Selecting diets for healthy pets and pets with medical conditions will be discussed by a board-certified veterinary nutritionist. Strategies for determining when a therapeutic food is indicated will be discussed. Strategies to increase client adherence to nutritional plans will also be discussed. Case examples will be included to illustrate tips and strategies.

What is the difference between a therapeutic diet and an over the counter (OTC) diet?
Beyond requiring approval from a veterinarian, veterinary therapeutic diets are formulated to help manage one or more disease processes in cats and dogs. Because of this special formulation, not all veterinary therapeutic diets will be complete and balanced (i.e., meeting the minimum and maximum nutrient levels put forth by the American Association of Feed Control Officials [AAFCO]). Some medical conditions alter the nutrient requirements of pets such that they have different needs from healthy pets. Depending on the nutritional goals, modifications to diets may be necessary that are outside the AAFCO guidelines, and thus these diets will have nutritional adequacy statements such as ‘for intermittent or supplemental use only’ or ‘for use under supervision by a veterinarian.’ In some diseases, nutritional management with veterinary therapeutic foods is critical due to these altered nutritional requirements and providing the level of nutrients appropriate for a healthy pet would be detrimental to their medical condition. Communication to owners about the difference between veterinary therapeutic and OTC diets can promote adherence, especially in cases where the diet must be fed exclusively for benefit.

Situations where veterinary therapeutic diets are indicated
AAFCO guidelines
Veterinary therapeutic diets may be most useful in instances where disease conditions require nutrient modification outside AAFCO guidelines and peer-reviewed studies have shown a benefit with specific diet modification. For example, renal disease is one instance where almost every pet requires phosphorus restriction below AAFCO guidelines as their disease progresses. Pets with severe to moderate renal disease (i.e., International Renal Interest Society Stage 3 or 4 chronic kidney disease) often require protein restriction below AAFCO guidelines as well. Other example disease conditions (and the nutrients of concern) that often require modification beyond AAFCO guidelines include: protein-losing-nephropathy (protein), hyperthyroidism (iodine), copper-associated hepatopathy (copper), and urate urolithiasis (purines).

Processing and formulation
In other instances, special processing of veterinary therapeutic diets may be required that is not available in OTC foods. For example, when conducting a dietary food allergy trial, ensuring quality control in protein sources is critical to successful diagnosis and treatment. Studies have shown OTC limited ingredient foods can be contaminated with other protein sources and not appropriate to use for dietary trials. Veterinary therapeutic diets containing hydrolyzed proteins or those intended for use as novel protein diets undergo extensive testing and strict processing methods. Though many OTC foods may be marketed as limited antigen, they are not always formulated to be used as a diagnostic tool.

Situations where veterinary therapeutic diets may be indicated
Other diseases require case by case assessment as to whether a pet’s condition requires modification of a diet that would be available in OTC foods (e.g., obesity, gastrointestinal disease, cardiac disease, etc.). In the case of urinary conditions, peer-reviewed studies have shown benefit of a veterinary therapeutic diets for specific urolithiasis management (e.g., struvite dissolution). While some OTC diets may also have properties that reduce the risk of various urolith formation, if a diet has not been tested for its ability to alter the environment of the urine in a clinical or research setting, the efficacy is simply not known. Furthermore, not all urinary conditions can be treated similarly. For example, in Feline Lower Urinary Tract Disease (FLUTD) or Feline Idiopathic Cystitis (FIC), studies have shown stress management and moisture intake are critical to disease management, which does not require veterinary therapeutic foods.

Strategies for success while using therapeutic diets
Do: Include treats and medication administration
Almost all owners give treats and studies show up to 60% of owners provide medication with food items. While some veterinary therapeutic diets come in treat forms, this is not always possible. Without proper client communication, owners may also have special treats they are convinced won’t affect treatment. Adherence can be increased by including treat and medication administration options that also meet nutritional goals (e.g., an alternative option to high sodium peanut butter, cheese or deli meat for administering pills is banana slices).
Don’t: Interchange flavors and formulations
Canned and dry versions of the same veterinary therapeutic foods will not always have similar nutrient profiles. For example, while a dry version of gastrointestinal diet may be quite low in fat, the canned version of the same food may be moderate or high in fat, which would be a significant problem for a pet with pancreatitis. Nutrient levels for macronutrients like fat or protein and for micronutrients like sodium and phosphorus may be drastically different between flavors or canned/dry versions. Be mindful of nutrient profiles and alert owners that only the specific formulations and flavors recommended should be used without consulting with their veterinarian first.

Additional clinical considerations
Growing pets
Until skeletal maturity (at least 12 months of age), cats and dogs must be fed a food formulated to meet AAFCO guidelines for growth or undergo AAFCO feeding trials for growth. Some veterinary therapeutic foods have been modified outside AAFCO guidelines, but have undergone feeding trials to ensure they are still suitable for growing animals. In disease conditions where nutritional management contradicts the needs of growing animals (i.e., protein losing nephropathy in a 7 month old puppy), a board-certified veterinary nutritionist should be consulted to properly formulate a nutritional plan (www.ACVN.org).

