



Diet-Related Myocardial Failure in Dogs

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Introduction

In 2018, anecdotal reports emerged that some grain-free diets, or diets containing legumes as the main non-meat component, were resulting in taurine deficiency and potentially contributing to dilated cardiomyopathy (DCM)

Clinical Use Information

What is the latest information about myocardial failure and grain-free diets?
Which diets have been implicated?
What should I do if a client is feeding grain-free diets to their dog(s)?
How much taurine should I supplement? Can I overdose with taurine?
What resources are available for me and my clients?

What is the latest information about myocardial failure and grain-free diets?

In July 2018, the FDA first issued a warning about diet-associated DCM in dogs. This was based on observations of veterinary cardiologists, and reports to the FDA of "untoward" cases. Several cardiologists have investigated this issue and have not come to a single conclusion — some have implicated diets and taurine deficiency in specific breeds (e.g. Golden Retrievers) (Olsen 2018) (Morris Animal Foundation 2017), while others have shown a relationship between the implicated diets and DCM but failed to find a strong association with taurine deficiency (Adin et al 2018).

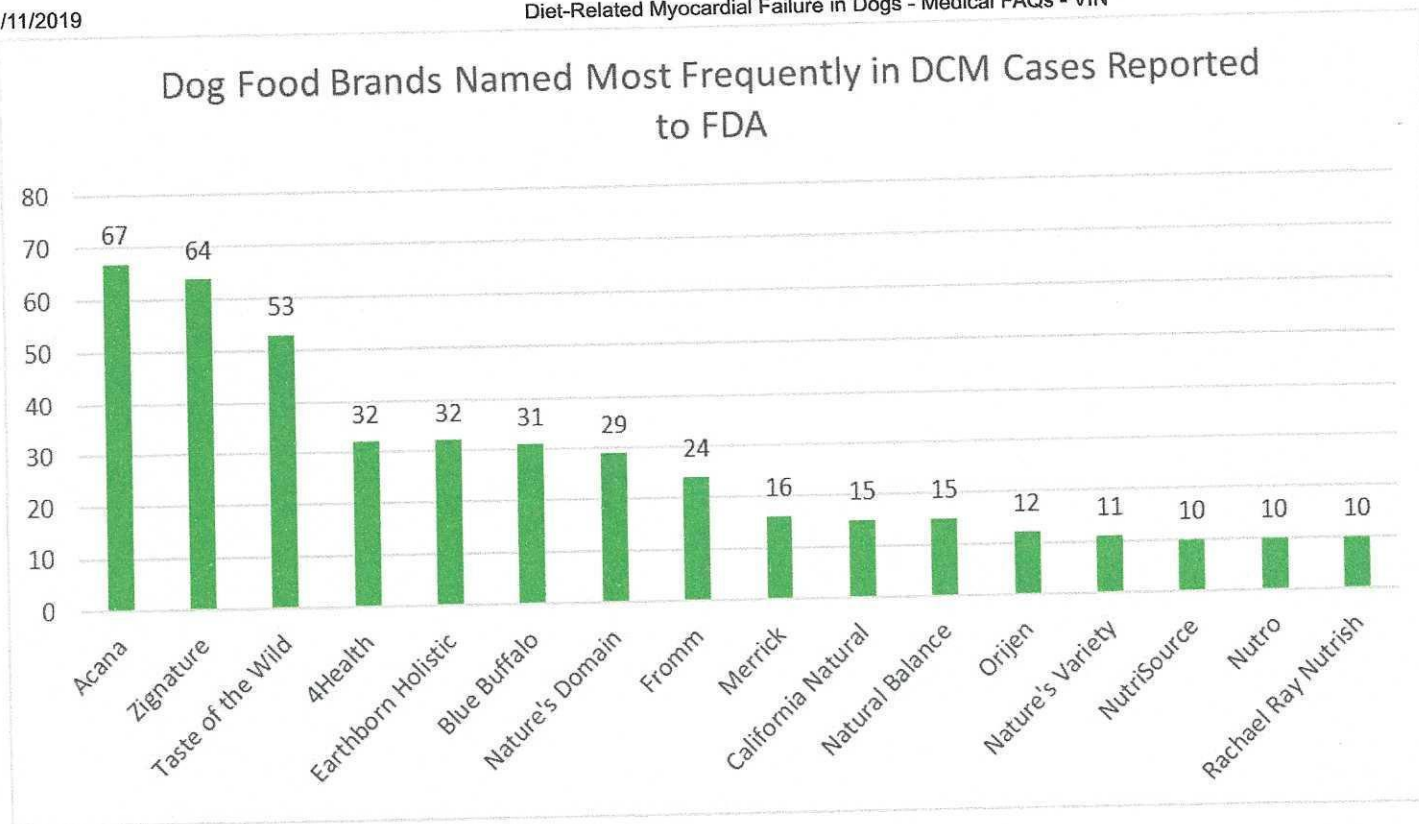
In June 2019, the FDA updated their warning (<https://www.fda.gov/animal-veterinary/news-events/fda-investigation-potential-link-between-certain-diets-and-canine-dilated-cardiomyopathy#diet>) about grain-free diets and DCM. In this report the provided some data about the number of reports obtained, the breeds affected etc. .

