Cats have metabolically evolved into obligate carnivores and have unique requirements regarding fat and protein ingestion; additionally, cats are hunters and prefer to eat alone and in small quantities multiple times a day. Therefore, the typical twice-a-day or free-choice dry feeding strategies are unnatural for a cat and can cause weight gain, especially if the cat is spayed or neutered and the owner is not mindful of daily caloric consumption. The average spayed or neutered cat requires ≈40 to 50 kcal/kg/ideal body weight per day.

Unlike other species, cats must continue gluconeogenesis in both fed and fasted states. It has been hypothesized that this high endogenous glucose demand has led to a secondarily high elevated protein requirement and that cats have developed metabolic strategies to meet glucose demand independent of carbohydrate intake. Controversy exists as to what feeding strategy benefits cats in both healthy and disease states, but it is widely accepted that restricting protein in a cat typically is not beneficial.

In cats with chronic kidney disease, protein is believed to be required to counter catabolic events that cause weight and muscle mass loss. Phosphorus restriction with or without protein restriction appears to be the most important dietary intervention in International Renal Interest Society stages 3 and 4 chronic kidney disease. For obese cats, evidence suggests that feeding diets with >40% (on an energy basis) protein is important to help maintain lean body mass during weight loss. Additionally, research indicates a potential benefit to feeding diabetic cats a higher-protein, lower-carbohydrate diet.—Scherk M

Controversies Surrounding Protein in Feline Nutrition

Cats have neoplastic effusions may have no history of medical problems. Presenting complaints and physical examination findings can vary depending on the location, volume, and chronicity of the effusion. A careful physical examination can suggest the location of an effusion.

Tachypnea, dyspnea, decreased chest compliance, decreased lung sounds, and muffled heart sounds may indicate pleural effusion. Pericardial effusion may be present if heart sounds are muffled with normal lung sounds, especially if there are pulse abnormalities. Cats with peritoneal effusion can present with abdominal distention, and patients may have pain on palpation. The extent of imaging is based on patient stability.

Thoracic and abdominal radiography and ultrasonography are useful. CT is better for finding discrete pleural masses and evaluating the lungs and potential surgical planning. Important baseline screening tests include CBC, serum chemistry profile, and FIV/FeLV testing. Cytology and fluid analysis of the effusion can be diagnostic if large cell lymphoma is present. If lymphoma or another round cell tumor is not found, carcinomatosis and mesothelioma are likely differentials. Fine-needle aspiration or biopsy may also be diagnostic if a mass lesion is present. Chemotherapy and radiation therapy can extend a lymphoma patient’s life. However, no clear path exists to treat mesothelioma or carcinomatosis; therapy is oriented toward supportive care.—Krick E

Neoplastic Effusions
Get the Most from Abdominal Radiographs

Abdominal radiography allows for a complete overview of the abdomen and is a crucial first step in diagnosing the cause of vomiting in cats. Though also helpful, ultrasonography alone could lead to misdiagnosis of a disease that could be identified on radiographs. The 2 imaging modalities should be considered complementary.

Radiographic signs of intestinal disease frequently include dilatation, abnormal contents, and/or abnormal shape and distribution of segments. Compression radiography is used to displace intestinal structures away from regions or organs of interest. Ileus and intestinal obstructions (both partial and complete) can be diagnosed radiographically. Radiographic appearance of ileus is dependent on the duration, location, and degree of obstruction.

Mildly dilated loops of intestine may be present proximal to partial obstructions. Barium contrast studies or ultrasonography may be necessary, as partial obstructions can be difficult to diagnose. Complete obstructions are typically characterized by more severe intestinal dilation, usually with gas in the lumen. Dilation occurs proximal to the obstruction with empty, contracted intestines distal to the obstruction; this creates a mixed population of bowel loops. If needed, a small-volume barium enema can help distinguish colon from dilated small intestine. The presence of free air in the abdomen is typically a surgical emergency and suggests gastric or intestinal perforation. An upper GI barium study can be helpful in cases of vomiting cats when fasting abdominal radiography and compression study are inconclusive.—Gaschen L

Emerging Infectious Diseases

According to the Centers for Disease Control and Prevention, emerging diseases are those that have increased in incidence over the past 2 decades or those threatening to in the near future. These include new infections resulting from changes or evolution in existing organisms, known infections spreading to new geographic areas or populations, previously unrecognized infections appearing in areas undergoing ecologic transformation, and old infections re-emerging as a result of antimicrobial resistance or breakdowns in public-health measures.

