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HOW I USE DIETARY FIBRE TO TREAT DOGS WITH GI DISEASE

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Dietary fibers consist of a heterogeneous group of plant-derived complex carbohydrates that evade digestion and absorption in the dog's small intestine. When they reach the large intestine, some fibers can be broken down by microbiota and processed into metabolites that benefit the dog's health.

Dietary fibers are a diverse group of plant-derived complex carbohydrates that escape enzymatic digestion and absorption in the small intestine of dogs. Once in the large intestine, some fibers undergo microbial fermentation, generating metabolites that can exert local and systemic health benefits. For many years, the role of dietary fiber in small animal medicine was thought to be limited to regulating fecal bulk and managing constipation. However, advances in microbiome research have led to a broader understanding of how fibers interact with the gastrointestinal tract and beyond, significantly expanding their clinical applications.

This paper reviews the classification of fibers, their functional properties, and their role in the management of acute and chronic gastrointestinal (GI) diseases in dogs.

CLASSIFICATION OF DIETARY FIBERS

Dietary fibers are commonly categorized according to solubility, viscosity, and fermentability (Figure 1):

- Solubility: the ability of a fiber to dissolve in water. Soluble fibers can form solutions or gels in the intestinal lumen, whereas insoluble fibers remain largely unchanged.
- Viscosity: the capacity of soluble fibers to form viscous, gel-like substances when hydrated. This property alters gastric emptying, intestinal transit, and chyme consistency.
- Fermentability: the extent to which fibers are metabolized by colonic microbiota, resulting in the production of short-chain fatty acids (SCFAs), gases, and microbial biomass.

This classification is not absolute, as many fibers possess overlapping properties. Nonetheless, these parameters are useful in predicting clinical effects and guiding fiber selection for therapeutic purposes.

FUNCTIONAL PROPERTIES OF DIFFERENT FIBERS

Oligosaccharides are both soluble and highly fermentable. They are rapidly degraded by colonic microbiota, yielding SCFAs such as acetate, butyrate, and propionate. These metabolites support the integrity and energy metabolism of colonocytes and may also exert beneficial effects on distant organs via systemic circulation.

Soluble, viscous, rapidly fermentable fibers: Fibers such as beta-glucans, gums, and pectins are soluble and viscous. They form gel-like substances in the small intestine, modulating the consistency of intestinal contents, but are rapidly fermented in the colon. Their swift breakdown limits their effects on fecal bulk but enhances SCFA production, which is often beneficial in colonic health.

Soluble, viscous, slowly fermentable fibers: Psyllium is a prime example. It forms a gel-like mass in the small intestine that persists into the colon due to limited fermentation. This unique property makes psyllium highly versatile: it softens stool in constipated dogs while simultaneously improving fecal form in dogs with diarrhea.

Insoluble fibers: Fibers such as cellulose and wheat bran are poorly fermentable and insoluble. Their primary role is mechanical: they increase fecal bulk and stimulate peristalsis. While less metabolically active than soluble fibers, they play a valuable role in managing hypomotility and constipation.

EXPANDING CLINICAL APPLICATIONS OF FIBER

For decades, veterinary nutritionists and pet food manufacturers have recognized the contribution of fiber to fecal quality and gut health. However, its clinical use was historically restricted to managing constipation. The application of molecular techniques to study the gut microbiome has revolutionized understanding in both human and veterinary medicine, leading to new indications for fiber in dogs.

As discussed in another presentation at this Conference, antimicrobials such as metronidazole and amoxicillin-clavulanic acid remain widely used in veterinary practice, often in cases of uncomplicated acute diarrhea. Recent systematic reviews and meta-analyses have questioned this approach. The reader is referred to the lecture: “Are antibiotics helpful in the management of dogs with GI disease?”

A recent randomized clinical trial compared three treatments in dogs with acute colitis: A low-fiber, highly digestible diet (control), the same low-fiber diet plus metronidazole, and a moderate-fiber diet containing psyllium.

In a recent clinical trial, the effects of a diet with moderate dietary fiber (psyllium) content were compared to those of metronidazole and an easily digestible low-fiber, easily digestible diet in a group of dogs with acute colitis. The control group received the low-fiber diet alone. Diarrhea persisted longer in the dogs receiving metronidazole compared to a low-fiber diet or fiber-rich diet. Also, dogs treated with metronidazole had a higher recurrence rate 30 days after the acute episode than those receiving a low-fiber or fiber-rich diet alone. Finally, the metronidazole dogs had more pronounced large intestinal dysbiosis after completion of the treatment. Other studies in healthy and diarrheic dogs have shown that antibiotics have a severe and lasting impact on the large intestinal microbiome and increase the proportion of resistant bacteria (e.g., E. coli) in the feces.

In dogs with chronic inflammatory enteropathies (CIE), fiber plays an important supportive role. Current expert guidelines recommend:

- Initiating an elimination diet trial (hydrolyzed or novel protein) for chronic diarrhea with mild systemic signs.
- Performing a second trial with a more extensively hydrolyzed diet if the first fails.
- Incorporating dietary fiber supplementation, especially in dogs with large bowel diarrhea.

Fiber is particularly useful in stress-associated diarrhea (also termed chronic idiopathic large bowel diarrhea). This condition occurs in working dogs (e.g., agility, security) or dogs exposed to environmental stressors such as boarding. Clinical experience, supported by evidence from the literature, indicates that fiber supplementation often results in rapid resolution.

