

# Colitis – Canine

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## Definition

**Colitis** is an inflammation of the colon that impairs absorption of water and electrolytes and results in tenesmus, dyschezia, hematochezia, mucoid feces, diarrhea, and/or constipation. Colitis may be caused by parasitic, fungal, or clostridial infection, neoplasia, or may be idiopathic.

## Key Diagnostic Tools and Measures

History, physical examination, fecal analysis, hematology, and serum biochemistry are routinely indicated. Colonoscopy and biopsy, and occasionally full-thickness biopsies via laparotomy, are often necessary for diagnosis. A high-fiber, highly digestible, or limited-antigen diet can be essential to manage clinical signs.

## Pathophysiology

The pathophysiology of colitis is multifactorial and dependent on etiology. Electrolyte and water absorption by the inflamed mucosa is impaired and active secretion of electrolytes may also occur. Colonic motility is typically compromised and mucous secretion amplified by an inciting pathogen or secondary to inflammation itself. Advanced inflammation may result in colonic erosion and ulceration and more severe clinical signs.

## Signalment

**Inflammatory bowel disease** (IBD) is most common in middle-aged dogs. German shepherd dogs are over-represented but IBD is reported in most dog breeds as well as mixed breeds. An uncommon form of colitis, *bistocytic ulcerative colitis*, occurs mostly in young boxer dogs less than two years of age.

## Key Nutrient Modifications

Most dogs affected with colitis maintain appetite and body weight. As such, modification of key dietary nutrients aims to reduce or abolish clinical signs. Depending on the etiology of colitis in an individual dog, a high-fiber, highly digestible, or limited-antigen diet may be beneficial.

## Recommended Ranges of Key Nutrients

Nutrient	% DM	g/100 kcal	% DM	g/100 kcal
	Recommended dietary level		Minimum dietary requirement*	
Crude Fiber <sup>#</sup>	7–16	2.0–5.0	n/a	n/a

Modified fiber intake may help address metabolic alterations induced by disease states. The recommended dietary composition is shown as percent of dietary dry matter (DM) and as g or mg per 100 kcal metabolizable energy. All other essential nutrients should meet normal requirements adjusted for life stage, lifestyle, and energy intake.

\*Nutrient requirement for adult animals as determined by the Association of American Feed Control Officials

Individual dogs may have improvement in clinical signs when fed a diet high in crude fiber, a diet that is highly digestible, or a diet that has limited ingredients novel to the individual or hydrolyzed protein sources.

## Therapeutic Feeding Principles

As most dogs with colitis maintain appetite and body weight, the principal aim of dietary modification is to reduce the clinical signs of tenesmus, dyschezia, bloody mucoid feces, diarrhea, and/or constipation. This is achieved by increasing the digestibility of the diet, increasing the fiber

content of the diet, or minimizing dietary antigens.

A highly digestible diet attenuates the clinical signs of colitis by limiting the volume of ingesta delivered to the compromised colon.

Dietary fiber is metabolized by colonic flora to short-chain fatty acids (acetate, butyrate, and propionate) and this provides a direct energy source to damaged colonocytes. By binding luminal water, increased dietary fiber content favors normalization of colonic motility. Dietary fiber also protects the mucosa from contact with physical irritants in bile acids and ingested material to limit colonocyte injury. These effects of dietary fiber also restrict the virulence mechanisms of *Clostridium perfringens*, which has been implicated in some cases of colitis.

Colon inflammation may be caused or exacerbated by dietary antigens; therefore, dietary restriction to a single novel protein or hydrolyzed protein effects clinical improvement in some dogs. Identification of these individuals requires a trial elimination diet whereby this new diet is fed solely for at least 4 weeks before clinical improvement may be expected.

Studies in human patients suggest that antioxidants, omega-3 polyunsaturated fatty acids, fructo-oligosaccharides, prebiotics, and probiotics may be beneficial in the dietary management of colitis.

