

Purina Institute Microbiome Forum Round Table 2025

FIRST-LINE APPROACH TO GI DISEASE IN DOGS AND CATS



A PANEL DISCUSSION

Therapeutic diets alone and as a central component of multimodal management have been shown to benefit dogs and cats with chronic enteropathy. Veterinarians are now approaching management based less on the classic categorization of chronic enteropathies as food-responsive, immunosuppressant-responsive, antibiotic-responsive, or non-responsive and more on modulation of the entire gut environment.

In the following discussion, a panel of experts reviews qualities of therapeutic gastrointestinal diets, including digestibility, protein, and fiber content, and other components of multimodal management of chronic enteropathy.¹

THERAPEUTIC DIETS



Jan S. Suchodolski, MedVet,
DrMedVet, PhD, AGAF, DACVM
(Chair/Moderator)

Dr. Jan Suchodolski: For a pet with chronic enteropathy, what are we seeking in a diet?

Dr. Ananda Portella Félix: A primary goal of therapeutic gastrointestinal diets is high digestibility, particularly the protein sources. A hydrolyzed protein diet is one of the best ways to try to avoid stimulating the immune system in the gut and causing more inflammation. However, other protein sources can also be highly digestible.

Dr. Suchodolski: The rationale for changing protein source originated with the belief that chronic enteropathy cases were due to food allergy. How common are true food allergies, and how do you diagnose them?

Dr. Aarti Kathrani: I do not think they are very common. Owners may think their pet has a food allergy, but to confirm, you must perform a diet elimination trial: Feed an elimination diet. If the signs resolve, return to the original diet. If the pet then relapses, test single ingredients to try to find the ingredient responsible. This is the gold standard for diagnosis.

However, that is not commonly done. It is difficult to know if what the owner suspects as a food allergy is real or to determine overall prevalence of food allergies if complete diet elimination trials are not performed.

While some promising data is emerging in the research setting, at this time, there are no commercially available laboratory tests that will help with diagnosis.

Dr. Suchodolski: In a dog with chronic enteropathy, how do you choose between a hydrolyzed versus novel protein diet?

Dr. Kathrani: Obtaining a diet history may help guide our choice. If you only have time for one or two questions, I suggest asking, historically, which diet helped or worsened the gastrointestinal signs the most?

Having only that information can help. In the absence of that information or the patient ever receiving a therapeutic gastrointestinal diet, I tend to choose a hydrolyzed diet given the research and our clinical experience. Response rate to hydrolyzed diets is between approximately half to two thirds of animals in referral and primary practice.

So it is very reasonable to start with the hydrolyzed diet but be aware it may not be the diet of choice for that particular animal. It is, unfortunately, at this time a trial-and-error process.

However, even if the signs worsen or do not significantly improve, you have still acquired information. Now you know what to potentially avoid in the future.

Have a frank discussion with the owner about the importance of trial and error. Ensure the owner understands clinical signs could worsen or not improve with an individual diet. If owners appreciate from the beginning the necessity of trial and error, this allows you to try multiple diets if needed. Have an alternative diet in mind if no response is seen with the first diet and discuss it with the owner.

Dr. Suchodolski: The protein does not always need to be a novel protein, correct?

Dr. Kathrani: True. When changing the diet, we are changing more than the protein source. So, it is hard to know what aspect(s) of the diet is/are helping.



“If owners appreciate from the beginning the necessity of trial and error, this allows you to try multiple diets if needed.”

Aarti Kathrani, BVetMed (Hons), PhD, DACVIM (SAIM, Nutrition), FHEA, MRCVS

I think there are some advantages to novel protein diets. They tend to be limited ingredient. For me the biggest advantage is that they also tend to be more palatable than hydrolyzed diets and are thus particularly useful for dogs with less-than-adequate appetite.

Dr. Suchodolski: How do cats with chronic enteropathy respond to gastrointestinal diets?

Dr. Fabio Procoli: The proportion of cases that respond is quite similar to that in dogs.

Dr. Suchodolski: What are the biggest differences in nutrition pertaining to diet composition or in physiology between dogs and cats with chronic enteropathies?

