

GETTING CATS TO EAT: IT IS MORE THAN POURING FOOD IN A BOWL

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Proper nutritional management is one of the most important factors in managing health and disease in pets. As clients become more aware of the importance of nutrition in their own health, they will expect this same higher standard of nutritional care for their pets. The veterinary healthcare team should be the preferred, expert source of the best nutritional information for pets. Veterinary teams that understand and promote clinical nutrition and demonstrate in-clinic behaviors consistent with this conviction will benefit their patients, their clients, and their practices. Proper nutritional management is one of the most important factors in maximizing health, performance, and longevity in addition to managing disease conditions.

Domestic cats today display certain feeding behaviors that are similar to felids in the wild. Cats naturally do not display a regular daily rhythmic sleep-wake cycle, or regular cycles of activity, feeding, and drinking. Cats are known to consume 10 to 20 small meals throughout the day and night, behavior that is believed to be reflective of the evolutionary relationship of cats and their prey.¹ Cats are known to hunt alone. Feral cats typically catch prey/mice as their source of food. On average a mouse provides approximately 30 kcal (125 kJ) of metabolizable energy (ME)¹. This amount is about 12 to 13% of a feral cat's daily energy requirement. Therefore, we can see that hunting throughout the day and night is required to provide sufficient food for an average cat. Therefore, recommendations of meal feeding, especially once per day, conflict with the natural behavior of cats. Conversely, we have also seen that free feeding has contributed to the obesity epidemic that is seen in cats, as well as other species.

Feline metabolism is unique versus other species. Nutrition for felines must be closely monitored to meet the specific nutritional requirements of a true carnivore. Some of these unique attributes include:

1. A limited ability to downregulate enzymes of nitrogen catabolism and urea cycle enzymes
2. A strict requirement for the amino acid arginine,
 - Lack of arginine in the diet for longer than 24 hours, may have life-threatening concerns
3. An inability to synthesize taurine from cysteine
4. An inability to synthesize vitamin A from beta carotenes
5. An inability to synthesize niacin from the amino acid tryptophan

Cats are very sensitive to food - the form, the odor, and the taste. The flavor and texture preferences of individual cats are often influenced by early experience that can affect preferences throughout life. Cats familiar with a certain texture or type of food (i.e., moist, dry, semi-moist) may refuse foods with different textures. Cats do have a preference for certain 'flavors' such as animal fat, protein hydrolysates (digests), meat extracts, and certain free amino acids found in animal muscle (i.e., alanine, proline, lysine, histidine and leucine). Food temperature also plays a role in acceptance of the food by the cat. When feeding canned/moist foods, the preference is for the moist food to be at, or near, body

temperature (38.5°C [101.5°F]). These factors are critical to the proper nutrition of a cat, especially if seriously ill.

As determined, cats are carnivores with unique anatomic, physiologic, metabolic, and behavioral adaptations that support eating foods higher in protein and lower in carbohydrates as compared to dogs. Cats are well adapted hunters with increased visual acuity, upright ears, sensitive facial whiskers, tactile hairs, retractable claws, and conical, sharply pointed teeth. Cats have low liver glucokinase activity which limits the ability to metabolize large amounts of simple carbohydrates. Cats also demonstrate decreased intestinal and pancreatic amylase activity, the enzymes responsible for the digestion and uptake of starches and sugars. These adaptations support consumption of natural prey, such as small rodents which are estimated to contain around 55% protein, 45% fat and 1-2% carbohydrate on a dry matter basis. Despite these specific adaptations cats efficiently use carbohydrates and carbohydrates provide a good source of energy. Dry foods containing 40% or more dietary carbohydrates with an average digestibility of 85% are well tolerated by normal cats.

Another adaptation is that many cats today live indoors. However, a solely indoor lifestyle may prevent 'normal' behaviors such as hunting and foraging, which negatively impacts a cat's welfare.¹⁻⁴ Indoor cats rely on their owners for food provision. They are often fed with other cats in one location and given relatively large volumes of food once or twice daily or ad libitum, without consideration of each cat's individual energy requirements.

