

Evidence-Based Clinical Nutrition: Applications for Canine Weight Loss

As of the beginning of the 21st century, obesity has been declared epidemic in the United States. More than 60% of adult Americans are overweight and an estimated 25% to 34% of adult dogs are either overweight or obese.^{1,2} Risk factors for obesity in dogs include neutering, breed, age, and some endocrine disorders. However, the major cause of obesity in dogs is overfeeding. Just as in human studies, weight-loss programs for pets often have high rates of attrition.

Many owners fail to recognize that their pets are being overfed or are overweight. Often, weight problems are only noted when the pet is taken to the veterinarian for other reasons. If body weight (BW) and body condition scores (BCS) have been recorded at each visit, it's easier to convince a pet owner that the pet needs energy intake management. But to be successful, the owner must be willing to participate in a weight-loss program and stick with it. Promoting the Hill's® National PetFit™ Challenge at PetFit.com is a good way to get clients to become more involved by helping them identify exercises that encourage energy expenditure while having fun with their pets.

DIETARY MANAGEMENT OF OBESITY

- 1) **Limit energy intake** – Daily energy intake must be less than daily energy expenditure. This can be achieved by restricting intake to 1.0 x RER (resting energy requirement) for the optimal BW.* Determining optimal BW can be difficult—the best estimate is mature adult weight recorded when the patient's BCS was assessed as optimal. Otherwise, published average ranges for specific breeds are available as a starting point. Patients should be monitored carefully and energy intake adjusted according to each individual's progress.
- 2) **Regulate satiety** – Providing foods that produce satiety is critical for both prevention of overeating and for long-term success. Foods high in insoluble fiber promote satiety and limit voluntary food intake by slowing gastric emptying and increasing gastrointestinal bulk.³
- 3) **Balance nutrition** – Severely restricting the volume of a maintenance food to reduce calorie intake will alter the intake and balance of other essential nutrients. Foods designed for weight loss maintain the proper balance of essential nutrients while restricting calories. In addition, higher levels of nutrients such as L-carnitine are often recommended to help burn fat and increase lean muscle mass.
- 4) **Increase exercise** – Calorie restriction alone is rarely a successful mechanism for weight control. Energy expenditure must exceed energy intake for weight loss to occur. Daily exercise is essential for increasing energy expenditure. PetFit.com provides owners with educational materials as well as tips for exercising with their pets to assist in weight loss and maintenance of ideal BW.

* RER formula: $[70(\text{BW}_{\text{kg}})^{0.75} = \text{RER (kcal/day)}]$. Feed 80% of RER at each stage of weight loss program.

WEIGHT-LOSS PROTOCOL

- Weigh patient; determine BCS and ideal BW.
- Recommend appropriate weight-loss food based on patient and owner needs.
 - Hill's® Prescription Diet® r/d® Canine dry kibble or canned (low-calorie/high-fiber).
- Gradually transition to new weight-loss food.
- Weigh patient 2 weeks after starting program and monthly thereafter.
- Adjust caloric intake as dog loses weight.
- Monitor safe weight loss (0.5% to 1.0% of BW per week) until ideal BW achieved.
- Once ideal BW achieved, gradually transition to maintenance food.

CASE STUDY

OBESITY Bert



Hx

- 10-year-old mixed breed
- Castrated male
- Body weight (BW) 84 lb; body condition score (BCS) 5 of 5 (obese)
- Eats free-choice commercial grocery store food and treats

Dx

- Obese and at risk for disease

PROBLEM

Documented weight gain over several years; panting; decreased activity level

SOLUTION

Please turn the page ...

SOLUTION

A complete physical examination was within normal limits with the exception of a BCS 5/5. Results of a serum chemistry profile, complete blood count, and urinalysis were within normal limits. Serum T_4 concentration was consistent with hypothyroidism.

RECOMMENDATION

Bert was started on thyroid replacement therapy. His ideal BW was estimated to be 65 lb, based on a recorded weight when he was 3 years old with a BCS 3 of 5. He was gradually transitioned to Prescription Diet® r/d® Canine dry kibble. His owner was advised that there would be an increased stool volume because of the increase in fiber. His owner agreed to increase Bert's exercise, beginning by taking walks with him in the morning.