Multi-pet households
Pet owners often ask if veterinary therapeutic foods can be fed to healthy pets, especially if there are multiple pets in the house. If the food meets AAFCO guidelines or has undergone AAFCO feeding trials, it is likely appropriate for a healthy pet. However, it should never be assumed all other pets in the house are healthy and each pet should have a nutritional assessment to ensure dietary recommendations are appropriate. In general, veterinary therapeutic diets formulated for dental disease, gastrointestinal disease, and heart disease are likely to meet AAFCO guidelines, but each pet should be individually assessed to ensure appropriate dietary recommendations.

Refresher on AAFCO statements
Every food (but not treats) should have an AAFCO statement that describes if the food is complete and balanced and what lifestage the food is appropriate for. These statements will tell you three things:

- Is this food complete and balanced?
  - If not, it will say (often in very small print) “this product is intended for intermittent or supplemental feeding only.” This means it does NOT have all the essential nutrients a healthy pet needs.
  - Veterinary therapeutic diets often have this statement due to their modifications for diseases.

- How did the company determine the food was complete and balanced?
  - Companies can either do non-invasive feeding trials or perform an analysis of their product to determine the food is complete and balanced.
  - Feeding trials will state “Animal feeding tests using AAFCO procedures substantiate that ____ food provides complete and balanced nutrition...”
  - Nutritional analysis only will state “____ food is formulated to meet AAFCO nutrient profiles...”
  - Feeding trials ensure pets have eaten this food and done well, but ideally, companies have tested their foods by both methods to ensure it is safe for pets.

- What lifestage does this diet provide complete and balanced for?
  - AAFCO provides nutrient profiles and feeding trial requirements for growth, reproduction, and adult maintenance. (Note: there are NO senior guidelines!)
  - Foods that say all life stages must meet minimum levels of both growth and adult.
  - Starting in 2017, look for additional notation on foods for growth that specify whether the food is appropriate for large breed dogs (those expected to be 70 lbs or larger at mature weight).

Summary
Some medical conditions can be nutritionally managed with diets that are found over-the-counter. However, many medical conditions require adjusting the nutrient levels in diets below what is recommended for healthy pets (i.e., meeting the Association of American Feed Control Officials (AAFCO) minimum and maximum nutrient guidelines to be complete and balanced food). Each pet should be assessed individually to determine their nutritional goals based on their disease condition and nutrient requirements.

General pet nutrition resources

- American College of Veterinary Nutrition (ACVN) Website: www.acvn.org
  - Resources for pet owners, veterinarians, and a listing of all board-certified veterinary nutritionists.
- World Small Animal Veterinary Association Nutrition Toolkit: www.wsava.org/nutrition-toolkit
  - Note that this site has resources for pet owners and for veterinarians on pet nutrition topics.
- Tufts Clinical Nutrition Service Petfoodology Website: www.petfoodology.org
  - University website created by board-certified veterinary nutritionists with frequently updated blogs on pet nutrition.
Making Client Communications Appetizing: Talking with Owner about Nutrition

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Client communication basics with a focus on nutrition will be discussed by a board-certified veterinary nutritionist. Strategies for obtaining and providing information in a time-efficient manner will be discussed. Strategies for increased adherence through client communication will also be discussed. Case examples will be included to illustrate tips and strategies.

**Core strategies for communication**

There are four core strategies for communication that will be applied to discussing nutrition with owners: 1) open-ended questions, 2) reflective listening, 3) non-verbal communication, and 4) empathy (Shaw, 2006). While it may seem most effective to ask closed-ended questions to quickly obtain necessary information, open-ended questions can evoke the owner’s perspective as well as information that will help develop a nutritional plan. One study revealed veterinary clients were only able to speak for a median of 11 seconds before being interrupted, which could leave owners with a sense of mistrust in their healthcare team. After asking open-ended questions, summarizing responses with reflective listening can let owners know they are being listened to, but also can redirect owners who may be getting lost in details back to the concern at hand. While having a discussion with clients, particularly in a controversial and emotional topic such as nutrition, non-verbal communication is critical to be aware of. If the discussion is positive, but an individual is frowning and crossing his or her arms, then there are mixed messages that should be explored further to ensure clear communication. Lastly, empathy with a focus on education in lieu of judgement on any previous decisions a pet owner may have made can greatly build trust in the exam room. One study revealed genuine empathy, which included providing positive feedback and normalizing concerns, was expressed in only 7% of over 200 veterinary visits studied. Employing these four core strategies while discussing nutrition with clients can help owners feel valued and respected, which can lead to increased trust in the healthcare team and improved outcomes for patients. The following sections will describe how to apply these core strategies throughout the visit in an efficient manner.

**Getting information: saving time on diet histories**

Start by obtaining a complete diet history, where all food items fed (including treats and table food) should be included to allow for an accurate estimate of daily caloric intake or to possibly help guide further diagnostics and treatment. For example, a dietary history of chicken jerky treats may warrant further discussion about renal disease and any related clinical signs. Owners may not volunteer information if not directly asked, so it is very important to spend time accurately assessing the current diet, including supplements, treats, rawhides, dental chews, and foods used to administer medications, etc. Pet owners may also not realize that chews or bones are sources of calories, or that some human foods can be toxic to pets. Obtaining a full and accurate diet history can be time consuming, so it is helpful to have owners pre-fill out a diet history form at home (where they can easily access the names of their pet’s foods and treats) and bring it to the appointment, or even fill it out while waiting in the lobby. This allows the healthcare team to incorporate reflection by summarizing the history and they can ask any pertinent follow up questions. Examples of diet history forms that can be given to owners are in the World Small Animal Veterinary Association Nutrition Toolkit (available at: www.wsava.org/nutrition-toolkit). Applying the core strategies by asking open-ended and non-judgmental questions such as “What treats does your pet enjoy?” may yield a more positive and forthcoming answer than “Do you feed your pet treats?” Also during this information gathering session, the healthcare team can assess the stage of change an owner may be in, especially if nutritional changes will be required for the pet (e.g., Are they interested in making changes at all for an overweight pet? Have they altered their pet’s food to a recommended therapeutic renal diet but then stopped after having challenges?). Some owners who are not ready to make any nutritional changes for their pet may benefit from education only, while others who are ready or have already started making changes may benefit from specific guidance and troubleshooting when they experience setbacks.

