

**FELINE CHRONIC DIARRHEA: THE GOOD (DIETS), THE  
BAD (BACTERIA), AND THE UGLY (DIAGNOSIS)**  
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**GASTROINTESTINAL**

**Diarrhea and Food**

The use of diet to assist in the management of GI disease is not a new concept. Nevertheless, the type of diet used to help manage the problem has become an increasingly complex issue. In many, if not most cases of mild IBD, especially those cases without significant infiltrate of inflammatory cells (mild to moderate infiltrate) or without significant weight loss or other morbidity, the best approach is to feed a highly digestible diet or change the diet to one with fewer additives, flavorings, or other substances that may be associated with food intolerance. This term is not defined in a regulatory sense, but generally indicates a product with protein digestibility of > 87 percent (typical diets are 78%–81%), and the digestibility of fat and CHO should be greater than 90 percent (typical diets are 77%–85% and 69%–79%, respectively). These types of diets are designed to provide food that is easy to digest (moderate to low fat, moderate to increased in protein, moderate to decreased carbohydrate), may have additives to improve intestinal health (soluble fibers, omega 3 fatty acids, increased anti-oxidant vitamins, etc.), and contain no gluten, lactose, food coloring, preservatives, etc. There are many different brands available that fall under the category “highly digestible,” but, the key is to remember that they are not all alike. In particular, the protein digestibility of the diet chosen is one of the key factors they may determine the success of the diet. This information can be difficult to access, but in general, meat source proteins are more digestible than plant source (e.g., wheat gluten or other plant protein sources added to foods), animal proteins are more digestible than meat by-products. Meat meals are a good source of protein. Also, to increase digestibility of foods in cats, decrease the number and amount of carbohydrates in the food—a single source carbohydrate food is better than foods with many different sources, highly digestible carb sources are better than complex plant source carbs. Thus, when one diet from this category is not accepted or is ineffective, or seems to make the diarrhea worse, you cannot assume that all diets in this category will be ineffective. The highly digestible diets from different pet food manufacturers have a wide variety of different formulations: different protein and carbohydrate sources, different levels of fat, and a variety of additives designed to promote intestinal health (FOS, MOS, omega 3 fatty acids, antioxidant vitamins, soluble fiber, etc.). If one type of highly digestible diet has been fed for at least 2 weeks with minimal response, then it is entirely reasonable to either try another diet from a different source, or try an entirely different dietary strategy (e.g., high protein/low carb, novel antigen, hydrolyzed, etc.). Another consideration is that the diarrhea may be due to carbohydrate intolerance or bacterial changes resulting from diet changes. Finally, there are a number of cats with chronic diarrhea that will respond to a homemade diet (high protein, no carb, no additives)—the best diet to try (after you have exhausted trials with appropriately chosen commercial diets) is boiled or microwaved cooked chicken thighs—with the fat/skin attached and the bones removed. You may need to chop this into a fine mince or blenderize it to get some cats to eat it (especially if they are not wet food-eating cats or do not get table food). This diet with a calcium carbonate tab crushed in the food (feed about 1/2 cup morning and night) can be fed for up to 2 weeks without balancing the diet. If an intolerance is the cause of the diarrhea, it will stop in this time frame, if not, an intolerance is not the cause of the diarrhea and other solutions must be sought. You must not feed this diet for longer than 2–3 weeks without adding a vitamin/mineral supplement mix and appropriate calcium to balance the diet. The best approach is to use [Balanceit.com](http://Balanceit.com) as an online approach or to consult with a nutrition specialist to get the appropriate information to properly balance the diet. Thus, additions of probiotics or prebiotics to help influence the microflora are also reasonable therapeutic options as well as addition of either metronidazole or tylosin. Many cats that improve on a homemade diet can eventually go back to a commercial food, as long as the offending substance is not present in the diet—this may be carbohydrates, additives, or any of a number of other things—so careful, slow reintroduction of foods is needed.

Gastrointestinal disease may decrease the availability of a number of micronutrients, such as vitamins and minerals, with important consequences for the pathogenesis, diagnosis, and treatment of gastrointestinal disease. The diagnostic utility of measuring the serum concentrations of cobalamin and folate in cats with suspected intestinal disease has recently been established, and although the impact of deficiencies in cobalamin and folate are not completely known, the role of cobalamin in normal function of the GI tract and in many other aspects of metabolism is well documented. Further, because cats are obligate carnivores that consume much higher amounts of protein in their diet, the importance of cobalamin and other B vitamin in maintenance of protein metabolism cannot be overstated. Thus, evaluation of all cats with GI disease, not just cats with IBD, is an important part not only of the diagnostic process, but in the management of these diseases as well. While other vitamin or mineral deficiencies

may occur with long-standing or severe IBD, they are less likely (due to storage of fat soluble vitamins and some minerals) and supplementation without documentation of a deficiency can be dangerous.

