



NUTRITION CONVERSATIONS

How Exercise Fits With Nutrition in a Weight-Management Plan

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Abstract

Obesity is a complex chronic medical condition that needs to be managed throughout the life of the individual patient. All elements of a weight-management plan—nutrition, behavior, and exercise—should be discussed with the client. Exercise is a crucial part of this plan and should be tailored to meet the needs of the patient and the client.



Take-Home Points

- A weight-management plan should encompass nutrition, behavior, and exercise regimens.
- Exercise is a vital element for mental wellbeing in pets, and its role in weight loss helps with the balance of energy intake to energy expenditure.
- As with nutrition, exercise plans need to be individualized for each patient.

Exercise is an essential part of a weight-loss program for animals that are overweight or obese. When possible, as soon as a patient is identified as being over their ideal body condition score, veterinary practices should recommend that all overweight and obese patients are referred to the veterinary nurse for weight clinics. To achieve weight loss, an animal needs to be in a negative energy balance before it will use energy stored within the body, which can be achieved by reducing calorie intake and/or increasing energy expenditure.

Initial weight gain can begin with an imbalance between energy consumption (food intake) and expenditure (exercise), along with other factors that alter metabolism (e.g., breed, reproductive status, health status). Obesity usually results from either excessive food intake or inadequate energy expenditure, which causes a state of positive energy balance.¹ One study found clear evidence that obesity in dogs is affected by the interrelationships between food management, social factors, and exercise.² A similar study also found links between obesity and exercise, social factors, and owner education.³ Weight-management discussions with clients should cover all of these factors to help the veterinary nurse make the most appropriate recommendations.

Exercise burns calories to maintain a higher level of metabolism, tone muscle, and preserve lean muscle mass and sometimes helps behavior responses (such as begging) that occur when a dog's food intake is restricted. However, exercise burns fewer calories than one might think; an average-size woman running at an average pace will burn 100 calories per mile. If she ran a 5K (3.1-mile) run, she would burn just over 300 calories, fewer than a bowl of most breakfast cereals with semi-skimmed milk.

It is also known that additional physical activity can lead to increased hunger and a subsequent increase in food intake. If increased exercise can cause increased energy intake but not burn as many calories as expected, what are the benefits of exercising? The benefits of exercising include:

- Preventing loss of lean body mass (sarcopenia) that can occur from dieting and/or aging
- Burning calories, especially via strength training and cardiovascular workouts
- Changing body composition, which helps shape (tone) the body and maintain health
- Strengthening bones, connective tissue, and muscles
- Improving coordination and balance and possibly helping prevent injuries by improving core strength, which is relevant for animals with limited mobility

In research on dogs, increased physical activity has been associated with higher energy intake if allowed, but maintaining weight-loss goals was possible if dietary intake was controlled.⁴ Each 1000-step interval by a dog was associated with a 1-kcal/kg body weight^(0.75) increase in energy intake.⁴ Thus, the balance of energy intake and energy expenditure matters. Exercising animals being fed a restricted diet will help prevent loss of lean body mass and improve overall body condition and composition. Increased protein quality and intake combined with reduced calorie intake facilitates loss of body fat while minimizing loss of lean body mass. Limiting treats to 10% of calorie intake and increasing exercise aid in successful body weight management.⁵

This article discusses the roles of both nutrition and exercise in weight-management programs. In communicating with clients, drawing similarities between human and veterinary medicine can help them better understand their pet's situation. Some clients are more capable than others of limiting their pet's food intake successfully at home, but having an external source of motivation helps the weight-loss journey.



THE ROLE OF NUTRITION

Most clients do not weigh the amount of food they feed, and therefore it is difficult to know whether the pet is being overfed. Many commercial diets are available to aid in decreased calorie intake, usually through decreased energy density, and contain instructions on the proper amounts to feed. Nutrigenomics (the study of the relationship between the genome, nutrition, and health) has identified that specific nutrients can aid in weight loss.⁶ Nutrition in the proper form can alter genetic expression, enabling overweight dogs to lose weight by changing their basic metabolism.⁶ In addition, the correct specific nutrition can also be used to improve joint health and treat degenerative joint disease, such as arthritis, in dogs, which may enable the dog to be more active.

