<table>
<thead>
<tr>
<th>Disease Category</th>
<th>Specific Conditions</th>
<th>Nutrients of Concern</th>
<th>Notes</th>
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</table>
| **Adverse food reaction** | Cutaneous adverse food reaction | • Limited antigen diet  
  • Novel/hydrolyzed protein  
  • Limited ingredients | • Ingredients impact success of treatment  
  • Noningredients may also impact success (e.g., additives, Maillard production reaction) |
|  | Food intolerance |  |  |
|  | Food-responsive chronic enteropathy |  |  |
| **Inflammatory skin condition** | Non-food-related skin condition | • High n-3 fatty acids  
  • Consider n-6:n-3 ratio  
  • High vitamin A  
  • High vitamin E  
  • High zinc  
  • Added antioxidants | • Individual diseases may require different supplements and doses |
| **Osteoarthritis** |  | • High EPA/DHA  
  • Added glucosamine  
  • Added chondroitin  
  • Added antioxidants  
  • Low energy density if overweight/obese | • Additional supplementation may be required to achieve optimal dose  
  • High n-3 fatty acid supplementation may result in gastrointestinal disturbance |
| **Neurologic conditions** | Cognitive dysfunction | • Added lipoic acid  
  • Added carnitine  
  • High EPA/DHA  
  • Added antioxidants | • Synergistic effects of nutrients when combined |
|  | Idiopathic epilepsy | • High medium-chain triglycerides |  |
|  | Anxiety | • Added L-tryptophan  
  • Added hydrolyzed casein  
  • Added antioxidants  
  • Modified fiber |  |
| **Cardiovascular disease** | Degenerative valve disease | • Controlled sodium  
  • High EPA/DHA  
  • Avoid low protein | • Supplement potassium as required  
  • Maintain optimal body and muscle condition |
|  | Hypertrophic cardiomyopathy | • Controlled sodium  
  • High EPA/DHA  
  • Avoid low protein  
  • Added taurine  
  • Added carnitine |  |
|  | Dilated cardiomyopathy |  |  |

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## Nutrients of Concern for Diseases and Select Specific Conditions, Continued

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| **Urolithiasis** | Calcium oxalate     | • Low oxalate ingredients  
• Controlled calcium with appropriate calcium to phosphorus ratio  
• Avoid vitamin C supplementation  
• Low relative supersaturation  
• Added water | • Many of these nutrients of concern can be incorporated into other diets but may be difficult to identify unless specifically labeled for this use  
• Aim for USG ≤1.020 (dogs) or ≤1.035 (cats)  
• Struved urolithiasis in dogs is typically infection related and special diet may not be required long term |
| Struvite         |                     | • Controlled magnesium  
• Controlled phosphorus  
• Controlled protein  
• Target acidic urine pH  
• Added water | |
| Urate            |                     | • Low purines  
• Does not necessarily mean low protein  
• Target alkaline urine pH  
• Added water | |
| Cystine          |                     | • Controlled cystine  
• Controlled methionine  
• Target alkaline urine pH  
• Added water | |
| **Lower urinary tract disease** | Matrix-crystalline plugs | • Based on mineral content of the plug  
• Added water | |
| Feline idiopathic cystitis |                     | • Added antioxidants  
• High EPA/DHA  
• Added water  
• Low energy density if overweight/obese | |
| **Pancreatic disease** | Endocrine | Diabetes mellitus | • High soluble and insoluble fiber  
• Low carbohydrate (cats)  
• High protein (unless contraindicated, e.g., proteinuria)  
• Low energy density if overweight/obese | • Consistency of meal timing and insulin regimen are most important |
| Exocrine         | Pancreatitis        | • Low fat (dogs)  
• Limited antigen (cats) | • Dietary fat recommendations may depend on baseline intake and degree of hyperlipidemia |
| Exocrine pancreatic insufficiency |                     | • Achieve optimal body condition | • In most cases no specific diet is needed with appropriate enzyme supplementation  
• Assess serum cobalamin and supplement if indicated  
• In cases with persistent soft stool, additional fiber supplementation may be warranted |

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## Nutrients of Concern for Diseases and Select Specific Conditions, Continued