■ **Treats** – While treats can be important in maintaining the human-animal bond, treats that differ at all in composition from the primary diet should be avoided during initial assessment phase so that efficacy of the base diet alone can be accurately evaluated. Dogs found to respond to high-fiber diets may then be offered high-fiber treats such as vegetables. Dogs that are managed with a highly digestible diet may be fed many treats also containing highly digestible ingredients. Animals fed uncommon/limited-ingredient diets should only be fed treats containing the same ingredients as the base diet. Likewise, dogs receiving hydrolyzed-protein diets should only be fed treats containing similar hydrolyzed ingredients. Canned forms of any base diet can be sliced and baked to form cookies for treats. Alternatively, some of the primary diet may be offered outside regular feeding times and utilizing alternative feeding methods as a treat. Affection and attention can be provided as a substitute for food treats. If treats are given, they should be incorporated slowly, with consistency maintained in type of treat given each day, and the dog should be monitored closely for recurrence of colitis signs. As always, it is suggested that all treats and supplements supply less than 10% of the total daily calories.

■ **Tips for Increasing Palatability** – The majority of dogs with colitis maintain an excellent appetite and diets suitable for managing colitis do not typically lack palatability. If a particular commercial preparation is not accepted, the dog may find other comparable diets suitably tempting. Alternatively, warming the food to body temperature or adding a sweetener such as corn syrup may increase palatability. Appetite stimulants or assisted-feeding devices are occasionally necessary in patients in which persistent anorexia precludes necessary caloric intake.

■ **Diet Recommendations** – A number of highly digestible, high-fiber, uncommon/limited-ingredient, and hydrolyzed-protein diets are available from the major therapeutic diet manufacturers in the United States. If uncommon/limited-ingredient diets are to be used it is preferred that they contain ingredients novel to the individual as determined from the diet history. The initial amount to be fed should be estimated by calculating the previous daily caloric intake when weight stable or by using calculated maintenance energy requirement where the previous determination is not possible.

## Client Education Points

- Colitis is a common disease in dogs characterized by increased frequency of defecation, straining to defecate, and feces which may contain blood and/or mucous. It is not usually associated with weight loss or loss of appetite.

- Colitis is an inflammation of the large bowel (colon) that may be caused by infection with parasites, fungi, or bacteria; dietary allergy or intolerance; and rarely cancer. One of the most common types of colitis has no known cause and is termed *inflammatory bowel disease*.
- Several tests are often necessary to identify the underlying cause of colitis including blood tests, fecal analysis, endoscopy, and biopsy of the large bowel.
- Medical treatment is aimed at eliminating the underlying cause wherever possible. Dietary modification can be an essential and effective method of alleviating clinical signs irrespective of the inciting cause.

## Common Comorbidities

Colitis can occur in combination with small intestinal or gastric inflammation.

## Interacting Medical Management Strategies

Medical therapy for colitis may include parasiticides, antiprotozoals, antibiotics, gastrointestinal protectants, and anti-inflammatory and immunosuppressive therapy.

Polyphagia is a common side effect of corticosteroid administration and owners of dogs receiving elimination diets should be warned about indiscriminate eating or scavenging, which would counteract the benefits of dietary manipulation.

When prescribed, sulfasalazine, a drug with anti-inflammatory actions in the colon, should be administered with food to reduce the drug's emetic side effect. Conversely, some antibacterial agents are incompletely absorbed in the presence of food and efficacy is dependent on administration at least 1 hour before or 2 hours after meals.

## Monitoring

The initial treatment of choice for colitis varies among clinicians, with some preferring dietary manipulation alone and others using medication(s) in addition. The efficacy of treatment is based on resolution or reduction in tenesmus, dyschezia, hematchezia, mucoid feces, diarrhea, and/or constipation. In patients where dietary modification alone is not effective, medical therapy should be instigated and continued for at least 2 to 4 weeks following control of clinical signs before gradual dosage reduction may be attempted. Dietary management, and for some dogs medical therapy, may be required long-term or life-long to control signs.

## Algorithm – Nutritional Management of Canine Colitis

