

## **Commonality in features observed as early responses in healthy dogs fed a legume-rich diet and in dogs diagnosed with dilated cardiomyopathy 2018-2020**

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To investigate the link between feeding dogs a grain-free, legume-rich diet and dilated cardiomyopathy (DCM), a pilot study was conducted at Waltham Petcare Science Institute (Leicestershire, UK). This identified early responses to legume-rich diets in healthy adult large breed dogs (Labrador Retrievers), which were then evaluated for commonality with DCM-diagnosed pets.

The feeding study had a parallel design, with the two diet groups balanced for body weight, age and gender: five in the control and six in the test diet group. The control and test diets differed in core recipe. The control diet contained a grain/legume mix of corn, wheat, brewers rice, soybean meal, and dried beet pulp, while the test diet contained split peas, red and green lentils and flaxseed, with a total legume inclusion level of 60%. With the exception of a higher fiber content in the test diet, the two diets had similar proximate content. Following 18 days on the control diet, subsequent baseline sampling, and a 7-day transition period onto the test diet, biological samples were collected on days 3, 14 and 30 of the 30-day feeding trial. Analyses revealed that the legume-rich test diet caused progressive and significant ( $p < 0.0001$  for day 30) changes in various parameters.

To better understand the clinical implications, the electronic medical records of 28,734 dogs at Banfield™ clinics and hospitals between 2018 and early 2020 were initially interrogated, among them 307 dogs diagnosed with DCM. A case-control balanced dataset was created using propensity scoring, with cases and controls matched for breed, gender and age category. Ranking tests subsequently performed suggested commonality among highly ranked features in dogs diagnosed with DCM and results from the 30-day pilot trial. This suggests an etiological association between diet and DCM, and will aid in generating further hypotheses for future studies.