**Giving information: clear and specific guidance**

After obtaining a diet history and assessing the client’s needs, clear and specific nutritional recommendations should be provided. One study showed that a little more than half of pet owners agreed that their veterinarian communicated in language they understood. Avoiding jargon and asking owners “How can we best communicate information?” can help to decide whether diagrams, written pamphlets, or demonstrations will be the most effective method of providing information. Employing non-verbal communication can help decipher if an owner does not understand or may need rephrasing of the information being provided. Avoid vague statements such as ‘Your cat could lose a few pounds,’ and replace them with clear and specific statements such as ‘Your cat is 4 pounds overweight, which predisposes her to conditions such as joint problems and diabetes. We can work together to adjust her diet to keep her healthy and happy for as long as possible.’ This describes the medical problem, the consequences, and sets up a team-based
approach to reach a common goal, keeping the cat healthy and happy. Feeding directions can have wide ranges and may not be applicable to each individual pet, so pet owners should be told how many calories their pet needs per day, given a specific diet recommendation, and prescribed a specific amount to meet those calorie needs, incorporating treats if requested. These calculations can be done quickly with the use of recent toolkits from nutritional guidelines.

**Giving information: utilizing resources**

The World Small Animal Veterinary Association Nutrition Toolkit has non-branded handouts on calorie charts for cats and dogs, body condition scoring charts, and educational handouts on how to select a pet food and how to evaluate nutrition information from the internet. Many owners find the depth and variety of information on the internet overwhelming and rarely know how to find trusted sources of credible and evidence-based nutritional information. Providing owners with vetted websites minimizes confusion and inadvertent non-adherence because of misinformation owners may have garnered from their own online searches. Hospitals can create their own frequently asked questions handout/website on ‘hot topic’ areas such as raw food, ingredient questions, calories, and treats. One example is the Tufts Clinical Nutrition Service Petfoodology website (www.petfoodology.org).

**Developing a plan as a team**

If a pet requires a change in their diet and owners are ready to initiate change, understanding the pet-owner relationship can help individualize the plan. Owners who are highly attached to their pets may be more apt to provide more time or financial resources to their care, however, that attachment may also result in reluctance to change food or treats that define that relationship with their pet. Asking about the relationship between the pet and all members of the household may elicit ‘non-negotiable’ aspects of the human-animal bond that can be included in the plan to increase adherence. Example questions such as ‘Is there anything you feel strongly about including in the plan?’ or ‘Could you describe your daily routine with your pet?’ can help veterinarians develop a plan both the owners and healthcare team feel comfortable with. Using a dialogue rather than a lecture format helps owners take an active role in their pet’s health. Continued use of reflective listening and empathy will help to create a treatment plan that further strengthens the owner’s commitment and facilitates adherence.

**Ongoing support and follow up**

All members of the veterinary healthcare team can help to create and reinforce a nutritional plan. For example, after a veterinarian and pet owner decide on a therapeutic diet, technicians can further discuss client expectations (e.g., increased stool production if a higher fiber diet), and front desk staff can set up delivery of the diet or follow up appointments to renew prescription refills. Active efforts to reach out to clients will reinforce recommendations and show support while strengthening the bond between clients and the veterinary healthcare team.

**Summary**

Understanding the impact of effective communication, communication strategies, and nutrition-specific applications can lead to improved client adherence and patient care.

**References**


General pet nutrition resources

American College of Veterinary Nutrition (ACVN) Website: www.acvn.org

Resources for pet owners, veterinarians, and a listing of all board-certified veterinary nutritionists.

World Small Animal Veterinary Association Nutrition Toolkit: www.wsava.org/nutrition-toolkit

Note that this site has resources for pet owners and for veterinarians on pet nutrition topics.

Tufts Clinical Nutrition Service Petfoodology Website: www.petfoodology.org

University website created by board-certified veterinary nutritionists with frequently updated blogs on pet nutrition.
Nutritional assessment and strategies for feeding hospitalized pets will be discussed by a board-certified veterinary nutritionist. Strategies for selecting parenteral or enteral options for nutritional support will be discussed. Strategies for optimal support of critical care patients will also be discussed. Case examples will be included to illustrate tips and strategies.

**Terms useful for nutritional assessment of pets**
- Anorexia: Complete loss of appetite, where a pet is not eating or ingesting any calories.
- Hyporexia: Decreased appetite where a pet is eating, but not enough to meet their daily calorie requirements (at least resting energy requirements, RER).
- Dysxia: Change in food preferences, where a pet is eating, but not appropriate food (e.g., an unbalanced diet or foods not appropriate for a specific medical condition).
- Body condition score: Assessment of a pet’s fat stores only. Ideal body condition is described as ribs that are palpable without excess fat covering (tip: ribs should be no more padded than the back of your hand).
- Muscle condition score: Assessment of a pet’s muscle condition by palpation of the spine, skull, scapulae, and wings of the ilia.

