

One of the most common problems in cats presented to veterinarians is anorexia. Since anorexia is a non-specific clinical sign that can be associated with a variety of underlying disorders, the clinician may find it challenging to diagnose and treat affected cats. Effective intervention requires an understanding of common causes and management options.

Anorexia is the loss of appetite for food. Another useful term is hyporexia, which can be defined as a reduction in appetite.<sup>1</sup> Both situations are important in feline medicine. The distinction is useful both for descriptive purposes and because totally anorexic patients often require more aggressive diagnostic and therapeutic intervention, including assisted feeding. In order to understand if a cat or kitten is consuming adequate nutrition, guidelines for daily caloric intake should be noted. For adult cats, the starting point for daily resting energy requirement (RER) is calculated by the equation  $[30 \times \text{body weight in kg} + 70]$ . Multiplying by an illness factor is no longer recommended as it has been associated with higher complication rates.<sup>2</sup> The amount fed should then be adjusted according to monitoring of body weight (BW) and body condition score (BCS). The daily caloric intake should also provide a minimum of 5 g protein/kg body weight and this may be met when using recovery or convalescence diets due to their high fat and protein content. For kittens under 2 kg (4.4 lb), it is more accurate to use the equation  $[70 \times \text{BW (kg)}^{0.75}]$  to calculate RER.

The detrimental effects of anorexia/hyporexia are well known. Metabolic changes include increases in glucose, lactate, cortisol, glucagon, and norepinephrine as well as increased proteolysis leading to loss of muscle while fat may be preserved. Immune function and wound healing are impaired and morbidity and mortality are increased. Hepatic lipidosis can occur in older obese cats that have become anorexic due to a stressful experience or concurrent disease. It is associated with acute and rapid weight loss (40%–60%), depression, and icterus; muscle mass is lost while abdominal and inguinal fat is often retained. This disease requires aggressive nutritional management.

There are many potential causes for hyporexia/anorexia. An attempt should be made to prevent hyporexia/anorexia when possible, and to find a specific cause when it is identified. In addition to loss of appetite due to disease, some common causes include

- **Diet change:** Cats are affected by many qualities of food, such as the taste, smell, format (canned, dry, semi-moist), kibble shape, kibble size, mouth feel, etc. Cats are notorious for developing fixed food preferences that are often shaped by early experience. Food acceptance and intake can also be affected by environmental factors, such as the feeding location, timing of feeding, type of bowl, presence of other animals or people, etc. Food should always be fresh and stored appropriately. Poor quality or spoiled diets may cause anorexia, vomiting, and diarrhea.
- **Stressors:** Many external stressors cause changes in feline behavior such as anorexia/hyporexia, vomiting, diarrhea, etc.<sup>3</sup> Stressors may also have wide ranging effects on cat behavior, such as suppression of normal behaviors (e.g., resting, grooming), and increased vigilance and hiding. Undesirable physiologic responses to stress include hyperglycemia, decreased serum potassium, increased serum creatinine phosphokinase, lymphopenia, neutrophilia, erratic response to sedation and anesthesia, immunosuppression, hypertension, and cardiac murmurs.<sup>4</sup> Examples of stressors include change in diet, change in caretakers, change in daily routine, unnatural day/light cycles, lack of interaction with caretakers, cold ambient temperatures, noisy environments, presence of other cats and dogs, unfamiliar caretakers, unfamiliar environment, and lack of environmental resources (e.g., places to hide, perch, etc.). Many hospitalized cats suffer from hyporexia/anorexia. Some veterinary hospital cages are small and inhibit normal behavior because they lack places for cats to perch, hide, and scratch. Small cages also make it difficult to separate food and water from the litter box. Food intake is adversely affected when less than 2 ft. of triangulated distance between litter box, resting area, and food/water bowls is available.<sup>5</sup> Cats housed in cages with 11 sq. ft. of floor space were significantly less stressed than cats with 5.3 sq. ft. of space in one study.<sup>6</sup> For cats, vertical space is just as important as horizontal space. Places to hide are very important for cats; one study found that the ability to hide decreased stress hormones.<sup>7</sup> As well cats may be housed within the sight of dogs, or at the least, within the smell and sound of dogs.

Veterinary hospitals should have procedures in place for monitoring of food intake, BW, and BCS of hospitalized cats, as well as guidelines for intervention. Cats should be weighed and body condition scored at admission; this

should be repeated regularly during the hospital stay. More frequent evaluation is indicated for sick cats and those on medications (many drugs cause hyporexia/anorexia or vomiting in cats). Daily assessment should be performed before cage cleaning, and should include food and water intake, presence of vomitus, and fecal frequency and quality (using the Nestle Purina fecal scoring system). With *ad libitum* feeding plans, it can be difficult to detect hyporexia/anorexia, so daily weighing of food bowls is recommended. Cats prefer shallow bowls for food and water, such as dog-size water bowls and paper plates.