Dr. Félix: In gastrointestinal diets for dogs, protein concentration is typically somewhat reduced. Very low (~5%) fat gastrointestinal diets are options for dogs.

But cats, even during a gastrointestinal disorder, tolerate much more protein and fat. This is likely due in part to the natural feeding behavior of cats—eating multiple small meals per day. Cats ingest smaller amounts of protein and fat at a time rather than having the loading of the gastrointestinal tract with a large amount of substrate at once.

Dr. Linda Toresson: Cats are very sensitive to cobalamin deficiency and develop it more rapidly than dogs due to a much shorter half-life. Affected cats may show only weight loss.

Exocrine pancreatic insufficiency is more common in cats than previously thought, and cats do not exhibit the same clinical signs as dogs. If a cat with a very low cobalamin level does not respond to supplementation, trypsin-like immunoreactivity should be measured.

Dr. Suchodolski: Fiber-enriched diets typically contain a combination of soluble and insoluble fibers. What are fiber options?

Dr. Félix: Gastrointestinal diets are available with low, moderate, and high fiber concentrations. High-fiber diets are usually indicated specifically for large bowel diarrhea, and many animals with large bowel diarrhea respond well.

As an alternative to changing the diet, the current diet can be supplemented with fiber, e.g., psyllium. However, fiber should be increased gradually.

Dr. Suchodolski: When would you supplement psyllium?

Dr. Kathrani: A pet starting a hydrolyzed diet occasionally develops constipation, due to a lower fiber content in hydrolyzed diets. That is a good case to consider psyllium. Psyllium is soluble and is a viscous fiber—when immersed in water it forms a gel.

For pets with constipation, psyllium adds moisture to the feces to allow passage. For diarrhea, psyllium can help firm the feces because of the viscosity. Psyllium can also help to slow transit time, when you suspect the pet has fast intestinal transit with secondary diarrhea.

Dr. Suchodolski: How do you supplement fiber in cats?

Dr. Toresson: Although some cats tolerate small volumes (1 mL) of psyllium mixed with wet food, most will not eat psyllium when added to the current diet. It is best to try a fiber-enriched diet.

Dr. Kathrani: Cats should be slowly transitioned to a fiber-enriched or other gastrointestinal diet, sometimes even over two to three weeks, although I have not had to do that often. Never introduce the diet when the cat is hospitalized due to concern for food aversion. If a cat goes outside, I would still try the diet even though it may not be the cat's only food source.

Dr. Suchodolski: What dose of fiber do you recommend? How slowly do you increase the dose?

Dr. Kathrani: With any pure fiber supplement, the individual response can be variable, dependent on factors including the patient's microbiota. With fiber supplements, I always start at a low level because I can increase, but I want to avoid adverse effects of excess fiber.

I typically start with 1/4–1/2 teaspoon per 5 kg body weight for dogs and cats daily, divided over the course of the day and given with meals. I then usually increase the daily level by 1/8 teaspoon every two to three days, until I see the desired effect. This may take up to a week. We should use an unflavored fiber as well.

If the owner notices the pet is defecating more often, I may have increased too much or chosen the wrong fiber type.

“With fiber supplements, I always start at a low level because I can increase.”

Dr. Kathrani

Dr. Félix: On a gram basis, I administer 0.4 grams/kg body weight/day, which for a 10 kg dog is almost one teaspoon, up to 1 gram/kg/day.

Dr. Suchodolski: How long do you feed a fiber-enriched diet or supplemental fiber?

Dr. Kathrani: Typically, we feed for two weeks exclusively to assess response. Although if the pet responds, there is not a consensus regarding how long to continue.

Studies show that if the diet is fed for a total of 14 weeks, you can typically return to the original diet without a relapse for most dogs and cats. That may be longer than needed; occasionally I switch after six to eight weeks. However, I have found the majority of owners do not want to change once finding a diet that works.

With a fiber supplement, if the pet responds, I generally stop or taper after six to eight weeks. Some dogs and cats do well with this approach.

However, one study suggested that the pet might need to continue the fiber-enriched diet or fiber supplement long term, that there may be more relapses if you discontinue or taper it.