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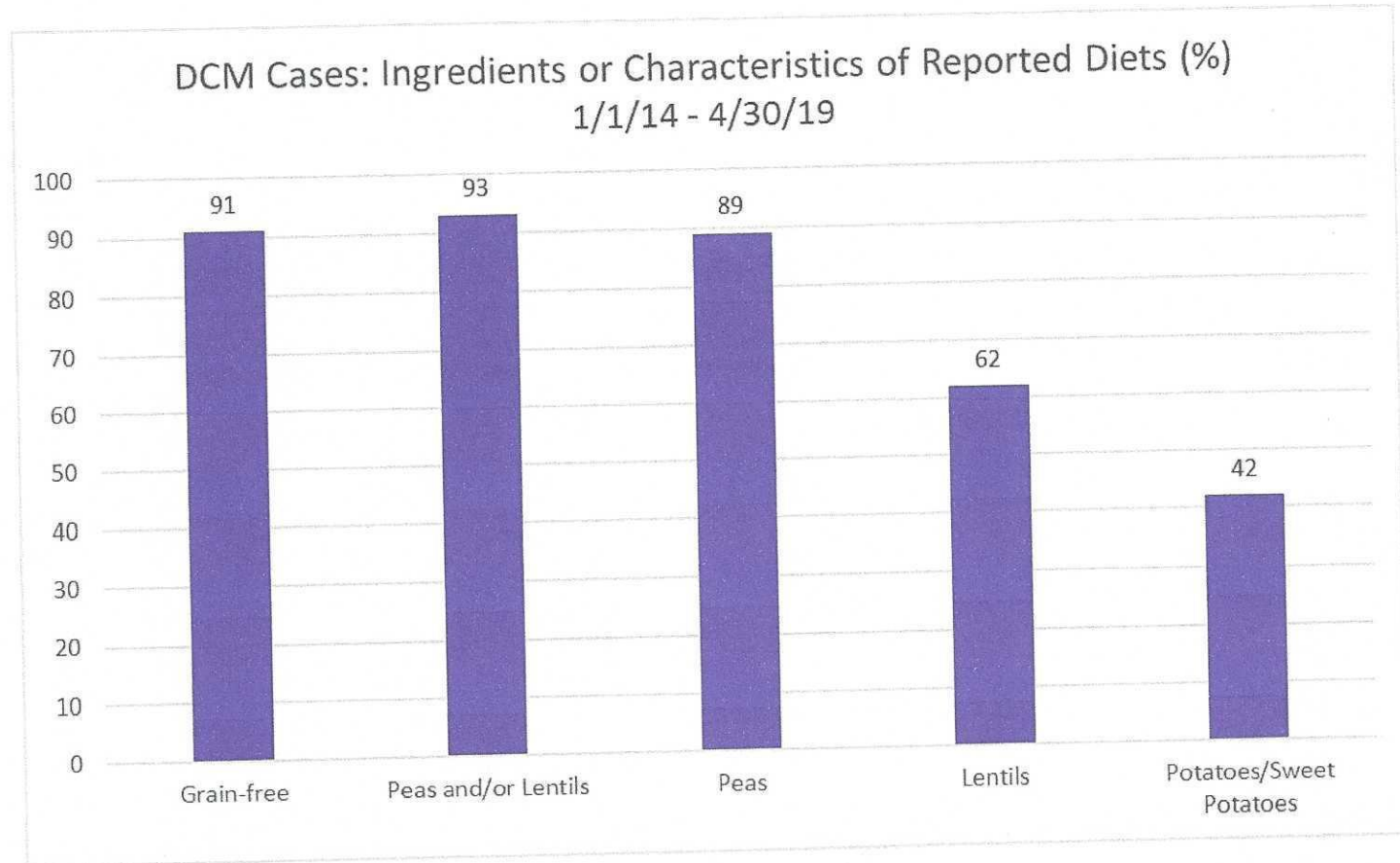
Which diets have been implicated?

