

USE OF VEGETARIAN AND VEGAN DIETS IN CATS AND DOGS



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Objectives

- To analyze the main risks of the vegetarian and vegan diets in dogs and cats.
- To study the nutritional adequacy of different commercial brands based on the information provided on the label.

Risks

- Insufficient quantity of essential aminoacides.
- Excessive carbohydrates.
- Arachidonic acid insufficiency in cats.
- Calcium and phosphorus imbalance.
- Insufficient iron, excess of metals.
- Vitamin D, retinol, niacin, folate and cobalamin deficiency.

Market analysis

7 brands that sell in Europe were selected, choosing 7 dog products and 3 cat ones to study. The information sources were their websites and the label of the product.

Commercial profile:

- The majority of the brands show ecologist worries and highlight health benefits.
- Most of them are small businesses that try to empathize with the customer.

Nutritional adequacy:

Comparison of quantities indicated on the label and FEDIAF recommendations.

- Only brand 7 indicates aminoacid composition -> incorrect declaration.
- Low threshold of the requirements.
- General inadequacy of daily recommendations caused by simplification, dangerous given the increasing obesity in pets.

	Brand 1	Brand 2	Brand 3	Brand 4	Brand 5	Brand 6	Brand 7	FEDIAF	
								Minimum	Maximum
Protein(g)	74,4	62,8	62,4	68,1	50,1	68,6	71,0	52,1	-
Taurine (g)	-	0,1	0,3	-	-	-	0,13	-	-
L-threonine (g)	-	-	-	-	-	-	0,14	1,51	-
L-lysine (g)	-	-	-	-	-	-	0,14	1,22	7
-tryptophane (g)	-	-	-	-	-	-	0,03	0,49	-
L-methionine (g)	-	-	-	-	-	-	0,03	1,16	-
L-Carnitine (g)	-	0,07	0,09	0,28	-	-	-	-	-
Fats (g)	33,1	38,9	25,5	26,4	23,6	32,9	28,4	13,8	-
Calcium (g)	-	3,59	2,41	3,89	-	-	2,56	1,45	6,25
Phosphorus (g)	-	2,69	1,84	3,32	-	-	2,27	1,16	4
Ca/P ratio	-	1,33	1,3	1,17	-	-	-	1	2
Zinc (mg)	-	34,4	45,4	17,9	-	27,4	-	20,8	-

Table 2: comparison of the nutritional values on dogs' food given by the brands and the ones recommended by FEDIAF (unit per 1000 Kcal).

Benefits

- Food allergies.
- Human studies: less risk of cancer, coronary illnesses gallstones and diabetes.
- Lack of reliable studies in animals.

Nutritional analysis:

Ingredients:

- Plant proteins can be less adequate but good combinations can be found.
- Antinutritional factors are an obstacle.
- Seaweed as a source of arachidonic acid, proteins and micronutrients.
- Interesting ingredients as Yucca Schidigera that is added to decrease faeces mal odor but is possible that has anti-arthritic and anti-inflammatory effect.

Protein sources
Yeast
Peas
Corn protein
Hydrolyzed vegetable protein
Soy
Potato protein
Rice protein
Wheat protein
Lupines
Lentils

Table 1: protein sources of the 10 analyzed foods.

Labelling:

- Labelling errors, especially brand 5, such as not indicating the quantities of some ingredients highlighted on the packaging.

	Brand 1	Brand 6	Brand 7	FEDIAF	
				Minimum	Maximum
Protein (g)	74,9	91,7	78,74	83,8	-
Taurine (g)	-	0,42	0,42	0,33	-
L-threonine (g)	-	-	0,06	1,73	-
L-tryptophane (g)	-	-	0,03	0,44	4,25
DL-methionine (g)	-	-	0,22	0,57	3,25
Lysine (g)	-	-	0,21	1,13	-
Fats (g)	34,8	36,1	33,7	22,5	-
Arachidonic acid (mg)	-	-	169	20	-
Calcium (g)	-	-	2,2	1,33	-
Phosphorus (g)	-	-	2,1	0,85	-
Fe (mg)	-	-	21,1	26,7	-

Table 3: comparison of the nutritional values on cats' food given by the brands and the ones recommended by FEDIAF (unit per 1000 Kcal).

	Energy (Kcal ME/kg)	Moderate activity (Kcal ME/day)
FEDIAF		1135
Brand 1	3631	1362
Brand 2	3344	1057
Brand 3	3526	688
Brand 4	3525	1022
Brand 5	-	-
Brand 6	3647	1167
Brand 7	3521	1024

Table 4: energetic concentration of the dogs' food calculated with the NRC (2006) equations and daily recommendations (kcal EM/día) based on the brand's information and the FEDIAF for an dog of 20 kg.

	Energy (Kcal ME/kg)	Castrated/indoor (Kcal EM/day)
FEDIAF		178
Brand 1	3740	187
Brand 6	3598	288
Brand 7	3556	217

Table 5: energetic concentration of the cats' food calculated with the NRC (2006) equations and daily recommendations (kcal EM/día) based on the brand's information and the FEDIAF for an dog of 4 kg.

Conclusions

- More difficult to adequate this type of diets for cats.
- Not enough information about components that are critical, especially essential aminoacids.
- Need of more studies about this topic with garanties.
- All diets correctly formulated and supervised are valid, but vegetarian and vegan ones are especially delicate as they are hard to formulate. Observing the results of this study, finding a brand that gives enough information to analyse the adequacy of the diet seems difficult.