

# Overweightness / Obesity – Canine

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## Definition

**Obesity**, defined as the excessive accumulation and storage of adipose tissue, is common in dogs, affecting over a third of dogs,<sup>1</sup> and is the number one nutritional disease encountered by veterinarians. On the nine-point Nestlé PURINA Body Condition Scoring system (see Appendix I), dogs with a body condition score (BCS) of 6 or more are considered overweight, dogs with a score of 8 or more are obese, and those with a score of 9 are morbidly obese.

## Key Diagnostic Tools and Measures

Body condition scoring utilizes both visual and tactile cues to assign a numeric value to a patient's degree of adiposity. Since body condition scoring can be readily explained to clients, it is an effective tool to increase a client's awareness of the dog's degree of overweightness or obesity. Before starting a patient on a weight loss plan, it is recommended that a physical examination, complete blood count, and biochemical panel be performed to rule out any underlying diseases, especially hypothyroidism.

## Pathophysiology

Typically, weight gain occurs gradually over many years as a result of the ingestion of excessive calories, as well as increasingly sedentary lifestyles, leading to the accumulation of adipose tissue. Hypothyroidism, hyperadrenocorticism, and administration of glucocorticoids can also lead to overeating.

## Signalment

The likelihood of overweightness/obesity increases with age and with neutering. Certain breeds, including cocker spaniels, dachshunds, Dalmatians, Labrador retrievers, golden retrievers, Shetland sheepdogs, and Rottweilers, are at greater risk.<sup>2</sup>

## Key Nutrient Modifications

Determining a dog's specific energy requirement is crucial to establishing a successful weight loss regimen. In a dog whose weight is fairly stable, current intake may be the best indicator of a patient's actual energy requirement due to large individual variation ( $\pm$  50% of calculated requirement based on body weight). Collecting an accurate diet history (see Appendix II) can allow the veterinarian to calculate the patient-specific energy requirements. Once this has been established, weight loss can be achieved by feeding fewer calories than are required for weight stability. Ideally, a weight loss diet should have low energy density and an increase in the essential nutrients per kilocalorie. See Therapeutic Feeding Principles for detailed strategies.

## Recommended Ranges of Key Nutrients

Nutrient	% DM	g/100 kcal	% DM	g/100 kcal
	Recommended dietary level		Minimum dietary requirement*	
Protein	25–50	10–20	18	5.1
Fat	5–15	2–3.5	5	1.4

Modified intake of these nutrients may help address metabolic alterations induced by disease states. The recommended dietary composition is shown as percent of dietary dry matter (DM) and as g or mg per 100 kcal metabolizable energy. All other essential nutrients should be increased relative to energy content of the diet in order to meet normal requirements adjusted for calorie restriction.

\*Nutrient requirement for adult animals as determined by the Association of American Feed Control Officials

## Therapeutic Feeding Principles

The rationale for feeding a diet with decreased energy density achieved with additional fiber, water, and/or “air puffing,” is that it will lead to satiety by gut fill; the larger volume may be more acceptable to client (greater bowel and bowl fill). The rationale for increased essential nutrients per kilocalorie is that caloric restriction without concurrently maintaining the amount of essential nutrients being fed may lead to deficiencies; these deficiencies may be frequently recognized as poor coat quality during weight loss.

Feed fewer calories than are required: either 80% of current calories fed if this can be accurately determined with the diet history (see Appendix II) or calculate the dog's resting energy requirement (RER) based on current weight:

$$\text{RER} = 70 \times \text{weight in kg}^{0.75}$$

(see Appendix III for useful equations in clinical nutrition). Adjust the amount fed based on weigh-ins at 2-week intervals with the goal of 1% to 2% of body weight lost per week; faster weight loss decreases muscle mass, decreases compliance, and increases risk of rebound weight gain. If the dog is gaining weight on this diet, check compliance and decrease all amounts fed by 20%. If weight is stable, decrease all amounts by 10%. If the dog is losing weight too fast, check general health and increase all amounts fed by 10% to 20%.

Recommend a concurrent increase in activity with play or walks.