Among people, weight loss is most commonly attempted by dieting. As food intake is limited, the body adapts to using the calories consumed, which explains the plateau hit by people when they diet: the body has adapted to the lower calorie intake and reduced the metabolic rate. After each period of dieting, the body becomes better at working with reduced calories. Because of resultant metabolic changes, repetitive dieting becomes more and more difficult each time. Thus, the more often a person goes on a diet, the harder it becomes, which is a good point to convey to clients because the same metabolic changes have been documented for dogs.⁷ If clients change their pet's food to a weight-loss diet, it is best to do it only a single time, achieve the pet's target weight, and then help the pet maintain the ideal weight. If not done well the first time, the second time will be harder, as will the third and the fourth and so on.

THE ROLE OF EXERCISE

Research has shown that energy expenditure in dogs and humans does not return to pre-exercise resting baseline levels immediately after exercise.^{8,9} The amount of postexercise energy expenditure elevation depends primarily on exercise intensity and, to a lesser degree, exercise duration.

For humans, exercise at the intensity and duration commonly performed by recreational exercisers (e.g., walking for 30 to 60 minutes, running at a pace of 8 to 10 minutes per mile for 20 to 30 minutes) typically brings the energy expenditure to baseline within the first hour of recovery.^{8,10} The postexercise calorie bonus for this type of exercise probably accounts for only

about 10 to 30 additional calories burned. In human athletes performing high-intensity, long-duration exercise, the postexercise energy expenditure may remain elevated for a longer period and could contribute significantly to total calories burned daily. Whereas this is also true for dogs, the number of calories burned is negligible; exercise does, however, enable the metabolism to remain higher while a limited amount of food is being eaten. Thus, exercise is still an integral part of the weight-loss program.

Many clients have no idea how far they walk their dog each day. Not all tracks and trails have signs indicating their length. Recommending that clients use a pedometer or a phone app that can track their routes may help them measure the distances covered. To calculate by hand, the average walking pace for most adults is 3 miles per hour; a fit and healthy person walking fast will cover on average 4 miles per hour.

EVALUATING THE PATIENT'S ABILITY TO EXERCISE

Exercise can be difficult for both the dog and the owner. Reasons include inappropriate behavior when the dog is outside, health problems, and/or limited mobility.

Helping clients adhere to follow-up visits, deal with the dog pulling on the lead, and/or resolve socialization problems can in turn encourage them to exercise their dog more often and therefore help with weight loss. Referral to a dog trainer or behaviorist may be beneficial. It is also recommended that clients keep an exercise diary of the amount of daily exercise.

Health problems can lead to pain, meaning the dog is either unwilling to exercise or exercise is contraindicated altogether. For some clients, veterinary nurses might need to explain that the pet's limping, slowing down, and mobility issues are not necessarily just signs of "getting old" but may be signs of pain/discomfort and that different medications, multimodal approaches, and reassessment may be needed.

Before an overweight/obese patient begins an exercise regimen, evaluate their discomfort level. Monitoring and measurement resources such as mobility scoring, chronic pain scoring, and quality-of-life scoring can be used (**BOX 1**). If there is concern surrounding pain and quality of life, refer the patient back to the veterinarian responsible for the case. Use the appropriate pain scales



to differentiate between acute and chronic pain. Grimace scales for cats are useful for determining acute pain but potentially not suitable for chronic pain.

CLIENT CONVERSATIONS

Understanding the complex relationships between food intake, social behavior, and exercise is helpful when devising weight-management programs for dogs and cats and discussing them with clients. The following scenarios offer communication tips for some of the more common client concerns.

Client concern: Life is very busy and I don't have the time for increasing Bruno's exercise regimen.