PREBIOTICS, PROBIOTICS, SYNBIOTICS, AND POSTBIOTICS

Dr. Suchodolski: What are prebiotics? How do they differ from other fiber? What are probiotics, synbiotics, and postbiotics?

Dr. Félix: A prebiotic is a short-chain fiber or an oligosaccharide, smaller than common fibers, which are polysaccharides. Prebiotics are highly fermentable fiber sources and are a preferred substrate for beneficial gut bacteria. E.g., *Faecalibacterium* ferment prebiotic oligosaccharides. Prebiotics selectively promote the growth of beneficial bacteria in the gut.

Therapeutic gastrointestinal diets usually contain prebiotics so we should be careful with supplementation. Additional prebiotics could lead to an osmotic diarrhea.

Probiotics are live microorganisms—bacteria or yeast that can have a beneficial effect in the gut. To be beneficial, they need to be alive in the probiotic product and to resist the acid pH of the stomach and conditions in the small intestine in order to reach the colon alive.

It is important to check if the manufacturer has peer-reviewed publications demonstrating effects of the specific probiotic that you are considering. Without published evidence about the specific probiotic, we do not know if it will help.



“Prebiotics selectively promote the growth of beneficial bacteria in the gut. Therapeutic gastrointestinal diets usually contain prebiotics”
Ananda Portella Félix, MS, PhD

Synbiotics are the two together—probiotic plus prebiotic. As with probiotics, you should seek published evidence to feel confident using a particular synbiotic product.

Postbiotics are inanimate microorganisms or microbial cell fragments/structures and may also contain microbial metabolites. They can have effects due to the cell wall fragments and metabolites present in the preparation.

However, as we have all stated, the most important modality is to change the diet to a highly digestible diet with, depending on the case, a higher or lower fiber concentration and the correct kinds of fiber—soluble and insoluble, low fermentability. Diet is the major part of treatment.

The probiotics, prebiotics, synbiotics, and postbiotics can help. We have some evidence, but usually the power of the effect is smaller than that of the diet.

“Diet is the major part of treatment.”
Dr. Félix

Dr. Procoli: In my experience, you very seldom have a case where the probiotic is the decisive factor. I see probiotics as a more immunomodulatory strategy—a way of supplementing the effects of diets, perhaps giving me the ability to reduce glucocorticoid dose. In very severe cases, they are part of my multimodal approach.

FECAL MICROBIOTA TRANSPLANTATION (FMT)

Dr. Suchodolski: When do you perform FMT in a chronic enteropathy case? In which cases do you find it important to have a dysbiosis index (DI)² prior to FMT over simply monitoring for clinical improvement and relapse?

Dr. Toresson: We have seen excellent effects using FMT in young dogs.

In some dogs harboring a heavy parasite burden, clinical signs persist once the parasite is eliminated. I have found that these dogs respond very well to FMT. In an older dog, I like to use FMT as well. I want to have a DI beforehand in an older dog to assess how severely dysbiotic the animal is.

If the pet is taking or just completed a course of antibiotics, the DI does not provide as much information. However, it does help if I find that the DI normalizes after FMT.

We have had dogs with severe dysbiosis not respond to FMT for as long a period as dogs with mild or no dysbiosis at inclusion. Note that not every dog with chronic enteropathy has dysbiosis.

Dr. Procoli: I find the DI to have many applications including prognostic value. In typically elderly pets with refractory diarrhea presenting with a very high DI, this often indicates a high likelihood of relapse of clinical signs despite a positive initial clinical response due to irreversible intestinal mucosal remodeling associated with chronicity of the disease.



“I see probiotics as a more immunomodulatory strategy—a way of supplementing the effects of diets, perhaps giving me the ability to reduce glucocorticoid dose.” **Fabio Procoli, DMV, MVetMed, DACVIM, Dipl ECVIM-CA, MRCVS**

Selection of fecal donors is another important application for DI as well as early diagnosis of chronic enteropathy in cases with waxing and waning, even mild, signs with a high DI where antibiotic use has been excluded.

Dr. Suchodolski: Do you use FMT in cats?

Dr. Procoli: Although we have slightly less experience than in dogs, we are using FMT in cats with good results, especially with antibiotic-induced dysbiosis. DI is a reliable marker for chronic enteropathy in cats as well.