■ **Treats** – When giving commercial treats designed for weight loss, select treats that are less than 30 kcal/treat to allow for multiple treating opportunities daily. High-moisture vegetables and fruit, such as 3½ cups boiled, sliced zucchini (100.8 kcal), 20 raw baby carrots (105 kcal; avoid in dogs with calcium oxalate urolith concerns), 2 cups cubed cantaloupe (108.8 kcal), or 2 cups peeled and sliced apple (105.6 kcal), are healthy treats. Lean and low-sodium meats, such as ½ cup chopped or diced chicken breast (112 kcal) or 1½ ounces pork chop, meat only, no fat or bone (99.5 kcal), can also be given as treats.

■ **Tips for Increasing Palatability** – High-moisture foods that are canned or pouched may be preferred over dry foods. Dry food can also be soaked with water or sodium-free meat broth. Top dressing of a small amount of lean and low-sodium meat (see Treats) that does not exceed 10% of daily calories may be added or mixed in to prevent selective eating. A small amount of syrup can be mixed into food as long as it does not exceed 10% of daily calories (e.g., 1½ tbsp light corn syrup, 100.7 kcal)

■ **Diet Recommendations** – A food marketed and designed for active weight loss is strongly recommended. The diet should have less than 280 kcal/cup or less than 22 kcal/oz if canned or pouched if using the low energy density strategy, and less than 25% carbohydrate calories if using low carbohydrate strategy. Avoid OTC foods that use the words/phrases “less calories,” “reduced calorie,” “lean,” “low fat,” “less fat,” or “reduced fat” as terms relate only to food being compared to, have no set calorie definition, and do not indicate that the food has a low energy density. Avoid OTC foods that use the word “light,” “lite,” or “low calorie” as these are for prevention of weight gain and not for active weight loss; light foods are not as increased in essential nutrients per kilocalorie as foods designed for weight loss. Home-made recipes are not typically needed for patients in need of weight loss nor are they recommended. Their increased digestibility and palatability can be counterproductive in dogs that need to lose weight.

## Client Education Points

- Dogs have a large variation in individual energy requirements ( $\pm 50\%$ ). Obese patients often are very efficient users of calories. Historically when food was scarce, efficiency was a desirable trait (“your dog is genetically superior”), but now efficiency in an environment of abundant food leads more easily to weight gain.
- The initial phase of a weight loss plan is determining how efficient the dog is. Therefore, feeding the prescribed amount is very important and tailoring the plan based on weigh-ins is crucial; imperfect rates of weight loss should be initially expected.
- The goal is of the weight loss plan is improved quality and quantity of life.<sup>3</sup>

## Common Comorbidities

**Osteoarthritis** is common in overweight and obese dogs; joint disease is managed with medication and weight loss. Consider nutritional management of joint disease after weight loss has been achieved. Fish oil and/or chondroprotective supplementation of food designed for weight loss can be considered if necessary. For **tracheal collapse**, **brachycephalic**

**syndrome**, or **laryngeal paralysis**, attempt to maximize rate of weight loss to 2% of body weight per week, especially if needed weight loss can be achieved before warmer seasonal temperatures. In dogs with **diabetes mellitus**, weight loss may enable improved glycemic control.