*Note: Handouts and helpful non-branded charts of body condition scoring and muscle condition scoring can be found in the nutrition toolkit developed by the World Small Animal Veterinary Association (WSAVA), available at: [http://www.wsava.org/nutrition-toolkit](http://www.wsava.org/nutrition-toolkit).*

**Why is nutritional support important?**
During normal weight loss, the body of a healthy pet will adapt to calorie restriction and break down fat. However, when a pet has a medical illness, if calorie, and especially protein, needs are not met, the body will not adapt. Instead, pets will break down their own muscles to meet their nutrient needs and cause muscle wasting. Body condition scoring, muscle condition scoring, and assessing the risk for malnutrition is critical in pets not meeting their calorie or nutrient needs.

**Who needs nutritional support?**
Assessing risk of malnutrition can alert the healthcare team when to intervene for a pet and consider additional nutritional support:
- Low risk: Previously healthy pets with no conditions that would increase protein loss (e.g., protein-losing enteropathy), who have been hyporexic or anorexic for 3 or less days. Examples would be elective surgery or a trauma.
- Moderate risk: Non-debilitated pets with conditions that increase protein loss, who have been hyporexic or anorexic for 3-4 days. Examples would be septic patients or a foreign body removal that required intestinal resection.
- High risk: Debilitated pets with chronic conditions that have experienced muscle loss, weight loss, have higher than normal nutrient needs (e.g., puppies or kittens), or have been hyporexic or anorexic for 4 or more days.

*Note: For pets that are hospitalized, always assess the duration of hyporexia or anorexia including time at home before hospitalization!*

**When should nutritional support be started?**
For patients with low-moderate risk of malnutrition, consider duration of hyporexia or anorexia:
- 1-2 days: monitor food intake and clinical condition daily.
- 3-4 days: develop a plan for nutritional support, consider placing a feeding tube if pet is undergoing anesthesia.
- 5 or more days: nutritional support is necessary, place a feeding tube or initiate parental nutrition.

For patients with moderate to high risk of malnutrition (or are already malnourished):
- Nutritional support should be initiated as soon as hemodynamically stable regardless of duration of hyporexia or anorexia.
- *For a helpful handout on when to intervene nutritionally with hospitalized patients, see the WSAVA nutrition toolkit available at: [http://www.wsava.org/nutrition-toolkit](http://www.wsava.org/nutrition-toolkit).*

**How should nutritional support be delivered?**
- Strategies and the level of invasiveness for nutritional intervention depends on risk of malnutrition for each pet.
Low risk of malnutrition

Coax feeding: Coax feeding should only be attempted in pets that are at low risk of malnutrition and the goal should be to minimize stress and make feeding an enjoyable experience. Providing pet owners with hospitalized pets a private and quiet room to feed their pet, especially cats, can minimize stress and encourage eating.

Consider diet history: A full dietary history is crucial to knowing food preferences for each pet (e.g., dry, wet, flavor, texture, etc.) and offering them foods that are familiar to them. There are many foods available now in stew forms, pate, loaf, shredded, chunks, with dried chicken bits, and in various shapes like doughnuts, stars, pyramids, etc. Ask owners to keep a diary of their pet’s preferences, which can be useful to guide diet selection if needed.

Food aversion: Altering food temperature can also be helpful – for those with nausea, placing food in a refrigerator may reduce smells that induce nausea and make food more palatable. For pets with food aversions, using new dishes each time or disposable dishes can reduce the chance of them smelling traces of an old food that they are averse to.

Palatability enhancers: Palatability enhancers can be used with caution in pets, keeping in mind altered nutrient needs of pets with medical conditions and calories content to not unbalance the diet. Reserving 10% of the pet’s total calorie intake for treats or palatability enhancers can minimize risk of unbalancing the diet. Some popular palatability enhancers include shredded chicken breast (200 kcal/cup) for pets without protein restrictions, homemade chicken broth (store-bought is usually high in sodium and frequently contains onion or garlic), low fat and no salt added cottage cheese (200 kcal/cup), and honey or maple syrup (60 kcal/tablespoon), which is especially helpful for dogs with kidney disease or liver disease. Note: cats do not have taste receptors for ‘sweet’ foods and sugary items are not as effective as a palatability enhancer.

Moderate to high risk of malnutrition

Once a pet has become moderate or high risk (hyporexic or anorexic for 3 or more days) and previous strategies have been unsuccessful, a nutritional intervention plan should be developed to provide adequate nutrition. Assisted feeding can include a variety of short term or long term enteral or parenteral options. Enteral options (feeding tubes) are always preferred if tolerated as intestinal cells can atrophy without direct nutrition through ingested food. Parental nutrition is indicated if the gut is not functional (e.g., intestinal stasis, incontrollable vomiting). However, parental nutrition should only be initiated in settings with 24/7 supervision and taking into consideration the potential mechanical and metabolic complications of parental nutrition. The WSAVA Nutrition ToolKit not only has easy-to-use calorie charts, but also provides example feeding orders, monitoring templates, and a helpful flow chart for how to intervene nutritionally for each pet (available at: http://www.wsava.org/nutrition-toolkit).

