

Nutritional Management in a Senior Cat with Weight Loss

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Diet in Disease is a series developed by the WSAVA, the Academy of Veterinary Nutrition Technicians, and *Clinician's Brief*.



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THE CASE

A 14-year-old neutered male British Burmese cat (*Figure*) was presented for a routine geriatric examination. Although he had a good appetite, his weight had decreased from 10.1 lb (4.6 kg) to 9.1 lb (4.14 kg) over the past year.

History

The owner reported that the cat had become less active over the past year, had been sleeping on the floor instead of the couch as he had previously preferred, and may have been urinating increased volumes.



▲ **FIGURE** The patient showing muscle and weight loss

The patient's diet comprised a combination of commercial adult maintenance dry cat food fed ad libitum and canned cat food fed at approximately 1.8 oz (≈50 g) per feeding twice a day. He had outdoor access only to a fenced garden; to the owner's knowledge, the cat neither hunted nor scavenged. His appetite was good and unchanged over the past year.

The household included another cat, which was fed from a separate bowl; however, the cats often finished one another's food, so the exact amount the presenting cat ate could not be determined.

Physical Examination

The cat's muscle condition score had not been evaluated or recorded the previous year, but

mild-to-moderate muscle mass loss is currently evident. BCS, which was 7/9 the previous year, was 6/9 on examination. BCS is an estimate that was designed with healthy adult cats; elderly or ill cats may lose muscle mass (ie, sarcopenia) and retain fat (eg, inguinal fat pads) and therefore are more difficult to score accurately.

The patient was bright and alert, with normal mucous membranes, thoracic auscultation, and abdominal palpation. Respiratory rate was 28 breaths per minute, and heart rate was 180 bpm with synchronous pulses. Blood pressure was 140 mm Hg. Rectal temperature was 100.6°F (38.1°C). He had decreased mobility because of previously diagnosed arthritis in both elbows; some joint thickening was noted, but no crepitus was observed.

Diagnostic Results

Hematology results were within reference ranges.

Urine specific gravity was 1.029; dipstick results were negative for all parameters. Urine culture results were negative. Urine protein:creatinine ratio was 0.18 (reference range, <0.2). Abnormalities in the serum chemistry profile included elevated blood urea nitrogen and elevated glucose without glucosuria (**Table**). Fructosamine levels were within reference range.

Elevated serum glucose without glucosuria and fructosamine within the reference range is likely a transient rise from stress. Because British Burmese are at risk for diabetes mellitus, fructosamine evaluation was possibly justified, although the glucose value is not consistent with polyuria and/or polydipsia resulting from diabetes mellitus.

The patient's mild azotemia was likely due to prerenal causes (eg, subclinical dehydration), early kidney disease, or both.

TABLE

SERUM CHEMISTRY RESULTS

Test	Result	Reference Range
Blood urea nitrogen	34.2 mg/dL (12.2 mmol/L)	8.1-27.4 mg/dL (2.9-9.8 mmol/L)
Creatinine	1.57 mg/dL (139 μmol/L)	0.45-2.0 mg/dL (40-177 μmol/L)
Glucose	178 mg/dL (9.86 mmol/L)	71-159 mg/dL (3.94-8.83 mmol/L)
Fructosamine	201 μmol/L	159-295 μmol/L
Total T4	2.95 μg/dL (38 nmol/L)	1.48-5.05 μg/dL (19-65 nmol/L)
SDMA	27.4 μg/dL (1.37 μmol/L)	0-21.4 μg/dL (0-1.07 μmol/L)

DIAGNOSIS: **CHRONIC KIDNEY DISEASE & PRESUMPTIVE OSTEOARTHRITIS**

In addition to osteoarthritis, the patient was diagnosed with International Renal Interest Society (IRIS) Stage 1, nonproteinuric, normotensive chronic kidney disease (CKD).¹

Cats with early-stage CKD may be able to concentrate urine more than a dog at the same stage; therefore, the cat's urine specific gravity did not rule out CKD.

Nutritional Management

Nutritional management can be more challenging in senior pets (ie, those >7 years of age) because they often have several concurrent disorders; however, nutritional management should be considered for senior patients with CKD and weight loss and may be helpful in arthritis cases. Nutritional management for feline IRIS Stage 1 CKD is less clear-cut than for later stages, but there are some key guidelines (see *Feline IRIS Stage 1 CKD Guidelines*).¹

Recommendations vary regarding dietary phosphorus restriction in patients with early CKD; however, the diet should not be high in phosphorus. A nonacidifying, low-sodium diet with increased water-soluble vitamins is appropriate. Although low-sodium diets are not associated with hypertension in cats, high salt is associated with hypokalemia and possibly an increase in serum creatinine, blood urea nitrogen, and phosphorus. The amount of protein to provide at IRIS Stage 1 is controversial. This patient—like many older cats—has muscle loss, so restriction should initially not be excessive, and a high-quality protein (ie, with a high percentage of essential amino acids) should be fed.² Omega-3 fatty acids may help improve survival time in patients with CKD,³ improve arthritis signs,⁴ and improve cognition in older cats.⁵

Transitioning to a new diet should be done slowly, with both the old and new diets offered initially. For this patient, the diets were mixed; however, some clinicians may recommend offering each diet separately based on the proportions an individual cat will accept. In some cases, it may take weeks to transition a cat to a new diet.