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<tbody>
<tr>
<td><strong>Gastrointestinal</strong></td>
<td>Acute vomiting, diarrhea</td>
<td>• Highly digestible</td>
<td>• Difficult to identify digestibility unless specifically labeled for this use</td>
</tr>
<tr>
<td></td>
<td>Chronic enteropathy</td>
<td>• Limited antigen diet</td>
<td>• Assess serum cobalamin and folate and supplement if indicated</td>
</tr>
<tr>
<td></td>
<td>Intestinal dysbiosis</td>
<td>• Modified fiber</td>
<td>• Assess serum cobalamin and supplement if indicated</td>
</tr>
<tr>
<td></td>
<td>Protein-losing enteropathy</td>
<td>• Low fat</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fiber-responsive colitis</td>
<td>• Moderate to high fiber</td>
<td>• Fiber can be separately supplemented</td>
</tr>
<tr>
<td></td>
<td>Large bowel diarrhea</td>
<td>• Moderate to high fiber</td>
<td>• Investigate underlying causes (e.g., hypercalcemia, hypokalemia, obesity)</td>
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<tr>
<td></td>
<td>Constipation</td>
<td>• Low energy density if overweight/obese</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Obstipation</td>
<td>• Highly digestible</td>
<td>• Difficult to identify digestibility unless specifically labeled for this use</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Low energy density if overweight/obese</td>
<td>• Caution with high-fiber weight loss diets</td>
</tr>
<tr>
<td><strong>Other endocrine</strong></td>
<td>Hyperlipidemia</td>
<td>• Low fat</td>
<td>• Consider EPA/DHA supplementation</td>
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<td></td>
<td>Feline idiopathic hypercalcemia</td>
<td>• Controlled calcium</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hyperthyroid</td>
<td>• Low iodine</td>
<td>• Impossible to achieve necessary level of iodine restriction without specific formulation and production procedures</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Avoid excess vitamin A</td>
<td>• Specific nutritional modification not required if hyperthyroidism is managed by other means</td>
</tr>
<tr>
<td><strong>Liver disease</strong></td>
<td>Encephalopathic</td>
<td>• Low protein</td>
<td>• Avoid organ meats</td>
</tr>
<tr>
<td></td>
<td>Nonencephalopathic</td>
<td>• Moderate protein</td>
<td>• Consider vegetarian protein sources</td>
</tr>
<tr>
<td></td>
<td>Portosystemic shunt</td>
<td></td>
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<tr>
<td></td>
<td>Microvascular dysplasia</td>
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<tr>
<td></td>
<td>Chronic hepatitis</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Copper-associated hepatopathy</td>
<td>• Low copper</td>
<td>• Only specifically designed low-copper diets are below AAFCO minimums</td>
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| Kidney           | Protein-losing nephropathy | • 25–50% protein reduction from current intake  
  • Meet essential amino acid requirements  
  • High EPA/DHA  
  • Low phosphorus if azotemic | • Protein recommendations will depend upon the degree of proteinuria  
  • Many medications used to address proteinuria and hypertension may exacerbate hyperkalemia, and reducing dietary potassium intake may help |
|                  | Acute kidney injury | • Moderate protein | • Consider as a critical care disease category when hypercatabolic |
|                  | Chronic kidney disease | • Low phosphorus  
  • ± potassium supplementation  
  • High EPA/DHA  
  • Increased energy density to maintain body and muscle condition (unless obese)  
  • Excess protein | • Many medications used to address proteinuria and hypertension may exacerbate hyperkalemia, and reducing dietary potassium intake may help  
  • Consider vitamin D supplementation  
  • Protein intake can vary based on staging, presence of uremia, and proteinuria |
| Obesity          |                     | • High protein  
  • Moderate to high fiber  
  • Low energy density  
  • Increased nutrient to calorie ratio  
  • Moderate to low fat | • Restriction below RER is not recommended with over-the-counter products |
| Dental disease   |                     | • Mechanical action or masking flavor for  
  • Plaque or tartar reduction and/or prevention  
  • Control of bad breath odor | • Mechanical brushing and dental prophylaxis are most effective |
| Critical care    |                     | • Highly digestible  
  • Increased energy density  
  • High fat  
  • Added antioxidants  
  • Texture more amenable to tube feeding slurry use | • Difficult to identify digestibility unless specifically labeled for this use |

AAFCO, Association of American Feed Control Officials; DHA, docosahexaenoic acid; EPA, eicosapentaenoic acid; RER, resting energy requirement; USG, urine specific gravity.

The 2021 AAHA Nutrition and Weight Management Guidelines for Dogs and Cats are available at aaha.org/nutrition.

These guidelines were prepared by a Task Force of experts convened by the American Animal Hospital Association (AAHA) and were subjected to a formal peer-review process. This document is intended as a guideline only, not an AAHA standard of care. These guidelines and recommendations should not be construed as dictating an exclusive protocol, course of treatment, or procedure. Variations in practice may be warranted based on the needs of the individual patient, resources, and limitations unique to each individual practice setting.