

A high protein intake allows the preservation of lean mass and prevents the increase of fat mass, compared to a moderate protein intake, in neutered cats.

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Introduction

Cats are strict carnivores and have a high dietary protein requirement. Rich-protein diets are often intended to prevent obesity or manage weight loss, as they help preserve the lean body mass.

The aim of this study was to assess the effect of an experimental high-protein low-carbohydrate maintenance dry diet (HP), compared to a commercial moderate-protein high-carbohydrate dry diet (MP), on body composition in neutered cats.

Animals, materials and methods

Twelve young adult neutered cats (19.6±0.4 months old; 3.56±0.2 kg BW) were randomized into 2 groups. They were fed exclusively, for 5 months, either the HP or the MP diet.

The daily rations were calculated to maintain the cats' body weight. Body composition (BC) was determined using deuterium oxide dilution at the beginning then at the end of the study.

Table 1: Ingredient lists of the tested diets

Diet	Ingredients
HP diet	Dehydrated poultry proteins, bean pods, pea, potato starch, animal fat, potato pulp, minerals, linseed, fructo oligosaccharides.
MP diet	Maize, dehydrated poultry proteins, maize gluten, animal fat, minerals, fish oil, hydrolyzed proteins, rice.

Table 2: Nutritional characteristics of the tested diets

	HP diet	MP diet
Protein (% DM)	50.2	33.7
Fat (% DM)	14.3	10.6
NFE (% DM)	18.7	48.4
<i>In vivo</i> ME (kcal/kg DM)	3,320	3,590

Results

On day 1, the 2 groups were similar regarding their BW and BC. In both groups no change in BW was observed. BC was unchanged in the HP group whereas significant changes were noticed in the MP group. As a consequence, the lean mass/fat mass ratio did not change in the HP group (74/26 and 75/25 at the beginning and the end of the study respectively), and showed a significant change in the MP group: from 77/23 to 69/31.

Table 3: Mean protein and NFE intake in each group

	HP diet	MP diet
Protein intake (g/kg BW/day)	7.2±0.6	4.6±0.3
NFE intake (g/kg BW/day)	2.6±0.3	6.7±0.5

Fig. 1: Evolution of the lean mass in each group

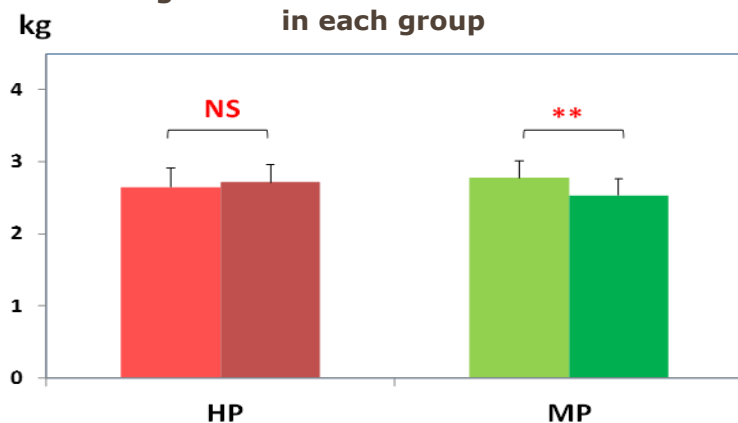
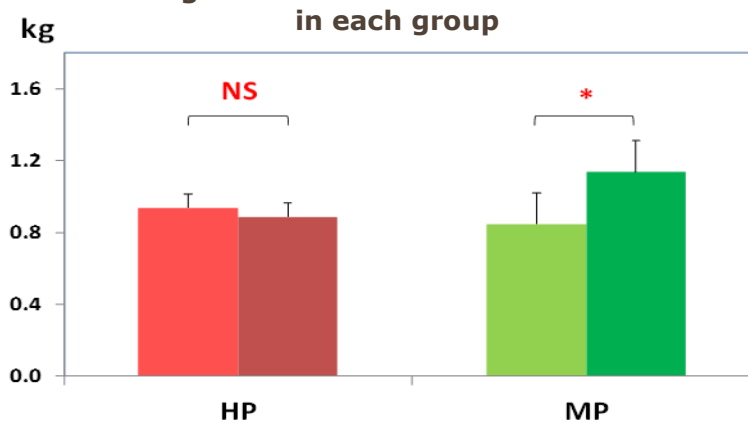


Fig. 2: Evolution of the fat mass in each group



*: p<0.05, **: p<0.01, NS: no significant difference

Conclusion

Although the protein content of the MP diet was higher than the recommended allowance^a, it appeared not high enough to maintain lean body mass in these cats. Our results are in accordance with another study showing that adult cats would require at least 5.2 g protein/kg BW/day to maintain their lean body mass^b.

a) National Research Council. Nutrient Requirements of Dogs and Cats. The National Academies Press, Washington. 2006. b) Laflamme DP, Hannah SS. Discrepancy between use of lean body mass or nitrogen balance to determine protein requirements for adult cats. J Feline Med Surg 2013; 15(8): 691-697.