Cats living both indoor and outdoor are generally fed similarly to indoor cats; eating readily available, highly palatable food, with little need to forage or hunt. This may lead to issues as cats' behavior involves hunting for food. In fact, cats can naturally spend half of every 24 h looking for and obtaining food.²

Many cat owners have multiple cats. Cats engage in and maintain social relationships with other cats and readily live in large colonies when resources are sufficient. However, some cats in the group may prefer to associate with certain members and avoid others. In multi-cat households, cats usually do not share their provided space equally.⁵ These cats may self-restrict to specific areas or rooms due to their social relationships, personalities, and genetics.

Remember, cats naturally prefer to eat small, frequent meals alone, thus competition for food can cause conflict and pre-feeding aggression; therefore, some cats may enter all rooms and others may prefer the safety and comfort of small spaces.^{1,6,7} This information is important as cats may not show obvious signs of tension or stress, which therefore often go unrecognized by owners.

An in-depth nutritional history should be taken with every cat that presents to the hospital, every time they present. Veterinary technicians should ask questions of the owner in an open-ended questioning style. This allows for the owner to provide reliable and accurate information without feeling as though they are being judged by the veterinary team. A nutritional assessment aids in determining if specific modifications might be beneficial for the individual cat. A nutritional assessment includes an assessment of the cat and its current diet. Nutritional assessment consists of a nutritional history, body weight, body

condition score (BCS), and muscle condition score (MCS). Also, the giving of snacks, treats, and table food should be investigated. Also, asking owners about how they administer medications can reveal issues not suspected by the owner (e.g., high-sodium foods like cheese or lunch meats being used to hide medications).

Changes in body composition are common and important concerns in cats and if found, need to be investigated. BCS should be performed, and the owner taught to do a BCS. Thus, they can monitor their cats condition at home and called in to the veterinary team. Ensure the BCS method is consistent so as to assess changes over time.

The muscle condition score (MCS) evaluates muscle mass. Cats can be very obese and yet have severe muscle loss, and conversely, cats can be thin but have normal muscle mass. Evaluation of muscle mass includes visual examination and palpation over the temporal bones, scapulae, lumbar vertebrae, and pelvic bones. Assessing MCS is important to determine whether muscle atrophy is occurring. Early identification of muscle loss is beneficial for successful intervention.

Obesity-related issues

In 2018, the Association for Pet Obesity Prevention found nearly 60% of cats to be clinically overweight or obese.⁸ The typical household practice of feeding one or two large meals at a single feeding station does not address the domestic cat's need for both eating alone and eating multiple small meals a day.² This approach to feeding can lead to inactivity and even distress, often resulting in overconsumption and obesity.⁹

Commercial pet food is highly palatable and easy to eat rapidly, due to its small chunks and kibble formulation. These factors can contribute to overeating and weight gain. If a cat is bored and has little to do, eating can in itself become an activity, leading to excessive calorie intake and obesity. Obesity is a disease and cats that are overweight or obese are not healthy. In addition, they are at risk for lameness, Diabetes Mellitus, FLUTD, etc.¹⁰ Additionally, overweight cats have more difficulty performing physical activities such as jumping, climbing, hunting and playing, thus exacerbating the obesity problem. An indoor lifestyle in general has been demonstrated to increase the risk of obesity and associated diseases.

Stress-related problems

Unsuccessful stress-related coping behaviors, especially in multi-cat households, such as lengthy intervals between litter box uses, may result in, or aggravate illnesses such as feline idiopathic cystitis (FIC). To avoid a stressful encounter with another pet or even a household member such as an active toddler, a cat may develop the habit of gorging, with subsequent vomiting, to quickly return to a safe place. They may also not feel safe using their litterbox due to the location or anxiety of a potential encounter. Still other cats may have inadequate nutritional intake due to lack of access to food due to this encounter fear or from being 'blocked or bullied' by another cat in the household.²

Therefore, the veterinary team should develop an appropriate feeding plan for each individual cat. The goal of a feeding program should be to mimic the cat's natural feeding behavior. Simulating normal feeding behavior in cats diminishes begging for food, feline frustration, and inter-cat conflict. It also helps reduce relinquishment and strengthens the human-cat bond.

