heat.

4. Probiotic Death:

This is where we answer the question of "Why is my dog itching?" The digestive tract is home to billions of microorganisms. These intestinal "bugs" are expecting the same meal that they have been getting. Now, we suddenly give them a different dog food, table scraps or Spot finds something on his own in the neighbor's garbage. It is possible the change in nutrition threw off the intestinal flora (always change foods slowly), creating a yeast or candida over-run in the intestine. The yeast quickly moves to the outside of the dog, causing the itch.

We have all seen the yogurt commercials talking about the importance of probiotics to people. Well probiotics are important to dogs too. Lactobacillus is a probiotic that lives and creates lactic

acid in the intestine. It is this lactic acid that keeps yeast and candida from running wild in the intestine. Lactobacillus also helps prevent our dogs from having loose stools, by improving the overall intestinal environment. The problem is lactobacillus is easily killed in the intestine by antibiotics, rapid changes in diet and stress. Lactobacillus is also sensitive to heat, so providing lactobacillus in an extruded dog food is an inefficient way of delivery.

Extruded dry dog foods are perfectly fine for most dogs. Extruding offers palatability, stability and convenience. It is important to understand although, extruded dog food does have limitations and it is these limitations that help us understand why raw diets and/or supplementation have grown so much in popularity.

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