



## Grain Free Diets and Cardiomyopathy – Food for thought

The idea of feeding a complete and balanced dog food that is possibly causing harm should be alarming to any pet food company and pet owner. The FDA and AVMA are now concerned about grain free diets as a potential cause of dilated cardiomyopathy (DCM). This may be a valid concern in selected cases, but when looking at current data, this becomes a little more complicated. Of the 77 reported cases of DCM presented to the FDA, 42 of them were fed grain free diets. All of the diets in question have been tested and a variety of nutrients including taurine have come back within the normal range. With this current information, it is concerning, but surely not a complete or simple story by any means. There is a lot more going on here than just “grain free diets.” There is a genetic predisposition, a GI microbiota alteration and/or problematic pet food formulation/processing creating this “perfect storm.”

Although many think this is something new, similar problems arose in the mid-2000’s with rice bran and lamb based diets. The exact same scenario was identified in Newfoundlands as well as a few other atypical DCM breeds on these diets, who were eating lower protein, non-methionine/taurine supplemented, high insoluble and soluble fiber, and high ash diets. This sounds similar to the problem today: low protein, non-supplemented methionine/taurine, high insoluble and soluble fiber, high ash diets. This time they are grain free, which may be due to their current popularity in the marketplace.

Let’s break this down:

Thus far, these dry diets have below 26% protein (as fed) comprised a mix of meat and plant protein sources. Today, this is considered **moderate to lower protein** for a kibble. The quality of the protein is directly related to the sourcing. Although 26% as fed protein in a dry kibble would be considered adequate, many companies without nutrition expertise may not check the specific amino acid content of the diet or check on the quality of those amino acids, which is difficult and expensive. Interestingly, ash has not been talked about in these newer cases, but the **ash content** is directly related to the amount of bone in the diet, which is not a particularly good protein source. High ash in a diet usually means more bone related protein is in the food than actual meat protein, something we should all be more cognizant of when choosing pet foods. The ash content may be hard to come by without calling the manufacturer. More concerning is that methionine and cysteine, sulfur containing amino acids, can become oxidized during the processing of meats and the availability will not be 100% of what is in the product. In many cases, companies will **add methionine** to the diet to ensure the methionine requirement is met for protein synthesis, as it is the **primary precursor to taurine synthesis**. This adding of methionine ensures an appropriate amount for the synthesis of this critical quaternary amino acid derivative that is important for heart health.



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In addition, taurine in dogs is conjugated to bile acids for fat digestion and absorption, thus there may be some wasting occurring in the GI tract. **Higher insoluble and soluble fibers** primarily from peas and a variety of legumes could be doing one of two things: 1) causing a bloom of a bacteria in the GI tract that actually chew up the taurine making it unavailable for reabsorption in the distal small intestine or 2) causing a unique interaction in the actual pet food itself making it unavailable for absorption in the GI tract all together.

This is a very frustrating concern with no definitive solution other than ensuring quality protein is being used and that we are supplementing with additional methionine and/or taurine in diets. Annamaet has been doing this in all of our formulas for many years – grain free or not. Those of us formulating diets remember the same crisis developing in 2003 from rice bran and lamb meal, therefore when we formulate, we are always sure to include-methionine and/or taurine. Sadly, even in that situation from 2003, when investigators tried to recreate the disease they were unsuccessful. This showed us that it has a lot more to do with the dog, the microbiota in the GI, and the processing of dog food than it has to do with the ingredient base. Let's not start a "knee jerk reaction" about any specific ingredients, but perhaps examine the pet food industry, the company making the food, their science and who they have on board as formulators and nutritionists.

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