

# Constipation – Canine

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## Definition

*Constipation* is characterized by absent, infrequent, or difficult defecation associated with retention of feces within the colon and rectum. Severe constipation can progress to *obstipation* when the feces become excessively hard and impacted within the colon. *Megacolon* refers to dilation and hypomotility of the colon, but is rarely seen in dogs.<sup>1</sup>

## Key Diagnostic Tools and Measures

A diagnosis of constipation is generally made during history collection and physical examination. Clinical signs may include tenesmus, anorexia, vomiting, weight loss, lethargy, and poor coat condition. Rectal and abdominal palpation will likely reveal firm stool within the rectum and colon. Abdominal radiographs can be used to further define the extent of the constipation, and to rule out foreign bodies, enlarged prostate, and pelvic or spinal lesions that may be contributing to the constipation. Serum chemistry, thyroxine (T4), complete blood count, and urinalysis are also indicated to rule out underlying metabolic abnormalities.

## Pathophysiology

Constipation can occur with any condition that impairs the movement of feces through the colon. When feces are retained within the colon for an extended period of time, water continues to be absorbed, resulting in a progressively harder and drier fecal mass. Constipation can occur secondary to rectocolonic obstruction (such as prostatic hypertrophy, pelvic fracture, neoplasia, diverticulum), painful defecation (anal wounds, orthopedic disorders), environmental factors (confinement/boarding, inactivity), medications (opioids, diuretics, others), neuromuscular dysfunction, fluid and electrolyte abnormalities, ingestion of foreign material, or inadequate water intake.

## Signalment

Constipation can occur in dogs at any age, and is seen in both males and females of all breeds. The signalment may help to narrow the differential diagnoses. For example, neoplasia is more commonly seen in older animals, and prostatic hypertrophy is only seen in males.

## Key Nutrient Modifications

Increasing fiber and moisture content of the diet are the key nutrient modifications that can be made to address constipation in dogs. Obstruction or partial obstruction of the colon should be ruled out prior to initiating a high-fiber diet or fiber supplementation. Fiber is classified as soluble or insoluble. Soluble fiber has the ability to hold water, which helps to increase the moisture content of dry feces and normalize gastrointestinal transit time. Some soluble fibers are fermentable and support the growth of normal gastrointestinal flora and production of short chain fatty acids that provide energy to colonocytes and stimulate longitudinal colonic smooth muscle contractions.<sup>2</sup> Insoluble fiber has a low ability to hold water and is not readily degraded by gastrointestinal bacteria. Insoluble fiber adds bulk to the feces and can help to stimulate colonic motility.<sup>3</sup>

Dogs with constipation may be dehydrated; therefore, increasing moisture in the diet can help to maintain appropriate hydration and soften dry stools.

## Recommended Ranges of Key Nutrients

| Nutrient                 | % DM                      | g/100 kcal | % DM                         | g/100 kcal |
|--------------------------|---------------------------|------------|------------------------------|------------|
|                          | Recommended dietary level |            | Minimum dietary requirement* |            |
| Crude fiber <sup>#</sup> | 7–15                      | 2–8        | n/a                          | n/a        |

Modified intake of these nutrients 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

<sup>#</sup>The crude fiber analysis includes most insoluble fibers, but does not include soluble fibers. Therefore, crude fiber has limited usefulness when evaluating the total fiber content of foods. The ingredient list should be evaluated for sources of soluble fiber.

Diets high in moisture may be helpful in this condition: canned foods contain about ≥75% water, versus dry foods which provide ~10% water.

## Therapeutic Feeding Principles

Hydration status should be corrected prior to initiating dietary treatment. If the patient is prone to dehydration, feeding a canned diet or adding water to a dry kibble (two to three parts water to one part dry kibble) is recommended. A diet providing a combination of soluble and insoluble fiber sources is ideal for the management of constipation in dogs. Soluble fiber increases stool moisture, while the insoluble fiber provides fecal bulk and stimulates motility. Because most pet foods do not report soluble and insoluble fiber levels, the ingredient list can be evaluated to gain a better understanding of the fiber types in the diet. Examples of soluble fiber include citrus pulp and other fruits (provide pectins), gums (such as guar gum), and oligosaccharides (such as carrageenan); insoluble fibers include cellulose, brans (such as rice and wheat), oat fiber, and peanut hulls; and mixed fibers include beet pulp, soy fiber, pea fiber, and psyllium. If the patient cannot be transitioned to a high-fiber diet, supplemental fiber can be added to the current diet.