Puzzle feeders

Puzzle feeders or food puzzles are objects that hold food and must be manipulated by the cat to release the food. Using puzzle feeders and hiding kibbles around the home increases activity, provides mental

and physical stimulation and improves weight management.^{2,11} There are broad range of puzzle feeders available commercially. They can also be DIY - easily and inexpensively. Puzzle feeders vary in their complexity, can be stationary or rolling, and can be designed for dry or wet foods. Some types require more effort than others on the part of the cat to obtain food, either by manipulation of the feeder or using paws or tongue to reach the food. Educate owners to begin introduction of puzzle feeders with the simple, easily manipulated puzzle feeders and then have them move up to more challenging. Ensure this remains a stimulating activity for the cat, not a stressful experience. Placing food portions in different or new locations, including making use of elevated space when the cat's physical status allows, can also enable cats to forage and engage their senses in searching for food. The author recommends calculating the DER for the individual cat, separating the kibble, and placing on dishes that are placed in different locations throughout the home. This piques the innate 'hunting' drive and increases exercise.

As mentioned, the cat's daily food allowance should be split into multiple small meals and fed over the course of 24 hours, using puzzle feeders when possible. It is imperative that veterinary teams communicate with cat owners to ensure the cat is eating an appropriate amount and that food placement is such that the cat is able to get it. Weight and body condition need to be monitored regularly, especially in older cats or those that are debilitated, have chronic illnesses, or specific needs. The veterinary team must also educate owners on how to evaluate their cat's behavior for signs of illness, evidence of stress from inter-cat tension, food bowl guarding, or other problems, both in general and associated with the feeding program. Always calculate out the DER for the patient and write this down in the medical record and on the discharge instructions for the client. Remember to make a specific recommendation as to what the cat should be eating based on the cat's PE, history, and findings.

Whisker Stress/Fatigue

Cat whiskers are extraordinary sensing hairs that give them almost extrasensory powers. Whiskers act as high-powered antennae that pull signals into their brain and nervous system. The ultra-sensitive sensory organs at the base of the whiskers, called proprioceptors, tell your cat a lot about her world. They provide your cat with information regarding her own orientation in space and the 'what and where' of her environment. Whiskers help your cat move around furniture in a dark room, hunt fast-moving prey (by sensing changes in air currents) and help to determine if she can squeeze into that incredibly tight spot between the bookcase and the wall.

Whisker fatigue or whicker stress is information overload that stresses out your cat. Because whisker hairs are so sensitive, every time your cat encounters an object or detects movement, even a small change in air current or a slight brush against her face, messages are transmitted from those sensory organs at the base of her whiskers to her brain. That barrage of "messages" could stress out your cat.

Is it truly whisker fatigue? What your cat is feeling is probably more like distaste or aversion than soreness or actual fatigue. Recently, a study was performed that began to look at the possibility of whisker fatigue in cats from the type of bowl/dish they were using. The results showed that the food dish did not affect cats' feeding behavior: there was no difference in the time spent eating, the amount of food dropped, or the amount of food eaten. In the side-by-side test, slightly more than half (63%) of the cats preferred the whisker-friendly dish.¹²

Cats often find eating out of a bowl unappealing in general and providing a flat surface for meals is preferable. Whisker fatigue is not a disease and appears to manifest primarily with the repeated daily contact with food and water bowls. A cat who is stressed is not happy, and if she avoids eating and drinking, she might become malnourished and/or dehydrated.

Cat's behavior at her food and water bowl may tip owners off that the cat is stressed. Veterinary team members must educate owners on signs to watch for including, pacing in front of the bowls, being reluctant to eat but appearing to be hungry, pawing at food and knocking it to the floor before eating, or acting aggressive toward other animals around food. These behaviors can also be related to potentially serious health conditions like dental disease, oral tumors, gastrointestinal diseases, or behavioral problems.

As part of providing optimal healthcare to our feline patients, it is crucial to educate cat owners of the importance of optimizing not only what to feed but also how to feed. Remember, proper nutritional management is one of the most important factors in managing health and disease in cats.

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Resources

- <https://catvets.com>
- www.foodpuzzlesforcats.com
- www.indoorpetinitiative.com