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# Echocardiographic phenotype of canine dilated cardiomyopathy differs based on diet type

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## Abstract

### Introduction

Canine dilated cardiomyopathy (DCM) can result from numerous [etiologies](#) including [genetic mutations](#), [infections](#), [toxins](#), and nutritional imbalances. This study sought to characterize differences in echocardiographic findings between [dogs](#) with DCM [fed](#) grain-free (GF) [diets](#) and grain-based (GB) [diets](#).

### Animals

Forty-eight dogs with DCM and known [diet history](#).

### Methods

This was a retrospective analysis of dogs with DCM from January 1, 2015 to May 1, 2018 with a known diet history. Dogs were grouped by diet (GF and GB), and the GF group was further divided into dogs eating the most common grain-free diet (GF-1) and other grain-free diets

(GF-o). Demographics, diet history, echocardiographic parameters, [taurine](#) concentrations, and vertebral [heart](#) scale were compared between GB, all GF, GF-1, and GF-o groups at [diagnosis](#) and recheck.

## Results

Dogs eating GF-1 weighed less than GB and GF-o dogs, but [age](#) and [sex](#) were not different between groups. Left ventricular size in [diastole](#) and [systole](#) was greater, and sphericity index was less for GF-1 compared with GB dogs. Diastolic left ventricular size was greater for all GF compared with that of GB dogs. Fractional [shortening](#), left atrial size, and vertebral [heart](#) scale were not different between groups. Taurine deficiency was not identified in GF dogs, and presence of [congestive heart failure](#) was not different between groups. Seven dogs that were reevaluated after diet change (6 received [taurine](#) supplementation) had clinical and echocardiographic improvement.

## Conclusions

Dietary-associated DCM occurs with some GF diets and can improve with nutritional management, including diet change. The [role](#) of taurine [supplementation](#), even without deficiency, is uncertain.

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## Keywords

Nutritional; Heart failure; Dog; Taurine

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