How much should be fed?

The goal for all hospitalized pets should be to maintain current weight. Weight loss plans should never be initiated when pets are recovering from an illness and providing too many calories (i.e., using an illness factor to determine energy requirements) has been associated with adverse effects (such as metabolic complications) in human studies. Providing Resting Energy Requirements (RER) is a starting point that can be adjusted to ensure weight remains stable where $\text{RER} = 70 \times (\text{Body Weight}^{0.75})$. Adjusted body weight should be used for pets with a body condition score greater than 7/9 on a 9 point scale. Methods for adjusting body weight can vary, but one method is to use ideal body weight and add on 25% of the excess body weight (e.g., a 20 kg dog with an ideal weight of 16 kg would have an adjusted body weight of 16 kg + 25% (20 kg – 16 kg) = 17 kg adjusted body weight).

What should I feed?

Selecting a diet for a hospitalized pet should be based on each individual pet’s nutrient needs, including energy requirements, lifestyle (such as growth or gestation), nutrient intolerances from current conditions, palatability preferences (such as dry or canned foods), and logistical considerations (such as feeding tubes that require liquid or blenderized diets).

Summary

Assessing each pet for their risk of malnutrition will help guide the type and level of nutritional intervention needed to meet nutrient and calorie goals.

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Note that this site has resources for pet owners and for veterinarians on pet nutrition topics.

Tufts Clinical Nutrition Service Petfoodology Website: www.petfoodology.org

University website created by board-certified veterinary nutritionists with frequently updated blogs on pet nutrition.
Chart of resting energy requirements for cats and dogs

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<th>RER (kcals/day)</th>
<th>Weight (kg)</th>
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The VOHC acceptance system for treats and foods will be discussed as well as the AAFCO guidelines on dental products by a board-certified veterinary nutritionist. Example cases in both dogs and cats will also be covered that include how to select a dental food or dental treats, especially when the pet has other nutritional needs (disease, age, etc.).

**Resources available to help consumers select dental products and foods**

Two organizations provide guidance for dental products and foods for cats and dogs. One has regulatory impact, AAFCO, and the other is a voluntary acceptance system, VOHC.

**AAFCO guidance for dental products and foods**

According to their website (www.aafco.org), AAFCO is a ‘voluntary membership association of local, state and federal agencies charged by law to regulate the sale and distribution of animal feeds and animal drug remedies.’ This is achieved by developing and implementing standards, guidelines, and definitions that aid in regulating the manufacturing, labeling, distribution and sale of animal feeds. AAFCO provides guidelines that states can then adopt into law as they see fit to regulate pet food in each state. It is important to note that AAFCO does not enforce laws and they are not regulatory themselves, but provide significant impact on regulations that states may adopt. AAFCO provides the nutrient profiles that determine if a pet food is complete and balanced for each lifestage (e.g., adult, growth), and also provide definitions for ingredients.

In general, any product that has a drug claim (e.g., ‘this product treats the following condition’) is required to have approval from the Food and Drug Administration (FDA). Within the realm of products marketed for dental health, AAFCO has made three provisions:

1. ‘Foods and treats implying drug claims or any mechanism other than mechanical must have FDA approval.’
   a. Note that if the mechanism is mechanical, it does not require FDA approval.
2. ‘Must be safe (GRAS).’
   a. GRAS is defined as ‘Generally Regarded as Safe’ by the FDA, where general recognition of safety is based on ‘common use in foods and a substantial history of consumption for food use by a significant number of consumers.’
3. ‘Foods and treats bearing claims to whiten or cleanse/freshen teeth by abrasive or mechanical actions are not objectionable.’
   a. This sentence has been taken to mean that these types of products are not AAFCO’s priority and they are unlikely to pursue possible false health claims.

In summary, AAFCO provides minimal guidance on how foods can be labeled and marketed for dental health, and it does not specifically address efficacy of products.

**VOHC guidance for dental products and foods**

VOHC was founded by a panel of veterinary dentists, dental scientists, and representatives from organizations such as the American Dental Association, the American Veterinary Medical Association, and the American Animal Hospital Association. According to their website (www.vohc.org), VOHC ‘recognizes products that meet pre-set standards of plaque and calculus (tartar) retardation in dogs and cats.’ Products that meet these standards are allowed to display a VOHC seal of acceptance following review of trials and data. It’s important to note that the VOHC does not conduct the testing of products, but supplies protocols for trials. Companies can then voluntarily conduct the trials and apply for the VOHC seal of acceptance.

VOHC seal of acceptance allows for plaque or tartar (calculus) reduction claims. In order to receive the seal, companies must produce data from two trials of healthy pets using the product in the way it is marketed to be used (e.g., daily, twice daily, etc.). There are strict protocols for control groups, scoring, randomization, and statistical analysis. Both trials must show that the dental product or food results in a 15% difference in mean mouth score (“mean of all tested teeth for all animals in the group”) between the treatment and control group. Safety is not specifically tested in the protocol, but VOHC seal of acceptance is contingent on annual confirmation that there is no information at the time that the product is unsafe. Unsafe is defined by the VOHC as “major extra-oral or body-wide issues such as toxicity, esophageal or gastro-intestinal obstruction or perforation, or gross nutritional imbalance; trauma to oral tissues, such as fracture of teeth or laceration or penetration of oral mucosa” (www.vohc.org).
Summary
AAFCO guidelines do not provide consumers much guidance in selecting dental health products. However, VOHC awards products a seal of acceptance that have proven minimal efficacy and no reports of unsafe side effects. There are a variety of foods, treats, and products that have been awarded the VOHC seal to date (see www.vohc.org for the most recent list). Studies have shown that brushing pet’s teeth is still the most effective method of preventing and reducing periodontal disease in cats and dogs, and dental products should be used in addition to this standard of care.

