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Ask the Expert:

Part 2: Implementing an Optimal Nutrition Plan for Your Cardiovascular Patient

WHY IS A NUTRITIONAL ASSESSMENT IMPORTANT?

You may think that a “nutritional assessment” is just something that nutritionists do but in fact, the nutritional assessment can help you in the diagnosis and treatment of the animal’s heart disease by answering the following questions:

- **Is the current diet contributing to the heart disease?**

A patient’s diet may be the cause of or exacerbate the clinical signs of heart disease or heart failure. For example, an animal with congestive heart failure (CHF) eating a very high sodium diet may show refractory pulmonary edema or ascites; a cat with dilated cardiomyopathy may have a taurine deficiency caused by eating a vegetarian diet, or a dog with heart disease eating a veterinary kidney diet with low protein content may develop severe muscle loss. Even if the diet is not directly affecting the heart disease, it could be contributing to suboptimal health (e.g., obesity caused by excessive calories, or mineral deficiencies related to an unbalanced home-prepared diet).

- **Is the current diet optimized for managing the animal’s heart disease?**

By evaluating the current diet, it can be determined whether it is appropriate for the individual animal’s underlying disease, clinical signs, physical examination, and laboratory values. If so, this should be clearly stated to the owner so that it is continued. If not, specific recommendations should be made.

- **Do I understand the owners’ preferences, such as type of food, the importance of treats and table food, and how they administer medications?**

Ultimately, the pet’s caretakers will be responsible for administering your dietary recommendations. Understanding their preferences and possible limitations may guide development of a plan that the owners feel comfortable about and are able to implement.

- **Are all of the components of the animals’ current diet known?**

The entire diet may be comprised of the pet food, but it more likely also includes a treats, table foods, dietary supplements,



rawhides or dental chews, and foods used to administer medications. These items may have a large caloric or sodium impact on the diet.

- **What are the animals’ taste preferences?**

Recommending the preferred formulation (e.g., flavor, dry vs. canned) can be helpful for feeding the hospitalized animal, as well as for making long-term recommendations.

HOW DO I PERFORM A COMPLETE NUTRITIONAL ASSESSMENT ON MY PATIENT?

1. **Take a complete diet history:**

Standardized diet history forms make gathering complete information more efficient and ensure that the required information is collected for every patient. A complete diet history includes the main pet food being provided (or the home-prepared diet recipe being used, if any), but also includes treats, table foods, dietary supplements, rawhides, and foods used for medication administration. The World Small Animal Veterinary Association (WSAVA) Nutrition Toolkit and the American College of Veterinary Nutrition websites have sample diet history forms (see Recommended Websites, below).

2. **Obtain an accurate body weight:**

Use the same scale at each visit to identify subtle changes in body weight which may reflect altered nutritional status or fluid accumulation.

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3. Identify the patient’s body condition score (BCS):

Use a consistent method to assess BCS at each visit (either a 9-point scale or a 5-point scale). The BCS evaluates body fat and can identify animals that are below or above ideal body weight. See the WSAVA Nutrition Toolkit for a downloadable body condition score chart and video.

4. Identify the patient’s muscle condition score (MCS):

The MCS differs from the BCS in that the MCS evaluates muscle mass. Animals can be thin (3/9) but have normal muscle mass. Conversely, animals can be obese (9/9) and have moderate or severe muscle loss. Evaluation of muscle mass includes visual examination and palpation over the temporal bones, scapulae, lumbar vertebrae, and pelvic bones. Muscle condition is graded as normal or as mild muscle loss, moderate muscle loss, or severe muscle loss. See the WSAVA Nutrition Toolkit for a downloadable muscle condition score chart. By assessing muscle condition at every visit, muscle loss can be identified at its early stages.

5. Identify the presence of other medical conditions that also require dietary modifications:

Other systemic illnesses or conditions (e.g., gastrointestinal disease, feline lower urinary tract disease) may require dietary modifications in addition to or possibly in conflict with, recommendations for nutritional adjustments related to cardiovascular disease. Identification of these conditions at the time of initial nutritional assessment allows simultaneous consideration of all factors that may have an impact on nutritional programs. Complicated cases may benefit from consultation with a board-certified veterinary nutritionist (www.acvn.org).