Warming a canned diet to just below body temperature may be helpful. Maropitant can help with nausea and vomiting, and mirtazapine can help stimulate appetite.

For this patient, a commercial diet formulated for older cats is appropriate. A senior diet can be a good transition diet for cats with early stages of CKD. Many senior diets are lower in phosphorus and sodium and are less acidic than maintenance diets. Potassium content should be high, as there will be increased renal loss. Antioxidants are often added to help enhance immune and cognitive function and increase longevity. Oxidative damage may be present in renal disease, and antioxidants may have a beneficial effect on this stress.⁶

A diet with functional lipids (fish oil), antioxidants (vitamins C and E), L-carnitine, botanicals (vegetables), highly bioavailable protein, and amino acid supplements was shown to improve symmetrical dimethylarginine (SDMA) in older cats.⁷ A dose of EPA and DHA of 50-100 mg/kg has been suggested, as long as it does not affect diet palatability.⁷ Older cats should have an energy-dense diet (4-4.5 kcal/g dry matter). Caloric intake should only be restricted in obese cats.

FELINE IRIS STAGE 1 CKD GUIDELINES¹

- ▶ Adequate fluid intake can prevent dehydration. Feeding canned food and providing multiple accessible water sources may help with hydration. Water bowls should be easily accessible, especially for cats with arthritis, and should be separate from the food bowl and the litter box.
- ▶ A palatable diet can help prevent further weight loss.
- ▶ Phosphorus should be restricted to decrease renal secondary hyperparathyroidism.
- ▶ Excess sodium should be avoided.
- ▶ Acidifying diets should be avoided, as metabolic acidosis may be present.
- ▶ Water-soluble vitamin supplementation can replace vitamins lost in urine.
- ▶ High-quality protein (ie, proteins with a high percentage of amino acids), possibly in reduced amounts, can decrease azotemia.

Continues ►

ASK YOURSELF ...

QUESTION 1

What percentage of body weight has this patient lost in the last 18 months?

- A. 1%
- B. 5%
- C. 10%
- D. 20%

MOST ACCURATE ANSWER: C

A 10% loss of body weight over a prolonged period is considered significant and likely indicates a problem. This should be addressed, especially in older cats, as it can be a poor prognosticator for survival time.

MOST ACCURATE ANSWER: C

QUESTION 2

What test might be recommended to diagnose early renal disease in this cat?

- A. Bile acid stimulation test
- B. Inulin clearance test
- C. SDMA
- D. Water-deprivation test

MOST ACCURATE ANSWER: C

SDMA is a blood test that detects renal disease earlier than a serum creatinine test. Bile acids are not related to renal function. Inulin clearance tests are more difficult, and water-deprivation testing would be contraindicated.

MOST ACCURATE ANSWER: B

QUESTION 3

This patient has lost weight but still has a BCS of 6/9. Should weight loss be advised?

- A. Yes, excess body weight may worsen his arthritis and increase his risk for diseases such as diabetes mellitus.
- B. No, intentional weight loss is not indicated in a cat with CKD, especially one that already has unintentional weight loss.

MOST ACCURATE ANSWER: B

This cat should not lose weight; maintaining or even gaining a bit of weight (especially as muscle mass) is consistent with longer survival times in cats with CKD.

QUESTION 4

In feline CKD, it is important to restrict dietary:

- A. Carbohydrates
- B. Fat
- C. Phosphorus
- D. Magnesium

In CKD, phosphorus elimination via the kidneys is decreased, and parathyroid hormone will increase as the body attempts to increase its excretion. Increased parathyroid hormone functions as a uremic toxin, so dietary phosphorus restriction is recommended in most cases.

QUESTION 5

Senior diets for cats should have:

- A. Decreased antioxidants
- B. Increased caloric density
- C. Increased phosphorus
- D. Increased magnesium

Older cats are often less able to use nutrients than are younger cats and do not absorb fats and protein as well. They are more likely to lose weight, so many senior diets have increased caloric density. These diets are often lower in phosphorus and contain more antioxidants as compared with adult maintenance diets. ■

See page 95 for references.

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