OUTCOME AND FOLLOW-THROUGH

At 1 month, Bert's weight had dropped by 3.5 pounds, his serum T_4 concentration was within normal limits, and he had a little more energy. His owner printed off forms from *PetFit.com*, used them to keep track of Bert's continued weight loss, and agreed to come in monthly for weight evaluations. After 12 months, Bert had reached his ideal weight, and his owner was pleased that he himself had lost a few pounds as a result of their morning walks together. Bert is being transitioned to Prescription Diet® w/d® Canine and is looking forward to a full life— and regular walks with his owner!

STUDY – PEOPLE AND PETS EXERCISING TOGETHER FOR WEIGHT MANAGEMENT*

A one-year study compared the efficacy of a dogs-only weight-loss program to a combined dog/owner weight-loss program that emphasized owners and pets exercising together.

- Overweight dogs were fed Prescription Diet® r/d® Canine (specifically formulated for weight loss).
- Once dogs reached their ideal weights, they were fed Prescription Diet® w/d® Canine (specifically formulated for weight maintenance).
- Human participants were provided with a suggested exercise plan, meal plans, pedometers, and instructions for lifestyle behavioral patterns to control calorie intake and to increase physical activity.
- In the dog/owner weight-reduction group, owners joined their pets for daily exercise.



RESULTS

- In the dog/owner group, both people and dogs lost weight and kept it off during the following 12 months.
- Both groups had significant improvements in BCS, mobility, and quality of life with no difference between dog/owner and dogs only groups.
- Both groups had increased dog/owner interaction time with significantly greater improvement in dog/owner compared with dogs only group.
- People lost an average of 11 pounds (~5% of initial BW) and dogs lost an average of 12 pounds (~15.6% of initial BW).
- Program retention was significantly better in the dog/owner group than in the dogs-only group.
- Hill's® Prescription Diet® r/d® Canine was effective in helping pets achieve their weight loss goals as was Hill's® Prescription Diet® w/d® Canine in helping pets maintain their ideal weight.

* **People and pets exercising together. A comparison of the effect of a canine weight loss program to a combined dog/owner weight loss program.** Jewell DE, Rudloff K, Kushner RF. *Proc N Am Assoc Study Obesity*, 2004.

REFERENCES

1. **Prevalence of overweight and obesity among adults, United States, 1999-2000.** CDC: National Health and Nutrition Examination Survey (NHANES). <http://www.cdc.gov/nchs/products/pubs/pubd/hes-tats/obese/obse99.htm> as of July 2006.
2. **Health status and population characteristics of dogs and cats examined at private veterinary practices in the United States.** Lund EM, Armstrong PJ, Kirk CA, et al. *JAVMA* 214:1336-1341, 1999.
3. **Effects of fiber on food intake in dogs.** Jewell DE, Toll PW. *Vet Clin Nutri* 3:115-118, 1996.

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SUMMARY OF SELECTED WEIGHT-LOSS STUDIES*

Decreasing the calorie density of food is the primary strategy for producing weight loss. Most of the following studies looked at the positive effect of fiber on weight loss including the importance of satiety. The last study in this list looked at the importance of L-carnitine in a healthy weight management program to help convert fat to energy while maintaining lean muscle mass.



- **A multicenter clinical study of therapeutic foods for weight management in dogs.** Ahle NW, Fritsch D, Jewell DJ, et al. Final study report CLIN# 26707, Hill's Pet Nutrition Center, Topeka, KS, 2005.



- **Satiety reduces adiposity in dogs.** Jewell DE, Toll PW, Novotny BJ. *Vet Ther* 1:17-23, 2000.



- **Effect of dietary carnitine and chromium on weight loss and body composition of obese dogs.** Gross KL, Wedekind KJ, Kirk CA, et al. *J Dairy Sci* 81(Suppl 1):175, 1998.

* See EBM Grading System below

Evidence-Based Medicine* Grading System



GRADE I

Well-designed, randomized, controlled clinical trials with naturally occurring disease; prospective studies



GRADE II

Well-designed and controlled laboratory studies with naturally occurring disease



GRADE III

One of the following: Nonrandomized clinical trials, cohort- or case-controlled studies, case series, acceptable disease models, or dramatic results from uncontrolled studies



GRADE IV

One of the following: In vivo laboratory studies, opinions based on clinical experience, descriptive studies, studies in another species, pathophysiologic justification, expert committee reports

* Quality of evidence grading system adapted from the U.S. Preventive Services Task Force, 2000.



EVIDENCE-BASED CLINICAL
NUTRITION