Dr. Suchodolski: Do you use FMT routinely in chronic enteropathy cases?

Dr. Procoli: I use FMT routinely in a variety of cases from the antibiotic-induced GI signs with very high success rates to young early cases. When I use FMT in the very severe chronic enteropathy cases as part of a multimodal therapy, I often find FMT providing a boost, sometimes allowing me to reduce the immunosuppressive drugs.

FMT may help by modulating the microbiota. I think it also provides an immunomodulatory benefit by providing postbiotics. I sometimes see improvements within a few days.

“We are using FMT in cats with good results, especially with antibiotic-induced dysbiosis. DI is a reliable marker for chronic enteropathy in cats as well.” **Dr. Procoli**

Dr. Suchodolski: Do you find that you need to repeat the FMT?

Dr. Toresson: We often find that the more severe cases will do well and then relapse. We boost with a second FMT, and often the response persists longer. Some dogs require a top-up FMT every 3rd to 6th month to control the clinical signs.

In our retrospective FMT study,³ which is to date the largest study with the longest follow up, most dogs did not respond as well to the first FMT as they did to the second or third. So if you only give one FMT treatment, they may not become as clinically well as they could if you gave more.

Our FMT protocol now for chronic enteropathy is to give two treatments. If the pet responds, we give a third, because we have clinical experience of dogs that relapse quicker if we do not load them with at least three FMT. In the retrospective study, if the pet did not respond to FMT number two, and we gave them a third FMT, the pet did not respond to that either.

Recognizing that clinical severity does not always reflect severity of GI disease, I also consider the DI as a marker of severity and prognosis. If a pet has not had antibiotics and has a very high DI, that indicates to me that diet and FMT will likely not be enough. Animals with marked dysbiosis are usually more difficult to treat. There are exceptions, but usually those are dogs with structural changes in the gut, altered function, etc.

CHRONICITY

Dr. Suchodolski: In general, chronicity is likely underappreciated—when we think clinical signs have improved, but disease is still present. That is why so many dogs or cats have persistent dysbiosis and continue relapsing, correct?

Dr. Kathrani: Yes, and sometimes we do not realize that is happening. In cats, we found the presence of colonic fibrosis negatively impacted ability to go into remission and increased chances of dying from the gastrointestinal disease.

We are studying duodenal and colonic fibrosis in dogs. If we have similar results as we have shown in cats, then chronicity is a very important consideration when treating these cases, especially with diet trials. If you pursue different diet trials but in the background the inflammation is progressing, that ultimately may lead to fibrosis. Then it may be that no treatment will be effective at attaining remission. It is important that we develop markers or perform more research into ascertaining what is the best treatment for a particular patient, so we can begin treatment sooner to stop inflammation sooner and prevent fibrosis.

CORTICOSTEROIDS AND ANTIBIOTICS

Dr. Suchodolski: In cases where a corticosteroid is indicated, do you choose budesonide or prednisolone?

Dr. Procoli: I have growing experience with budesonide. It is now my first-reach therapy in large breed dogs with protein-losing enteropathy (PLE) that are refractory to diets. These comprise the majority of the case load where I reach for glucocorticoids.

The main advantage I see over prednisolone, particularly with the more conservative doses that we are now using, are fewer systemic side effects. In the past we would use 3 mg for a large dog. Now we are using 1 to 2 mg once a day. In a small or medium breed dog, we use 0.5 to 1 mg daily (compounded).

The previous studies used two fixed doses of either 2 or 3 mg and showed similar side effects as prednisolone. However, in my experience, it is dose dependent.

Dr. Toresson: If I need corticosteroids, budesonide is my first choice for large breed dogs (as budesonide is only available in 3 mg capsules in Sweden and some other European countries). Being a capsule formulation, budesonide is released in the ileum. If the issues are in the duodenum, budesonide may not be enough.

Dr. Suchodolski: Do you use immunosuppressives in a young pet?

Dr. Toresson: We usually do not use corticosteroids in young animals. It is not ideal because corticosteroids can interfere with growth.