For older kittens and adults, nutritional intervention should be implemented if the cat is eating less than 85 percent of RER, the cat is anorexic for 3 or more days, or the cat has lost 10 percent BW or more in a short period of time.<sup>2</sup> Young kittens and sick cats or kittens are more vulnerable to the detrimental effects of inadequate nutritional intake and need closer monitoring. Intervention should begin if a kitten has not eaten for a 24-hour period. Assessment of hyporexic/anorexic cats therefore must include at a minimum: complete physical examination, evaluation of available medical history, nutritional assessment, and environmental assessment. Whenever possible, underlying diseases should be identified and treated where feasible. Use of feline facial pheromone in hospitalized cats is associated with increased food intake and increased normal behaviors such as grooming.<sup>8</sup> Basic supportive care may be required for hyporexic/anorexic cats and could include hydration, vitamin B12 supplementation, and treatment of fever, pain, or nausea if present.

Food aversion occurs readily in cats if they learn to associate eating or the sight or smell of food with feeling sick, nauseous, or painful. Once they are feeling better, they may avoid that food or similar foods for prolonged periods of time. It is important to recognize signs of nausea in cats (e.g., gulping, drooling, dropping food from the mouth, turning away from food) and institute treatment early. Avoid leaving food in the cage of a nauseous cat; instead, offer food intermittently and then remove it. Offering food that is chilled may help overcome aversion by reducing the odor. Whenever possible, avoid administering medications in food (an exception would be a phosphate binder). Cats recovering from food aversion may be helped by offering a different diet, feeding in a new but quiet environment, and even being fed by a new caretaker.

Feeding strategies can be grouped into three levels based on level of intervention:

- **Level 1 (simple interventions):** The sense of smell is particularly important for cats to eat normally and may be impaired in cats with URTD or facial trauma. Enhancing smell and palatability can be accomplished by feeding fresh canned foods that are warmed no higher than body temperature, and adding water or chicken or tuna broth. Canned foods not only have higher water content than dry diets (> 75% compared with < 10%) but are more palatable due to their higher fat and protein content. For cats that do not accept canned diets, dry kibble can be soaked in water. Human baby foods are a popular choice for tempting cats to eat and are acceptable as long as they do not contain onion and are used for less than 2–3 weeks. In the short term, caloric intake is more important than nutritional balance. Offer small frequent meals as early satiety is common in illness. Hand-feeding, petting, and praise may also be helpful. Appetite stimulating drugs are not very reliable and many have undesirable side effects. Their effect on appetite is short-lived and they are best reserved for convalescent cats with hyporexia and cats overcoming food aversion. They are not likely to induce adequate nutritional intake in an anorexic sick cat.
- **Level 2 (syringe feeding):** Syringe feeding has limited usefulness and is best for cats that are not totally anorexic and will tolerate the procedure. It may be difficult to meet daily caloric needs with this method, and many cats will struggle and resist. Orogastric feeding with a mouth speculum and tube is not recommended by this author as it is too stressful. However, orogastric tube feeding is appropriate and effective for feeding neonatal kittens.
- **Level 3 (tube feeding):** Tube feeding is indicated when nutritional support will be needed for more than 1 or 2 days. The easiest method is nasogastric (NG) or nasoesophageal (NE) tube feeding. The tube is easy to place, does not require anesthesia, is relatively easy to maintain, and is inexpensive. The drawbacks are that NG/NE tubes are easy to dislodge, are not useful for long term feeding (up to about 7 days), and only liquid diets (e.g., CliniCare, Rebound; both 1 kcal/mL) can be fed. Feeding can be in intermittent boluses or trickle feeding. Contraindications to placement of NG/NE tubes include the inability to swallow or lack of gag reflex. Complications may include rhinitis, esophageal reflux, aspiration, inadvertent tube removal, or obstruction of the tube. For longer term feeding (weeks to months), an esophagostomy tube is ideal and can be used with a variety of diets.

### Common Antiemetic and Appetite Stimulating Drugs for Cats

Drug	Dosage	Comments
Metoclopramide	0.2–0.4 mg/kg SC, PO q 8hr 1–2 mg/kg/day CRI	Also prokinetic Centrally acting?
Maropitant	1 mg/kg IV, SC, PO q 24 hrs (up to 5 days)	Inhibits substance P binding to NK-1 receptors
Phenothiazines: prochlorperazine chlorpromazine	0.1–0.5 mg/kg SC q 8hr	Centrally acting via multiple mechanisms May cause sedation
Mirtazapine	1.9–3.75 mg/cat PO q 48 hrs Often given as ¼ of 15 mg tablet	5-HT <sub>3</sub> receptor antagonist Appetite stimulant
Cyproheptadine	1.0–2.0 mg/cat PO q 12–24 hrs	Do not give with mirtazapine (can be used as antidote for serotonin syndrome)

### References

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