## Interacting Medical Management Strategies

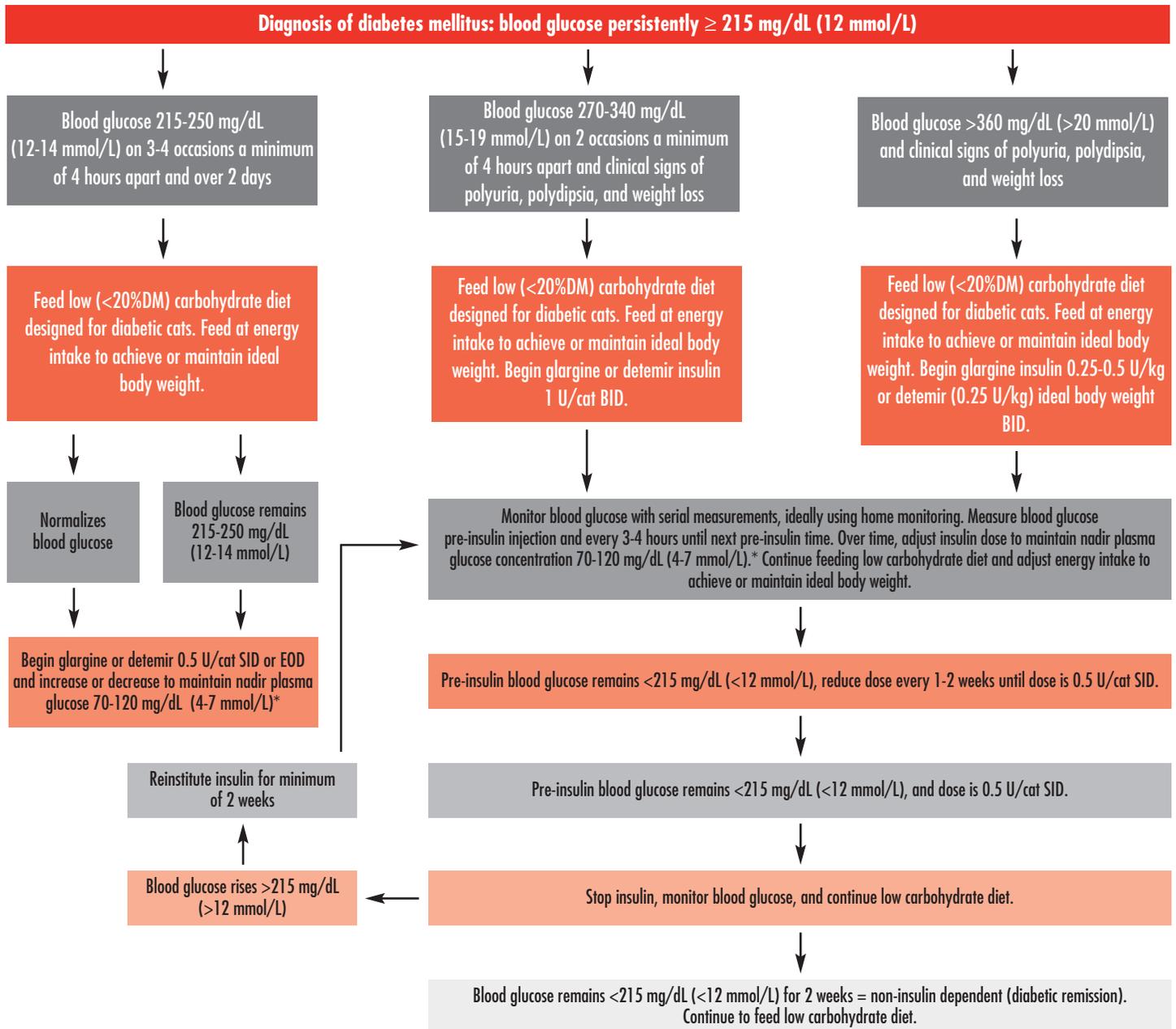
Comorbidities resulting in inappetence should be the primary focus of nutritional management to prevent unintentional weight loss due to illness being ignored and attributed to the weight loss regimen.

## Monitoring

Reweigh the dog every 2 weeks and adjust the amount fed accordingly (*see Therapeutic Feeding Principles*). The goal weight loss rate is 1% to 2% of body weight per week. If a comorbidity is expected to improve with weight loss, check if it is & offer positive reinforcement. If an overweight, arthritic dog is more active after some initial weight loss, congratulate and remind client that it is attributable to the weight loss.

See **Algorithm – Nutritional Support for Canine Overweightness & Obesity** on page 35.

## Algorithm – Nutritional Management of Feline Diabetes Mellitus



\*Measured with a glucose meter calibrated for feline blood or a serum chemistry analyzer; glucose meters calibrated for human blood read 18–36 mg/dL (1–2 mmol/L) lower than actual blood glucose concentration.

# Algorithm – Nutritional Support for Canine Overweightness & Obesity