Finally, there are anecdotal reports in the author’s hospital about the successful use of dietary fiber supplementation to treat or prevent intestinal disease (e.g., soft feces, diarrhea), a common side effect in dogs receiving chemotherapy to treat various cancers (Box).

CONCLUSION

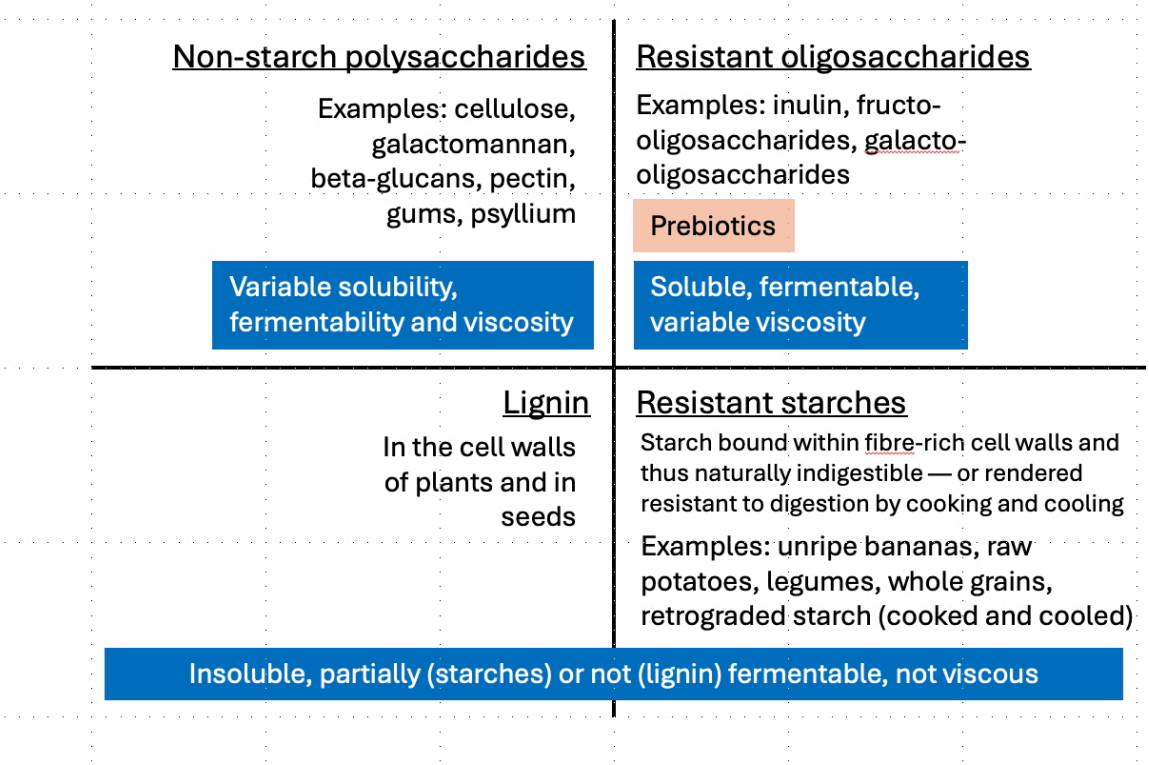
Dietary fiber is no longer regarded as a simple bulking agent for constipation. Instead, it is a versatile therapeutic tool that can:

- Improve fecal consistency in both diarrhea and constipation.
- Support colonic epithelial health through SCFA production.
- Mitigate dysbiosis and reduce the need for antimicrobials.

- Serve as an adjunct therapy in chronic enteropathies, stress-associated diarrhea, and treatment-related GI side effects.

Further studies are warranted to define optimal fiber types, dosages, and combinations for specific conditions. Nonetheless, based on the current body of evidence, there is compelling justification for incorporating dietary fiber into the management of many canine gastrointestinal diseases.

Figure 1: Classification of dietary fiber types and their different physical and biochemical properties



SELECTED REFERENCES

- Jergens, A. E. & Heilmann, R. M. (2022) Canine chronic enteropathy-Current state-of-the-art and emerging concepts. Front Vet Sci 9, 923013
- Jessen, L. R., Werner, M., Singleton, D., et al. (2024) European Network for Optimization of Veterinary Antimicrobial Therapy (ENOVAT) guidelines for antimicrobial use in canine acute diarrhoea. Vet J 307, 106208
- Lecoindre, P. & Gaschen, F. P. (2011) Chronic idiopathic large bowel diarrhea in the dog. The Veterinary clinics of North America. Small animal practice 41, 447-456
- Moreno, A. A., Parker, V. J., Winston, J. A., et al. (2022) Dietary fiber aids in the management of canine and feline gastrointestinal disease. J Am Vet Med Assoc 260, S33-S45
- O'Grady, J., O'Connor, E. M. & Shanahan, F. (2019) Review article: dietary fibre in the era of microbiome science. Aliment Pharmacol Ther 49, 506-515
- Rudinsky, A. J., Parker, V. J., Winston, J., et al. (2022) Randomized controlled trial demonstrates nutritional management is superior to metronidazole for treatment of acute colitis in dogs. J Am Vet Med Assoc 260, S23-S32