HOW DO I USE THIS INFORMATION TO MAKE INDIVIDUALIZED RECOMMENDATIONS?

The same diet will not be optimal for all animals with heart disease. For example, for a 9 year old castrated male domestic shorthaired cat with HCM and no CHF, with normal laboratory values, a BCS=7/9 and no muscle loss, for which the owner prefers a combination of canned and dry food, the main nutrients of concern would be calories (reducing calories to achieve slow weight loss), protein (ensuring adequate protein intake), and mild sodium restriction (<100 mg/100 kcal). However, if that same cat now has advanced CHF, with a BCS=4/9 and moderate muscle loss, dysrexia, and hypokalemia, the nutrients of concern (and the levels to which nutrients should be modified) will be very different. In this situation, a high calorie density and palatable diet, with increased protein and with increased potassium concentrations would be ideal. Concurrent diseases also alter diet choice and are present in

many animals with heart disease. For example, if this cat also had feline lower urinary tract disease or chronic kidney disease, optimal diet properties would need to be modified. Finally, animals’ and owners’ preferences (e.g., canned vs. dry, brand, type, veterinary diet vs. over-the-counter) must be taken into consideration for good compliance and successful treatment.

Based on patient characteristics (and owner preferences), one or more diets can be selected. There currently are no commercial veterinary diets designed for cats with heart disease in the United States. Two commercial veterinary cardiac diets are available for dogs in the United States. The specific characteristics of each diet differ, but both have sodium content <50 mg/100 kcal. They also vary widely in protein content [3.8-6.0 gm/100 kcal, with the Association of American Feed Control Officials (AAFCO) minimum for dogs being 5.1 gm/100 kcal]. One of these diets also includes supplemental taurine, carnitine, arginine, antioxidants, and omega-3 fatty acids. Despite this relative lack of specific cardiac diets, there are a variety of diets, both veterinary diets (marketed for other diseases) and over-the-counter diets, that are reduced in sodium and may have the desired properties for individual patients with heart disease. The author usually tries to offer owners several options so that they can determine which one the animal prefers. Having a number of choices is particularly beneficial for animals with CHF, in which anorexia, hyporexia, and dysrexia are common. To compare nutrient levels, the pet food manufacturer can be contacted or reduced sodium diets on the **Tufts Cummings School of Veterinary Medicine HeartSmart** website can be accessed.

DO YOU HAVE ANY EXTRA TIPS FOR DIETARY MANAGEMENT IN THESE COMPLICATED PATIENTS?

- Be sure to make specific diet recommendations, not just to “feed a low sodium diet.” It is difficult for owners to know which diets or foods are low in sodium.
- Avoid the general recommendation to “feed a senior diet.” Not all “senior” diets are appropriate for animals with heart disease (i.e., reduced in sodium and adequate protein levels), and it is very important to look at the characteristics of the individual product. The levels of calories, protein, sodium, and other nutrients can vary dramatically among different senior diets. In a study of 37 over-the-counter senior diets, the sodium content ranged from 33 to 412 mg/100 kcal, with a goal of <100 mg/100 kcal sodium for animals with early heart disease).
- Discuss “non-negotiables” with the owner. These are nutritional concerns or beliefs that the caretaker of the animal feels strongly about and is unlikely to change. For

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example, some owners wish to feed a home-cooked diet or give a certain treat that their dog loves. Determining a safer alternative (e.g., if the “non-negotiable” is very high in sodium) or incorporating this “non-negotiable” into the overall plan will help with adherence (e.g., if an owner feels strongly about a home-cooked diet, refer him or her to a board-certified veterinary nutritionist to ensure the diet is nutritionally balanced). Keep the tone of these sometimes challenging discussions positive and helpful to encourage client compliance.

- Reassess the nutritional plan at each visit. The owner may have modified the diet or treats or the animal’s condition may have changed, warranting a modification in the plan, just as one would do with medications. Follow-up nutritional assessment should include: clinical signs, diet history, body weight, BCS, MCS, laboratory testing as appropriate for the heart disease (e.g., electrolytes, BUN, creatinine, albumin), and any others, as indicated.



MY CLIENTS REALLY WANT TO GIVE THEIR PET TREATS THAT ARE NOT ON THE NUTRITIONAL PLAN. WHAT CAN I DO?

