

# Recent Advances in the Weight Management of Obese Cats

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## Introduction

Obesity is defined as the excessive accumulation of adipose tissue in the body (German, 2006). In practice, a cat is obese when it weighs 15% more than its ideal bodyweight (Colliard *et al.*, 2008). Obesity predisposes an animal to numerous diseases, such as orthopaedic diseases, diabetes mellitus, cardiorespiratory disease and reduced lifespan (Laflamme, 2006). The incidence of overweight and obese cats is high, ranging from 25% (Scarlett *et al.*, 1994) to 33% (McGreevy *et al.*, 2008). The high prevalence of obesity and its detrimental impact on health emphasises the importance of managing obesity in cats.

## Discussion

The cause of obesity is multifactorial, ranging from excessive dietary intake, insufficient energy utilisation, genetics, pre-existing disease processes, lifestyle and neutering (Roudebush, 2008a). It follows that the management of obesity requires a multifactorial approach. Obese cats have a state of positive energy balance, and given that food is a major source of energy, nutritional strategies are the most common approach for weight management (German, 2006). However, other aspects, such as preventing weight gain, owner education and exercise should not be overlooked (Roudebush, 2008b).

The basis of all nutritional strategies is to restrict energy intake by reducing the calorie density of the diet (Butterwick, 2000; Laflamme, 2006). A recent study by Linder & Freeman (2010) exposed the significant variations that exist between the calorie density and feeding directions of commercially available weight-management pet foods. Calorie density and feeding directions were collated from product labels or by contacting manufacturers. These variations increase the difficulty of selecting the best diet and feeding the optimal amount in order to achieve weight loss. These variations could be a reflection of the differences in energy requirements among individual cats. A diet that contains the optimal calorie density for one cat may be an overestimation for another, and it is possible that a cat may gain weight despite the owner's adherence to feeding directions (Linder & Freeman, 2010). Variations in feeding guidelines were also observed by Butterwick (2000), who suggested that limited information on the energy requirements of the domestic cat was the cause of the inconsistencies.

Variations in energy requirements exist among individuals due to differences in basal metabolic rate, lifestyle, feeding regimen and underlying disease processes (Russell *et al.*, 2000). Because many owners rely solely on the food's label to determine feed quantity (Linder & Freeman, 2010), the role of the veterinarian in educating owners about individual variation is critical for weight-loss programs to be effective. The veterinarian can help choose the right diet and correct food quantity for optimal weight loss. The veterinarian is thus a valuable resource when planning an individualised weight-loss program.

The effect of energy restriction on body composition has been comprehensively studied in the past. The results of all studies have been consistent – excessive energy restrictions lead to loss of lean body mass (Butterwick & Hawthorne, 1998; Laflamme & Hannah, 2005; Roudebush, 2008b). Loss of lean body mass is undesirable as it results in loss of functional tissue. Laflamme & Hannah (2005) proposed that diets high in protein significantly reduced the loss of lean body mass. A subsequent study by Vasconcellos *et al.* (2009) not only supported this proposal, but also suggested that increased protein consumption reduced the intensity of energy restriction during weight loss. Sixteen cats were divided into two diet groups, with each group receiving a diet differing only in their protein content. Results confirmed previous studies, showing that cats fed on the high-protein diet underwent a lower percentage loss of lean body mass. This study also demonstrated that the energy intake (per

kilogram of metabolic weight) to maintain the same rate of weight loss was lower in the group fed on the diet higher in protein. A limitation of this study is the small sample population.

An implication of this study is that cats fed on a high-protein diet could consume more energy than cats fed on diets lower in protein and still maintain the same rate of weight loss. Protein is especially important in cats as they are obligate carnivores, and Laflamme (2006) also suggested that protein may contribute to a satiety effect. Traditionally, weight-management foods consist of high-fibre, low-fat formulations to reduce calorie intake while maintaining satiety (Roudebush, 2008b). Cat food manufacturers could therefore improve current diet formulations by increasing the protein content.

Owners of obese cats may profoundly influence the success of weight-management programs. Kienzle & Bergler (2006) suggested that owner compliance contributed to the success of weight loss in cats on weight-management programs. A study by Bissot *et al.* (2010) examined the factors involved in client compliance. This was achieved by evaluating the effects of three dietary strategies on client compliance. Each diet differed in composition (dry or moist) and method of feeding (pre-packaged pouches or use of a measuring cup). Results showed that practicality and the behaviour of the cat affected client compliance. Owners preferred diets that were pre-packaged and easier to use, and also preferred diets that improved satiety, as it reduced hunger-associated behaviours.

Although pre-packaged portions appear to be a novel idea, implementation is hampered in practice when cats undergo a long weight-management program. The portions in the pouches must continually be adjusted as the calorie requirements of the cat will differ at each stage of weight loss. The price of pre-packaged portions will inevitably be more costly, which, in effect, reduces the feasibility of this strategy. On reflection, this study effectively verifies the importance of client compliance on the success of a cat's weight-loss program. Further study on additional factors contributing to increased client compliance is therefore warranted.

## Conclusion

To conclude, weight management programs are multifaceted. Success of a program must take into consideration variations among individuals, increases in dietary protein and factors that improve owner compliance. It is important to note that these suggestions are not self-limiting, and that other factors, such as preventing obesity, owner education and exercise, should also be considered concurrently.

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