Dental health resources
Association of American Feed Control Officials (AAFCO) Website: www.aafco.org
Note that the full AAFCO guidelines are available online for a fee.
Food and Drug Administration (FDA) Website on GRAS information: www.fda.gov/Food/IngredientsPackagingLabeling/GRAS/
Veterinary Oral Health Council Website: www.vohc.org
American Veterinary Dental College Website: www.avdc.org
General pet nutrition resources
American College of Veterinary Nutrition (ACVN) Website: www.acvn.org
Resources for pet owners, veterinarians, and a listing of all board-certified veterinary nutritionists.
World Small Animal Veterinary Association Nutrition Toolkit: www.wsava.org/nutrition-toolkit
Note that this site has resources for pet owners and for veterinarians on pet nutrition topics.
Tufts Clinical Nutrition Service Petfoodology Website: www.petfoodology.org
University website created by board-certified veterinary nutritionists with frequently updated blogs on pet nutrition.
To Cook or Not to Cook?  
When to Choose Home-Cooked Diets for Pets  
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A review of the benefits, risks, and strategies for selecting home-cooked diets for pets will be discussed by a board-certified veterinary nutritionist. Strategies for assessing whether a diet is balanced will be discussed. Strategies for discussing home-cooking with pet owners and available resources will also be discussed. Case examples will be included to illustrate tips and strategies.

What is the evidence behind home-cooking for pets?  
Cooking for pets can be very appealing to pet owners and there are anecdotal stories that tout benefits of home-cooked diets for cats and dogs. However, there is no evidence in the form of peer-reviewed clinical trials to support claims that home-prepared diets are healthier than commercial diets in general. Very few pets actually need to be fed a home-cooked diet because of health reasons (i.e., there is not a commercially available option that meets their needs) and an improperly prepared home-cooked diet can be quite harmful, especially for a growing kitten or puppy.

Indications for home-cooked diets  
1. Medical necessity  
Many medical conditions require adjusting the nutrient levels in diets outside of what is recommended for healthy pets (i.e., meeting the Association of American Feed Control Officials (AAFCO) minimum and maximum nutrient guidelines to be a complete and balanced food). There are a growing number of high quality veterinary therapeutic diets that have been formulated for various disease conditions. However, some pets may require a combination of nutrient modifications that are not available in commercial diets or in some cases, require restriction of nutrients below any commercially available diet (e.g., pets with severe protein-losing enteropathy may require fat restriction beyond the lowest fat veterinary therapeutic diet on the market). In these instances, formulating a customized home-cooked diet recipe is indicated for optimal management of the pet’s disease condition.

2. Pet preference  
Even with palatability enhancers, some pets refuse to eat commercially available diets due to preference. This can sometimes happen when pets are given a large amount of table scraps and then slowly reject commercial diets especially if pet owners offer other human foods at the first sign of refusal. There are an increasing number of complete and balanced diets that have a consistency similar to human foods (i.e., stews, tubs, etc.) and these can be tried along with palatability enhancers such as adding home-made chicken broth (be careful with store bought broth as it often contains onion or garlic powder). Beyond pet preferences, some medical conditions or medications can cause altered appetite and food preferences. In these situations, home-cooked diets can be helpful due to their high palatability and ability to be customized to each pet’s preferred flavors or ingredients.

3. Owner preference  
For healthy pets, and most pets with medical conditions, there is no medical necessity to provide a home-cooked diet. However, as long as the recipe is formulated by a board-certified veterinary nutritionist to be complete and balanced, home-cooking solely based on owner preference is a perfectly acceptable alternative to commercial diets. Before initiating a home-cooked diet, client communication about common myths or misconceptions of commercial pet food may alleviate some uninformed fears and ensure pet owners are making well-informed decisions for their pets.

Risks of home-cooked diets  
1. Unbalanced recipes and diet drift  
Home-cooked diet recipes on websites and in books (even those created by veterinarians) are often vague, out-of-date, or lack essential nutrients that are required for a diet to be complete and balanced for pets. Various studies have shown common recipes for healthy pets or pets with medical conditions have deficiencies that would be harmful. Many recipes are too vague (“use a vitamin supplement”) and lead to confusion and risk of missing essential nutrients in the right proportions. A general guide is if two people using the same recipe would not make identical diets every time, the recipe is not specific enough. Additionally, even recipes that have been formulated by board-certified veterinary nutritionists may be harmful if not followed exactly as directed. Owners sometimes make substitutions or changes to the recipe (i.e., ‘diet drift’) without consulting with their nutritionist and these changes can quickly unbalance the diet leading to excesses or deficiencies of essential nutrients.