Treats can continue to be part of the patient’s lifestyle, but all components of the pet’s diet (including all forms of treats) need to be known and taken into account for the nutritional assessment (in addition to the main diet of commercial pet food or a nutritionally balanced home-cooked diet).

Over 90% of dogs and 30% of cats with heart disease receive treats. Most owners are unaware of the sodium content of foods so they must be given very specific recommendations for appropriate treats and table food (and appropriate amounts). The author typically provides a list of foods that are appropriate

and foods to avoid as treats to assist the owner in selection. The HeartSmart website (see below) has an up-to-date listing of treats that are low in sodium.

MY CLIENTS ARE UNABLE TO ADMINISTER MEDICATION WITHOUT HIDING IT IN HOT DOGS. HELP!

Your clients are not alone. Most dog owners (57%) and many cat owners (34%) use food for medication administration, and the most commonly used foods are very high in sodium, such as lunch meats, cheese, bread, and hot dogs. Therefore, it is important to provide effective but appropriate foods for administering medications.

Some helpful methods to avoid or minimize use of inappropriate food to convey medications are:

- Teach the owner to administer the pill to the animal without using foods. This may involve demonstrating the technique with the patient’s own medication or an empty capsule.
- Teach the owners to use a pet piller or pet pill gun.
- Switch from pills to a compounded, flavored liquid medication from a reputable compounding pharmacy (be aware that the pharmacokinetics may be altered in poorly formulated or poorly stored compounded medications).
- Place medications within low-sodium foods.
 - Meat or fish, home cooked, without salt (not lunch meats)
 - Low-sodium canned pet food
 - Fresh fruit (e.g., banana, orange, melon, berries; avoid grapes)
 - Peanut butter (labeled as “no salt added”)

WHAT ABOUT DIETARY SUPPLEMENTS? WHAT SHOULD I WATCH FOR, AND HOW SHOULD I ADVISE MY CLIENTS?

Dietary supplements may be recommended by you or may have been added by the owner based on someone else’s advice. Ask at each visit if the owner is administering dietary supplements. Animals with heart disease (31% of dogs and 13% of cats) are more likely to be receiving dietary supplements than animals in the general pet population. If owners are giving supplements, ensure that they are safe, are not interacting with the diet or medications, and are being administered at an appropriate dose.

Currently, dietary supplements can be marketed without proof of safety, efficacy, or quality control. Therefore, careful consideration of the type, dose, and brand is important to avoid toxicities or a complete lack of efficacy. Since there is little governmental regulation over dietary supplements, veterinarians should consider recommending dietary

supplements that have the *United States Pharmacopeia's Dietary Supplement Verification Program* logo; this program tests supplements for ingredients, concentrations, dissolvability, and contaminants. Another good resource is Consumerlab.com, a laboratory that performs independent testing of health and nutrition products.

Recommended Reading

1. American College of Veterinary Nutrition. List of board-certified veterinary nutritionists. (<http://www.acvn.org>). Accessed February 15, 2015.
2. World Small Animal Veterinary Association Global Nutrition Committee Nutrition Toolkit. Includes diet history form, body condition score and muscle condition score charts, the savvy dog owners' and cat owners' to nutrition on the internet, selecting the best food for your pet, and others. (<http://www.wsava.org/nutrition-toolkit>) Accessed February 15, 2015.
3. Tufts HeartSmart website (designed for owners of dogs and cats with heart disease): (<http://vet.tufts.edu/heartsmart>) Accessed February 15, 2015.
4. Tufts Cummings School of Veterinary Medicine Nutrition Service FAQs on pet foods. (<http://www.tufts.edu/vet/nutrition/faq/>) Accessed February 15, 2015.
5. United States Pharmacopeia Dietary Supplement Verification Program: Independent testing of dietary supplements - human supplements only: (<http://usp.org/dietary-supplements/overview>) Accessed February 15, 2015.
6. Consumerlab.com (<http://www.consumerlab.com>) is an independent laboratory that routinely test a range of dietary supplements and publishes full reports with their findings on their website. Accessed February 15, 2015.



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The CEG is sponsored by an educational grant from Boehringer Ingelheim Vetmedica, Inc., and IDEXX Laboratories.

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