- Psyllium is a readily available mixed fiber supplement that can be added to the diet in amounts of 1–3 tablespoons per day.
- If a source of soluble fiber is needed, Benefiber (guar gum) can be added to the diet in amounts of 2–4 teaspoons per day.
- If a source of insoluble fiber is needed, coarse wheat bran can be added to the diet in amounts of 1–3 tablespoons per day.

The amount of supplementation needed to correct constipation can vary in individual patients; therefore, it is generally recommended to start at the low end of the dosage range and titrate to effect. Adjustments to the fiber dosage should be made every 5 to 7 days as needed until the desired affect is achieved.

■ **Treats** – Fruits and vegetables are good sources of both soluble and insoluble fibers, and are generally high in moisture.

- 1 medium baby carrot = 3 kcal, 180 mg total dietary fiber (60 g/1000 kcal), 90% moisture
- ¼ cup sliced/chopped apple with skin = 16 kcal, 750 mg total dietary fiber (47 g/1000 kcal), 96% moisture

Whole grains and bran cereal are also good sources of insoluble fiber.

- ¼ cup Mini-Wheats = 48 kcal, 1.66 g total dietary fiber (33.3 g/1000 kcal)

Care should be taken to ensure that unbalanced treats are limited to ≤10% of the total daily calories.

- If feeding a high-fiber diet, additional high-fiber treats may be contraindicated. Some fiber supplements designed for human use may be sweetened. Supplements sweetened with xylitol should be avoided.

### ■ Tips for Increasing Palatability

- Slightly heat food to enhance food odor and texture.
- Add a low-sodium chicken or beef broth to the food to increase both moisture and palatability (limit to  $\leq 10\%$  of the total daily calories, and avoid broths made with onion or garlic).
- If adding water to food to increase moisture, start by adding a small amount and then slowly increase over 1 to 2 weeks to allow the patient to become accustomed to the change in dietary moisture and texture.

■ **Diet Recommendations** – Foods providing moderate to high dietary fiber with mixed soluble and insoluble fiber sources are recommended. Veterinary therapeutic foods designed for diabetes mellitus, colitis, and weight loss generally provide increased dietary fiber levels. In general, weight loss foods will provide a greater proportion of the fiber from an insoluble source. Canned foods and/or the addition of water to the food is recommended for patients prone to dehydration.

### Client Education Points

- Proper hydration is key to the management of constipation. Free access to fresh water should be provided at all times. Water intake can also be enhanced by feeding canned foods or adding two to three parts water to one part dry kibble.
- Confinement or lack of activity can contribute to constipation.
- Implement a regular exercise routine or walking schedule.
- Feeding a higher-fiber diet or adding a fiber supplement will result in increased fecal volume and frequency of defecation.
- Transitioning to a higher-fiber diet or adding a fiber supplement should be done slowly over 4 to 5 days.
- The level of fiber supplementation needed can vary from pet to pet, so adjustments may be required to achieve the desired response.

### Common Comorbidities

Common comorbidities are generally predisposing factors for constipation. Conditions that cause pain on defecation (such as anorectal and orthopedic disorders), rectocolonic obstruction (such as pelvic fractures or neoplasia), or neuromuscular dysfunction (such as lumbosacral spinal cord disease or dysautonomia), are commonly seen with constipation. For disease conditions associated with colonic obstruction or partial obstruction, feeding a high-fiber, fecal bulking diet may be contraindicated. In these cases, feeding a highly digestible diet to decrease fecal mass is more appropriate. When constipation is seen with fluid or electrolyte abnormalities (such as hypokalemia or hypercalcemia) correction of the hydration status and electrolyte imbalances should take priority in the treatment plan.

### Interacting Medical Management Strategies

Medical management should be aimed at eliminating or controlling any identified underlying conditions. If a large fecal mass is present, enema treatment and/or manual extraction may be required. If dehydration or electrolyte abnormalities are identified, proper fluid therapy is indicated.

If dietary therapy alone is not successful in preventing recurrence of constipation, oral laxative medications can be implemented. Generally, a mild emollient laxative such as docusate sodium, or osmotic laxative such as lactulose is recommended to help soften the stool. Promotility therapy, such as cisapride, may also be beneficial in dogs with decreased colonic motility.

### Monitoring

Response to treatment can be monitored by having the owner record daily bowel movements and fecal characteristics. Success of treatment is characterized by return of daily bowel movements, absence of straining or pain on defecation, and normal fecal consistency.

### Algorithm – Nutritional Management of Canine Constipation