### **Inflammatory Bowel Disease**

Feline inflammatory bowel disease (IBD) is the term applied to a number of poorly understood enteropathies that are characterized by the infiltration of the gastrointestinal mucosa by inflammatory cells. The cellular infiltrate is composed of variable populations of lymphocytes, plasma cells, eosinophils, and neutrophils that may be distributed throughout the GI tract. In severely affected cats, the infiltrate may be accompanied by changes in the mucosal architecture such as villus atrophy, fusion, fibrosis, and lymphangiectasia. Despite the fact that it appears to be a very common clinical problem, the etiology and pathogenesis remain complicated and poorly defined. Further, the nature of the inflammation is just beginning to be characterized beyond the visible changes in gross histopathology that have been described. This paper will review what is known, and especially focus on the role of commensal and pathogenic intestinal bacteria and diet in the diagnosis and management of feline chronic diarrhea—particularly its relationship to IBD, diet, and dysbiosis.

Inflammatory bowel disease (IBD) in cats is a commonly diagnosed condition of adult cats that is characterized by persistent clinical signs consistent with GI disease (vomiting, anorexia, weight loss, or diarrhea) that occur concurrently with histologic evidence of mucosal inflammation. The median age for cats presenting with IBD is around seven years and most cats are presented with a history of these signs occurring intermittently for weeks to years. Purebred cats such as Siamese and Abyssinian cats may be overrepresented, but definitive breed predilections are not reported. There is no reported predilection based on sex. Because these clinical signs can be associated with a wide variety both primary GI and extra-GI diseases, it is important to consider broad groups of differentials and obtain a minimum database (CBC, biochemistry panel, and urinalysis) until you have enough information in your data collection to narrow the list. There are a number of possible causes of intestinal inflammation that must be considered in the diagnostic process. IBD is a diagnosis of exclusion, so infectious, food sensitivity/intolerance, endocrinopathies such as hyperthyroidism, parasitic, or neoplastic diseases of the intestinal tract must all be considered. These should be investigated thoroughly prior to settling on the diagnosis of idiopathic IBD and instituting a treatment plan that includes chronic immunosuppressive therapy. Food sensitivity or intolerances can be particularly difficult to distinguish from IBD or other intestinal disorders and will cause identical clinical signs and histopathologic changes in the bowel. Thus, appropriate food trials are an extremely important component of both diagnosis and therapy of cats with GI disease or suspected IBD. In addition to food trials, the diagnostic plan for a cat with chronic diarrhea should include multiple fecal examinations or therapeutic deworming trials with broad spectrum agents such as fenbendazole, assessment of thyroid and FeLV/FIV status, and GI functional assessment (PLI, TLI, cobalamin, and folate measurement). Many cats with IBD have concurrent inflammation in their liver and pancreas—a phenomenon called triaditis. Because chronic pancreatitis causes few distinguishing signs and can be quite difficult to diagnose with laboratory tests alone, a degree of clinical suspicion is necessary to carefully assess these cats for this possibility. Serum cobalamin levels in cats commonly decrease with severe bowel disease or pancreatitis, so it is very important to assess cobalamin status in all cats with GI disease. Further, in cats with hypcobalaminemia, the diarrhea will not resolve until replacement therapy is instituted. Cobalamin therapy in some cats may be lifelong, while in others, once the clinical disease resolves the supplementation can be discontinued. In older cats with concurrent chronic pancreatitis, decreases in production of pancreatic enzymes (detected by measuring TLI) can also result in reduced digestion of foods, development of bacterial dysbiosis, and subsequent weight loss and diarrhea. Thus, measurement of TLI in cats with chronic diarrhea is an important tool for assessment. In addition to laboratory evaluation of cats with possible IBD, radiographs and ultrasound are important in the overall assessment. Abdominal radiographs and ultrasound will not prove that a cat has IBD, but they are essential for ruling out other problems (i.e., intestinal foreign bodies, intussusception, finding masses, assessing other organs—especially liver and pancreas). Many cats with intestinal inflammation will have thickened loops of bowel, changes in bowel layering, or evidence of mesenteric lymphadenopathy. These changes are not indicative of a specific cause, but are further confirmation of intestinal disease that requires further assessment. One important piece of information that can be obtained via abdominal ultrasound is the location or severity of the lesions, thus suggesting whether or not endoscopy or possibly abdominal exploratory would be the better diagnostic next step.

Because intestinal biopsies, either obtained endoscopically or at an exploratory surgery, are still essential to confirm the presence of inflammatory infiltrates, this step can be an important part of the process. However, because small cell (lymphocytic, low grade) lymphoma can be extremely difficult to distinguish from IBD, the disease can be focal

(only in the jejunum or ileum), or can be found only in the deeper layers of the intestinal wall (submucosa or muscularis), full thickness biopsies taken surgically may be the best approach, particularly in cats that are not responding to appropriate therapy, or were responding to therapy but are now losing weight or having a recurrence of diarrhea despite therapy. The interested reader is referred to several recent reviews on this subject for more details specific to GI lymphoma and its management.