

## Veterinary KINsights

### The Unique Feline 2.0 Weight Loss Syndromes

#### KEY POINTS

- Cats are not small dogs, they are unique
- Cachexia and sarcopenia are under-recognized syndromes
- Changes in body composition may impact owner perception of quality of life
- Veterinarians are often the first to identify these changes
- Owners rely on their veterinarian's guidance
- Cats have unique nutritional needs
- Cats are susceptible to the deleterious effects of inadequate food intake and change in body composition
- Early recognition of cachexia and underlying disease is an important first step in managing feline patients

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#### THE UNIQUE FELINE

Cats are not small dogs, rather they are a unique species with distinct health and medical requirements, especially dietary requirements. As cats age and their physiologic and nutritional needs change, the recommended standard of care by feline specialists includes recognition and management of changes in body composition. Improvement in nutrition, health care, and overall wellness management of cats have led to them living longer lives.<sup>1</sup> Changes in body composition, which includes body weight, fat, and lean muscle mass, are important in older cats where weight loss is often the first sign of underlying disease.<sup>1</sup> The potential for weight loss in the feline patient is likely intensified by several unique characteristics of the species. For example, cats have a higher requirement for protein and amino acids than other species.<sup>2</sup> When nutrition is inadequate, energy is derived from muscular amino acid stores as opposed to fat.<sup>3</sup> Aging cats, like dogs and humans, have a reduced energy requirement, and therefore a tendency toward obesity.<sup>4,5</sup> This is true for cats until approximately 10-12 years of age, after which time, energy requirements have been demonstrated to increase, especially after approximately 13 years of age.<sup>1,5</sup> Exacerbating matters further, a reduced ability to digest protein and fat has been documented in elderly cats, hence they are likely more susceptible to the devastating effects of malnutrition. These combined factors make special attention to nutrition and the utilization of high quality, easily digestible food products critical for these patients regardless of their disease state.<sup>6</sup>

## CACHEXIA

The term cachexia originates from the Greek kakós “bad” and hexis “condition” and refers to a syndrome commonly associated with cancer and other chronic diseases (e.g., chronic kidney disease, heart disease). The condition is characterized by weight loss, loss of muscle mass (lean body mass) with or without loss of adipose tissue mass, systemic inflammation, and is often associated with hyporexia and inadequate nutrition.<sup>4,5</sup> Cachexia is differentiated from conditions such as sarcopenia, starvation, hyperthyroidism, and malabsorption. In cachexia, negative protein energy balance develops because of inadequate nutrition combined with an abnormally increased metabolic state, results in a loss of muscle mass and body condition. In addition, the systemic inflammatory state associated with various chronic disease processes leads to catabolism of muscle via both protein and fat degradation, as well as impaired ability to stimulate protein synthesis. Cachexia is a clinically important condition to recognize as it has been linked to increased morbidity and mortality.<sup>7</sup>

## SARCOPENIA

The term sarcopenia originates from the Greek sarx “flesh” and penia “poverty” and refers to the degeneration of skeletal muscle mass, quality and strength as part of normal aging; not associated with a disease process. Contributing factors include age-related decrease in neuromuscular impulses, decreased physical activity, decrease in hormones that support muscle mass (testosterone), and decreased ability to synthesize muscle proteins combined with inadequate protein nutrition to sustain muscle mass. Sarcopenia may be difficult to identify because total weight may not change; loss of lean body mass may be accompanied by increase in adipose tissue mass.<sup>4,5</sup> Little information exists regarding changes in feline body composition with age.

## CLINICAL IMPLICATIONS

Both cachexia and sarcopenia result in muscle dysfunction which contributes to overall frailty. Frailty can clinically manifest as weakness, hyporexia, and perceived poor quality of life, which, in addition to poor body condition and muscle wasting, may lead to a decision for humane euthanasia. These syndromes can have important clinical implications and, when possible, should be identified and addressed in our feline patients.

## RECOGNIZING CACHEXIA AND SARCOPENIA

Nutritional assessment including body weight, body condition score, muscle condition score, adequacy of caloric intake (including open ended questions about how the pet is eating), and a complete dietary history (including pet food, treats, supplements, and items used to give medications) should be obtained for every patient. In addition, a nutritional plan should be created for every patient during both acute and chronic illness. It is important that both fat and muscle are evaluated simultaneously at every visit so early changes and negative trends can be detected. Awareness of these parameters and tools for their assessment have been made widely available due to a global nutritional initiative.<sup>8,9</sup>

## WHAT CAN BE DONE?

Identification of nutritional inadequacy is a huge step in the right direction to meet the distinct health requirements of cats. Management of acute and chronic dysrexia should not be overlooked in the treatment of feline patients, particularly given their unique nutritional needs. Once assessment of nutrition is performed and monitored, assisted intervention should be instituted in patients that have had inadequate food intake for longer than 3-5 days (including the time before presentation to the veterinary clinic)<sup>3</sup> Adequate caloric support is crucial for ill or injured patients to reduce risks of serious sequelae such as hepatic lipidosis.<sup>3</sup>

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Chronically ill patients are at high risk of becoming cachexic. Dietary modification based on identification of the underlying disease is beneficial but becomes irrelevant if the diet is rejected or if inadequate calories are consumed. Therefore, a key therapeutic target for these patients should be the maintenance of appetite and food intake and subsequently body condition and muscle mass. Identification and management of conditions or underlying complications of the disease process that could affect appetite, such as pain, dehydration, nausea, anemia, hypertension, and electrolyte imbalances are important. Altering food type and temperature, feeding location, palatability enhancers, and ultimately using appetite stimulants or similar products for the management of weight loss are useful strategies and tools in feline nutritional management.<sup>5</sup> If caloric intake is not adequate, feeding tubes may be considered for management.

## SUMMARY

The unique nutritional and metabolic requirements of cats make them particularly susceptible to the negative effects of unintentional weight loss. Cachexia and sarcopenia are two clinically important syndromes that result in muscle dysfunction which contributes to overall frailty. Frailty can lead to negative clinical signs such as weakness or hyporexia and result in perceived poor quality of life by owners. These syndromes can have important clinical implications and, when possible, should be identified and addressed early in our feline patients. This can be accomplished through routine assessment of body composition and overall nutritional status at every patient visit. Assessment of trends in these parameters over time may lead to early recognition of underlying disease and improved outcomes for feline patients.

## References

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