2. Expense  
In most cases, it is significantly more expensive to prepare a nutritionally complete diet at home than to purchase a good quality commercial diet, especially for a large dog. Additionally, most owners do not factor in the costs of proper supplements for home-cooked diets, which can cost up to several dollars per day, depending on the size of the pet, on top of the costs of other ingredients.
3. Quality control

Having a diet formulated by a board-certified veterinary nutritionist ensures that the recipe will meet AAFCO minimum and maximum nutrient guidelines to be a complete and balanced food (or otherwise meet a pet’s modified nutrient needs due to medical conditions). However, good quality commercial foods also undergo extensive quality control testing, digestibility trials, and feeding trials to assess for bioavailability and nutrient adequacy. Because home-cooked diets do not undergo this testing for safety and nutritional adequacy like most commercial diets, even healthy pets eating home-cooked diets should have more frequent veterinary visits and laboratory tests (blood work, urine testing) than similar pets eating commercial diets to ensure the diet is meeting their needs, which can also add to the expense of home-cooking.

Balancing home-cooked diet recipes

Due to quality control concerns as well as nutritional variability in many whole food ingredients, it is almost always recommended to use concentrated vitamin and mineral supplements in diets rather than attempt to meet all nutrient requirements using only whole foods. This approach makes the diets easier to prepare and ensures that pets receive adequate amounts of all essential nutrients. It is extremely challenging to create a recipe made of only whole foods that will consistently provide exact amounts of all essential nutrients. Additionally, a common misconception among owners is that they can “just add a multivitamin” to a variety of human foods the pet is currently receiving to balance the diet. Protein sources vary in their nutrient profile and many of the common vitamin supplements on the market for humans or pets provide either too much or too little of the over 30 essential nutrients that pets require. Cooking for pets is a more precise science than the art of cooking for ourselves and should only be done with a specific recipe formulated by a board-certified veterinary nutritionist to ensure it is balanced.

Contraindications for home-cooked diets

Growth and gestation

Pregnancy, lactation, and growth are the most nutritionally demanding times in an animal’s life. Nutrient concentrations that meet the needs of adult animals at maintenance could cause serious harm to a pregnant or growing animal. In fact, severe health problems have been reported due to nutritionally unbalanced diets in growing puppies and kittens fed home-prepared diets. This is especially true for large and giant breed puppies, who have a more narrow range of acceptable dietary calcium and phosphorus concentrations. Because of the narrow margin of error and the potential risk of lifelong repercussions, home-cooked diets for animals that have not yet reached skeletal maturity (at least 12 months of age), that are pregnant, or that are lactating should only be recommended when strictly medically necessary. However, once a dog or cat is at least one year of age or has completed lactation, a nutritionally-balanced home-cooked diet is an acceptable alternative.

Obesity

Logistically, properly balanced home-cooked diets tend to be difficult to feed to weight loss patients due to their constantly changing energy and nutrient requirements during weight loss. Unlike with commercial diets, the amounts fed of home-cooked diets cannot be as easily adjusted without altering the nutrient profile due to the multiple ingredients and supplements required. Using a veterinary therapeutic diet that is formulated to be nutrient (but not calorie) dense for active weight loss is recommended. However, once a pet reaches ideal or goal body weight, a nutritionally-balanced home-cooked diet can be an acceptable alternative.

Summary

While there is no evidence that home-cooked diets are healthier than commercial diets, a properly prepared home-cooked diet that was formulated by a board-certified veterinary nutritionist can be an acceptable alternative or a part of disease management in some cases where it is medically necessary.

General pet nutrition resources

American College of Veterinary Nutrition (ACVN) Website: www.acvn.org

Resources for pet owners, veterinarians, and a listing of all board-certified veterinary nutritionists who consult with owners and can formulate home-cooked diets.

World Small Animal Veterinary Association Nutrition Toolkit: www.wsava.org/nutrition-toolkit
Note that this site has resources for pet owners and for veterinarians on pet nutrition topics.

Tufts Clinical Nutrition Service Petfoodology Website: www.petfoodology.org
University website created by board-certified veterinary nutritionists with frequently updated blogs on pet nutrition.
Traditional and non-traditional strategies for successful weight loss will be discussed by a board-certified veterinary nutritionist. This talk will cover weight loss basics, but will focus on troubleshooting difficult cases. Strategies to approach different types of pet owners will be discussed. Case examples will highlight strategies.

**Definition and diagnosis**

Obesity is one of the most common health problems affecting dogs and cats, with up to 59% of dogs and cats being overweight or obese. The most common and clinically applicable method of diagnosing obesity is a body condition scoring (BCS) system. It is important to remember that BCS only assesses body fat, while muscle condition scoring should be used to quantify muscle wasting (i.e., an obese pet, which is a BCS 9/9, could also have severe muscle wasting). Each BCS is generally defined as a 10-15% increase or decrease from ideal body weight. While definitions of obesity vary, a general consensus describes overweight as 10-20% above optimal body weight (BCS of 6-7) and obese as 20% or more above optimal body weight (BCS of 8-9). The 2014 American Animal Hospital Association Weight Management Guidelines for dogs and cats recommend that body weight, body condition scoring, and muscle condition scoring be documented in the record at every visit.