- **Possible response:** Let's try reducing the length of time of each exercise session but increasing session frequency. So rather than a 1-hour walk, try two 30-minute walks. Bruno may burn more calories if the daily exercise is divided into 2 sessions instead of 1, even if the overall time spent walking is the same.
- **Rationale:** Consider first asking the client if they are

open to changing their walking routine to improve their dog's metabolism and how they envision working exercise into their schedule. Most clients cannot argue against twice-daily 30-minute walks rather than a single 1-hour walk, and most may even be able to extend each of the shorter walks to 35 minutes.

Client concern: I have mobility issues and can't increase exercise levels or afford a dog walker for Cleo.

- **Possible response:** Are you open to different types of play for Cleo? Exercise doesn't have to be walking. We can try a form of scatter feeding, which uses kibble from her own daily ration to help get her moving. While sitting, you can throw a kibble to one side of the room and the next to the other side. Another option is providing puzzle feeders so Cleo can work at getting the food out herself without needing your active participation.
- **Rationale:** With scatter feeding, Cleo will still get food from the client without increasing her daily food intake but will be moving more. Give solutions and compromises, focusing on activities that are achievable by the client and taking into consideration their home lives, schedules, and limitations.

BOX 1

Pain and Quality-of-Life Scales for Dogs and Cats

Dogs

- **Mobility and Chronic Pain**
 - Liverpool Osteoarthritis in Dogs (LOAD)
go.navc.com/42NtTu5
 - Helsinki Chronic Pain Index (HCPI)
go.navc.com/42PiRoJ
- **Quality of Life**
 - Hurt, Hunger, Hydration, Hygiene, Happiness, Mobility and More Good Days Than Bad (HHHHHMM)
go.navc.com/3RQivYa

Cats

- **Mobility and Chronic Pain**
 - Feline Musculoskeletal Pain Index (FMPI)
go.navc.com/44nWsQ2
 - Musculoskeletal Pain Screening Checklist (MiPSC)
go.navc.com/3GJxmRU
- **Quality of Life**
 - Hurt, Hunger, Hydration, Hygiene, Happiness, Mobility and More Good Days Than Bad (HHHHHMM)
go.navc.com/3RQivYa

Client concern: Fluffy has mobility issues and can't exercise much.

- **Possible response:** Let's see what types of exercise would be appropriate for Fluffy to help her get moving around a bit more. Just getting a tiny bit of the weight off will really help Fluffy's quality of life and mobility. Are there any types of play she likes to do on her own? For example, with a puzzle feeder, she can move as little or as much and as fast or slow as she would like. Little and often are much better than nothing for Fluffy.
- **Rationale:** Before recommending an activity, take the patient's mobility limitations into consideration, not forcing the patient to do more than they should. For Fluffy, it was determined that exercise might be helpful and not harmful for her.

SUMMARY

A complete weight-management plan typically consists of nutrition, behavior, and exercise. The nutrition component typically focuses on decreasing calorie intake, altering basic metabolism, and improving joint health. Exercise works with the reduced calorie intake by increasing energy expenditure to achieve a negative energy balance. However, before the patient begins an



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exercise program, ensure that exercise is not contraindicated due to an acute health condition or pain. **TVN**

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Nicola works as the nutrition manager for IVC Evidensia. She graduated from Hartpury College with an honors degree in equine science and subsequently qualified as a veterinary nurse in 2002. Nicola has written for many veterinary publications and textbooks and is the editor of *Aspinall's Complete Textbook of Veterinary Nursing, 3rd ed.* She is also one of the consultant editors for *The Veterinary Nurse* journal. Nicola has previously won the BVNA/Blue Cross Veterinary Nurse of the Year award and was awarded the BSAVA Bruce Vivash Jones Veterinary Nurse Award for outstanding contributions to veterinary nursing. Nicola has earned her master's degree in advanced veterinary nursing from Glasgow University and is a VTS in nutrition.