Multiple diets have been implicated. The June 2019 FDA report provides a list of pet food brands that have been implicated. Almost 50% of the cases reported to the FDA were being fed Acana, Zignature or Taste-of-the-Wild diets. However, 13 other companies' diets were also listed.





FDA analysis of the diet composition found that 91% of cases were being fed a "grain-free" diet, and 93% had peas/lentils as the major grain substitute.



In one study, Kangaroo and Red Lentil diet was implicated (Adin et al 2018). Therefore, rather than focusing on specific brands, clinicians should focus on the main ingredients in any "grain-free" diet. Clinicians should note that several companies manufacturing such diets have started to address the

concerns by producing marketing literature and possibly changing diet composition, but this does not mean that a particular diet is "OK". If it's grain-free and legume-based, then it is considered a suspect diet.

It is important to note that no prescription diets that are nutrient-restricted have been implicated or reported in sufficient numbers to warrant listing by the FDA.

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What should I do if a client is feeding grain-free diets to their dog(s)?

There are several options that clinicians can consider, depending on the clinical presentation.

1. For dogs without cardiac clinical signs that appear healthy, changing the diet is the simplest and most conservative action until more definitive information relating to this emerging pattern is discerned.
2. If the owners do not wish to change the diet as a preventive measure without more information, consider an echocardiogram and testing taurine concentration in plasma and whole blood (see [this link \(/doc/?id=3854771\)](/doc/?id=3854771) for sampling methods and submission requirements).
3. If myocardial failure is identified, change the diet and consider taurine supplementation regardless.
4. If taurine concentration is low, change the diet and initiate taurine supplementation
5. Repeat the echocardiogram in 4 to 6 months to assess resolution of the myocardial failure.
6. Report your findings to the [FDA](#) (<https://www.fda.gov/AnimalVeterinary/SafetyHealth/ReportaProblem/ucm182403.f>)
7. If the owners do not wish to change the diet or perform an echocardiogram, test the dog's taurine concentration (plasma and/or whole blood).
 - a. If low, supplement with taurine and strongly encourage changing diets to one not implicated in the problem.
 - b. If normal, encourage the owners to keep abreast of evolving information on this issue.
8. If the owners are unwilling to change the diet and are unwilling or unable to afford an echocardiogram and taurine analysis, strongly encourage the owners to supplement the diet with taurine, which is safe and [inexpensive](#) (https://www.amazon.com/s/ref=nb_sb_noss_1?url=search-alias%3Daps&field-keywords=taurine).

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How much taurine should I supplement? Can I overdose with taurine?

Safe doses of taurine are in the range of 250 mg per day for long-term supplementation. Acute dosing, in situations where a rapid correction is required are in the 500 mg to 1 gm per day range for most dogs (approximately 50 mg/kg/day). Whether large doses of taurine can cause problems is not



well understood, but some researchers have raised concerns that long-term overdosing can cause problems. Therefore, high doses of taurine should be used only in cases where myocardial failure has been documented and only for 2-3 months, which myocardial function is being restored.

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What resources are available for me and my clients?

- You can refer your clients to [Lisa Freeman's blog](http://vetnutrition.tufts.edu/2018/06/a-broken-heart-risk-of-heart-disease-in-boutique-or-grain-free-diets-and-exotic-ingredients/) (<http://vetnutrition.tufts.edu/2018/06/a-broken-heart-risk-of-heart-disease-in-boutique-or-grain-free-diets-and-exotic-ingredients/>) that discusses this issue in detail.
- The [UC Davis website](https://www.vetmed.ucdavis.edu/news/uc-davis-investigates-link-between-dog-diets-and-deadly-heart-disease) (<https://www.vetmed.ucdavis.edu/news/uc-davis-investigates-link-between-dog-diets-and-deadly-heart-disease>) also has a page discussing the issue and the studies that are currently under way.

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Proceedings

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Rounds and Other Resources

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2. Morris Animal Foundation. [Researchers getting closer to understanding dietary taurine and heart disease in dogs](https://www.morrisanimalfoundation.org/article/researchers-getting-closer-understanding-dietary-taurine-and-heart-disease-dogs) (<https://www.morrisanimalfoundation.org/article/researchers-getting-closer-understanding-dietary-taurine-and-heart-disease-dogs>). 2017
3. [Measuring Taurine](#) ([/doc/?id=8639139](#)) — VIN Medical FAQ
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