

WEIGHT LOSS IN OBESE EXPERIMENTAL DOGS - EVALUATION OF A HIGH PROTEIN, LOW CARBOHYDRATE DIET

¹Diez, M., ²Nguyen, P., ¹Jeusette, I., ³Devois, C., ¹Istasse, L., ³Biourge, V.
1 Animal Nutrition Unit, University of Liège, Belgium
2 National Veterinary School of Nantes, France
3 Royal Canin, Centre de Recherches de Saint Nolf, Vannes, France

Obesity is the most common nutritionally-related health problem in companion animals (Sloth 1992). Successful treatment of obesity implies not only a reduction of food intake and weight loss of the animal after the weight loss program, but also owner compliance and motivation, behavioural changes, physical exercise and follow-up loss program is to provide a limited amount of energy in order to induce weight loss whilst providing sufficient nutrients, and especially protein to minimize deficiency and losses of fat free mass (Hannah 1999).

The aim of this study was to compare a high protein, low starch and high fibre diet -DP- (crude protein 44.1 %, fat 8.7 %, crude fibre 10.0 % -as is) with a low protein, high starch and high fibre diet -HF- (crude protein 21.6 %, fat 7.7 %, crude fibre 21 % -as is) during the weight loss program of 8 adult chronically obese Beagles, 4 neutered males and 4 intact females, 5.5 (range 4-7) years old, showing at least 30 % (30-72) excess body weight (BW). The dogs were allotted to 2 comparable groups according to sex and body weight. During a baseline period, dogs underwent hormonal and biochemical evaluation in order to rule out any primary hormonal or metabolic disorder. Body composition was determined using deuterium labelled water dilution method (Son *et al* 1998), before and after the energy restriction. Initially, dogs were fed the same amount of food that they were eating on the maintenance baseline diet (crude protein 24.0 %, fat 16.1 %, 3810 kcal/kg). Those amounts were progressively decreased to induce a rate weight loss of around 2 % weekly. During the weight loss period, BW, food consumption, body score and pelvic as well as thoracic circumference were regularly monitored. One month after the beginning of the energy restriction, dogs were placed in metabolism cages for a week to assess their nitrogen balance.

Results. A moderate energy level -80 % of the maintenance energy requirement (MER) for optimal BW in males and 65 % MER in females- induced weight loss but was not sufficient to keep it up. Energy allowance was thus gradually decreased to reach 65 % MER for males and 45 % MER for females in order to reach the target weight. Those levels of restriction led to a rate of weight loss of 2 and 2.4 % a week for the DP and HF diets respectively. Target weight and optimal body condition were reached within 12 to 24 weeks for the HF diet and 21 to 26 weeks for the DP. The proportion of lean tissue in total weight loss was 30 % and 20 % for the HF and the DP diets respectively. The apparent digestibility coefficients of crude protein were 79 and 83 % for HF and DP diets respectively.

In conclusion, a higher protein level allows a better conservation of the lean body mass. Energy restriction must be stricter in females than in males in order to induce and maintain weight loss. Energy restriction must be regularly adapted in order to keep a constant rate of weight loss up.

References

- Hannah S. (1999) *Comp. Cont. Educ. Pract. Vet.* 21(11K), 32-33.
Sloth C. (1992) *J. Small Anim. Pract.* 33, 178-182.
Son H.R., d'Avignon A., Laflamme D.P. (1998) *Am. J. Vet. Res.* 59, 529-532.