

“Research on new trends in formulation of dog diets”

Introduction

In the pet food market, there has been an increase in the supply of new product lines called "natural", "ancestral", "vegan", "instinctive" or "wild" in response to the current consumer demand. These categories of feeds follow different tendencies about the carbohydrates and proteins content in contrast with traditional pet food.

Objective

Verify if these new trends have a scientific basis

- There is a trend to **replace cereals with tubers and legumes**;
- There is a **change in the caloric distribution** with more energy contributed by proteins instead of carbohydrates;
- There is a great variety of ingredients used as **sources of animal protein**;
- There is a tendency to **increase the protein intake**.

Cereals vs legumes as starch sources

Cereals are the main source of carbohydrates used for the manufacture of dog food (Murray et al., 1999; Svihus et al., 2005; Carciofi et al., 2008), especially corn, wheat, sorghum, barley and rice (Nakamura et al., 2015).

As an alternative we find legumes, such as chickpeas, lentils and peas. Their starch has a lower digestibility and IG than the one of cereals (Adolphe et al., 2015), being beneficial for metabolic health. Other advantages of legumes are that they are nutritious, reduce cholesterol and blood pressure, and have antioxidant properties (Brummer et al., 2015).



Carbohydrates as a source of energy

Scientific studies have identified in the dog mutations in genes with key functions in starch's digestion. This evidence justifies the omnivorous nature of the dog in front of the carnivorous wolves (Axelsson et al., 2013; Buff et al., 2014).



Animal protein sources

Several studies classify the most used ingredients as sources of animal protein according to their quality: chicken > fish > beef and liver > lamb (Latshaw, 1990; El, 1995; Sheeshka and Murkin, 2002; Dust et al., 2005; Kawauchi et al., 2014).

About meat proteins, those obtained from fresh products are of better quality than those from processed ones (Murray et al., 1998; Cramer et al., 2007), and those from skeletal muscle are better than those from animals by-products (Rivera et al., 2000). About the use of fish as a protein source, they offer advantages over meat, such as higher palatability (Heinicke, 2003 cited by Dust et al., 2005), higher satiating capacity (Vester et al., 2012), more PUFAs contribution (Zinn et al., 2009; Sheeshka and Murkin, 2002), immunomodulatory effect (Holen et al., 2016).



Amount of protein content

The increase in protein intake in the wild-ancestral diets is useful in certain pathological conditions, such as obesity (Diez et al., 2002; German et al., 2010), but it is not in physiological conditions.

Conclusions

- **Legumes are a good alternative** to the use of cereals as a source of carbohydrates;
- Diets with **carbohydrates as the most important source of energy** does not seem to be inadequate for dogs;
- There is a wide variety of sources and forms of presentation of animal protein, among which **fresh chicken meat** stands out for its quality;
- The **increase in protein content does not provide extra benefits** in healthy dogs.

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