In a study of Anaplasma phagocytophilum in cats, lethargy, fever, and anorexia were commonly seen in affected animals. CBC abnormalities included leukopenia, lymphopenia, neutropenia, and thrombocytopenia. Increasing numbers of Lyme disease cases in the southern United States, Texas, and Mexico suggest that the geographic range of Ixodes spp ticks may be expanding.

Aspergillosis is an opportunistic fungal infection that takes 2 invasive forms in cats: a localized sinonasal form and a generalized sino-orbital form. The localized form may be treated with debridement of lesions and topical and systemic therapy. The sino-orbital form is often resistant to commonly used antifungal drugs and carries a poor prognosis.

Aelurostrongylus abstrusus, the most common feline pulmonary parasite, appears to be increasing in prevalence. Morbilliviruses are enveloped single-strand RNA viruses possibly associated with tubulointerstitial nephritis in cats. Further research is ongoing to assess potential associations between morbilliviruses and chronic kidney disease in cats.—Little S

Aelurostrongylus abstrusus, the most common feline pulmonary parasite, appears to be increasing in prevalence.
Oral Tumors in Cats

Squamous cell carcinoma (SCC) is the most common type of malignant oral tumor in cats. Malignant fibrosarcomas and benign oral masses (eg, epulides, eosinophilic granuloma complex, nasopharyngeal polyps) can also occur. Flea collars, secondhand smoke, and canned food (particularly tuna) have been implicated as possibly associated with oral SCC in cats.

Frequently, veterinary team members find masses during routine examination and dental prophylaxis. Dental radiography can be useful for identifying significant bony lysis when gross disease is not evident. After a histopathologic diagnosis, oncologic staging is recommended.

Why Wait? Aspirate

In veterinary medicine, most skin and subcutaneous tumors can be cured with surgery alone if diagnosed early, when tumors are small. Masses that are not removed should be monitored (via measurement) by a veterinarian every 3 to 6 months. If a tumor is >1 cm and has been present for a month, it should be aspirated. If cytology is not diagnostic, biopsy is recommended before tumor removal.

Not all tumors require surgical removal. It is not recommended to completely remove a mass without a cellular diagnosis before surgery, as different tumor types require different surgical margins. Surgery is recommended for benign tumors if they cause pain, irritation, bleeding, or infection or if future growth would inhibit removal at a later time. If a mass is malignant, a veterinary oncologist should be consulted for appropriate staging recommendations. Wide, excisional surgery is recommended for malignant tumors before any necessary adjunctive treatment. Reviewing reported histopathologic margins is essential, as they may impact the need for scar revision or chemotherapy. Monitoring for recurrence is best performed every 2 to 3 months for the first year after removal for malignant tumors with low metastatic potential and for which wide, clean margins have been obtained.—Ettinger S

Prognosis for cats with oral SCC is poor, with median survival ranging from 2 to 6 months.

Prognosis for cats with oral SCC is poor, with median survival ranging from 2 to 6 months. Fibrosarcomas carry a much better prognosis, with median survival of >28 months following mandibulectomy. Careful patient and client selection is important before recommending surgical resection, as these patients will require long-term nutritional support.

Radiation therapy is generally considered ineffective as a sole therapy for oral SCC. As with surgery, cats undergoing radiation therapy often require nutritional support. Chemotherapy has shown some efficacy for radiosensitization. Supportive care to accompany therapy should focus on pain control and nutritional support as well as limiting secondary infections. Research is focusing on toceranib and gene therapy to treat oral SCC.—Smith A

It is not recommended to completely remove a mass without a cellular diagnosis before surgery.