**Clinical consequences and considerations**

Obesity has been associated with numerous diseases, including osteoarthritis, dermatologic disease, diabetes, respiratory tract disease and shortened lifespan. Obesity and its effects should be taken into account in the general management of pets. Drug dosages and fluid requirements are a topic of interest in current research. Calculating requirements based on current obese body weight may increase risk of side effects or toxicity, while using optimal weight is more subjective and could potentially lead to decreased efficacy. Each pet and medication must be considered on an individual basis. Obesity in all species is more easily prevented than treated, and veterinarians play an important role in educating clients before the pet becomes obese. A discussion of body weight, body condition, and feeding amounts is an important part of the initial puppy and kitten visits. This should be reinforced at the time of spay/neuter when energy requirements are known to decrease by up to 30%.

**Traditional weight loss plans**

Start by obtaining a complete diet history, where all food items fed (including treats and table food) should be included to allow for an accurate estimate of daily caloric intake. Owners do not always volunteer information if not directly asked, so it is very important to spend time accurately assessing the current diet, including supplements, treats, rawhides, dental chews, etc. If current intake can be estimated, then calories should be restricted to 80% of current intake to encourage weight loss. If current intake cannot be determined, caloric restriction should start out initially at the calculated resting energy requirement (RER: 70 x Body Weight\(^{(kg)}\)) for the estimated ideal weight and then be adjusted accordingly. (Note: there is a wide range of recommendations for initial energy restriction – most important is that pets receive follow up and the plan is adjusted as needed). The optimal nutrient profile for a weight loss diet should be based on the preferences and lifestyle of the owner and the pet, as well as the pet’s tolerance of the diet (some are intolerant to particular ingredients or to the high fiber content of some diets). Studies have shown diets with adequate protein may reduce risk of lean tissue loss and diets with increased nutrient density may reduce risk of nutrient deficiency. Research has revealed varying results on fiber content and moisture content (i.e., canned vs dry), suggesting these factors may be different for each patient. The 2014 American Animal Hospital Association Weight Management Guidelines provide guidance for minimum protein levels and other dietary factors. If owners are used to giving treats, adherence may be increased by allowing treats, but reserve no more than 10% of the total desired daily calories as treats. Exercise can be helpful in weight loss plans, but it should be noted exercise alone is highly unlikely to cause significant weight loss. Brisk walks over increasing distances and swimming can be great activities for dogs, while food dispensing toys, hiding kibble around a room, and toys or laser pointers can be great ways to stimulate activity in cats.

**Follow up**

An important aspect of weight management in dogs and cats is follow up. Food amounts should be adjusted 10-15% at each check in until a goal of 1% body weight loss per week is seen. Up to 2% of body weight loss per week has been shown to be safe, but higher rates of weight loss can result in rebound weight gain after reaching ideal weight, as well as increased loss of lean body mass. Exceptions to 1% weekly weight loss include dogs and cats with comorbidities where a more gradual rate of loss (0.5%) is more safe or realistic. Once ideal weight has been reached, the majority of cats and dogs will continue to need calorie restriction and a low caloric density diet.
Strategies for successful weight loss

While traditional diet and exercise plans can work well in some simple weight loss situations, many pet owners and veterinarians find weight loss a challenge and come to the conclusion that more intensive management and intervention is required. While some argue obesity should be considered a medical disease, others argue it is solely a psychological disease of the owner. The complex relationship between owners and their pets must be understood in order to achieve successful weight loss.

Readiness to change

It is helpful to consider the stage of change that an owner may be in (e.g., Are they interested in making changes at all? Have they made changes and stopped after having challenges?). One article details the theory of stages of change and how to apply this to veterinary weight loss cases (Churchill, 2010). To initiate a discussion with owners, open phrases can be useful such as “It sounds like you are concerned about your pet’s weight affecting his ability to jump and play like he used to”, or “I know I’d like a cookie over kibble, but pets can get sick like us if they ate only candy all day. Would you like to discuss a balanced diet plan with food and treats your pet likes?” Some owners who are not ready to initiate a weight loss plan may benefit from education only, while others who are ready or have already started making changes may benefit from specific guidance and troubleshooting when they experience setbacks.

The complex pet-owner relationship

If owners are ready to initiate a weight loss plan, understanding the pet-owner relationship can help individualize nutritional management. Owners who are highly attached to their pets may be more willing to provide time or financial resources to their care. However, that attachment may also result in a strong emotional bond in which they are reluctant to withhold food or treats which they feel define their relationship with their pet. Asking about the relationship between the pet and all members of the household may uncover ‘non-negotiable’ aspects of the human-animal bond that can be discussed and included in the plan to increase adherence. Example questions such as ‘Is there anything you feel strongly about including in the plan?’ or ‘Could you describe your daily routine with your pet?’ can help veterinarians develop a plan both the owners and healthcare team feel comfortable with.

Summary

Traditional caloric restriction and physical activity weight loss programs may not be appropriate or successful for all owners. Incorporating strategies to assess owners’ stage of change and including important aspects of the human-animal bond can individualize plans to each owner-pet relationship and increase adherence.

References


Pet obesity and general pet nutrition resources

2014 AAHA Weight Management Guidelines for Dogs and Cats:

Association for Pet Obesity Prevention Website: www.petobesityprevention.org

American College of Veterinary Nutrition (ACVN) Website: www.acvn.org

Resources for pet owners, veterinarians, and a listing of all board-certified veterinary nutritionists.

World Small Animal Veterinary Association Nutrition Toolkit: www.wsava.org/nutrition-toolkit

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