I will always try FMT and other modalities first. However, in young pets where no other modality has helped, I will use corticosteroids but take intestinal biopsies first.

Dr. Procoli: It is surprising how often young dogs are receiving high doses of immunosuppressive drugs instead of diet trials.

High-dose glucocorticoids may often cause gastrointestinal tract lesions and contribute to clinical signs, especially in large breed dogs. Dogs may also exhibit loss of muscle condition and body weight that creates confusion in owners that think it is an indication of refractoriness to treatments.

Even more surprising is how commonly young dogs as well as cats are still receiving antibiotics.

I see pets prescribed corticosteroids or antibiotics in whom a gastrointestinal diet was not fed initially or not fed long enough to gauge response. I find many of these pets respond to diet or diet with a probiotic and/or FMT.

Dr. Suchodolski: Why should we avoid antibiotics for most chronic enteropathy cases?

Dr. Toresson: Antibiotics can have adverse and long-term effects. Considerable evidence exists in people. Cats are extremely sensitive, especially for dysbiosis. A study showed cats administered antibiotics at an early stage of life had an increased risk of developing chronic enteropathy and chronic diarrhea later in life. Thus, it is counterproductive to give antibiotics at an early age.

We also know that antimicrobial resistance can spread within households. Research has shown that people with a difficult profile of antimicrobial resistance genes may share that with their pets. Giving antibiotics to the pet increases the risk that children or fragile elderly people in the household can acquire antimicrobial resistance genes.

In dogs that respond to antibiotics, e.g., what is often called tylosin-responsive diarrhea, 100% of those dogs will relapse. We will not cure them. We may mask the clinical signs for a period of time, but signs will return. Antibiotics are not a solution for these animals.

I reach for antibiotics when we have signs of sepsis. Of course antibiotics play a role there, but not as a general treatment for chronic enteropathies.

Dr. Suchodolski: Does an elevated serum C-reactive protein indicate a need for antibiotics?

Dr. Toresson: No, it is only a marker of inflammation not bacterial infection.



“I reach for antibiotics when we have signs of sepsis. Of course antibiotics play a role there, but not as a general treatment for chronic enteropathies.”

Linda Toresson, DVM, PhD, Swedish Specialist in Small Animal Internal Medicine

BUDGET CONSTRAINTS

Dr. Suchodolski: What is your minimal database and first treatment for a pet with chronic enteropathy whose owner has limited funds?

Dr. Procoli: I try to stage disease severity. For a case that is not as severe, or clinical signs have not persisted for a very long time, and appetite is adequate, then I typically begin with diets rather than diagnostic tests. I try to postpone diagnostics because that accounts for the majority of costs.

Even in severe cases if I cannot perform diagnostics, to increase chances of achieving a clinical remission, I may try a multimodal approach rather than a sequential step-by-step approach.

Dr. Toresson: I would check albumin levels as one of our most important prognostic factors, cobalamin concentration if not previously measured or the animal is on supplementation, and cholesterol as a marker of fat malabsorption, and have a recent parasite testing. With only one fecal sample, you have a 70% chance of finding *Giardia*. But by checking one sample daily for three days, you have a 95% likelihood of finding it. I have multiple times found parasites even when the initial test was negative.

Without diagnostics, to try maximizing the response, I would both change the diet and administer an FMT.

CHAIR/MODERATOR:

Jan S. Suchodolski, MedVet, DrMedVet, PhD, AGAF, DACVM is Professor and Associate Director of the Gastrointestinal Laboratory at Texas A&M University. He is the Purina PetCare Endowed Chair in Microbiome Research.

PANELISTS

Ananda Portella Félix, MS, PhD is a Professor in the Department of Animal Sciences and Coordinator of the Research Laboratory on Dog Nutrition at UFPR. Dr. Félix's research focuses on the impact of ingredients and feed additives on gastrointestinal functionality and microbiome of dogs and cats.

Aarti Kathrani, BVetMed (Hons), PhD, DACVIM (SAIM, Nutrition), FHEA, MRCVS was a Senior Lecturer in Small Animal Medicine at the University of Bristol from 2016–2018 and is currently an Associate Professor of Gastroenterology, Internal Medicine, and Nutrition at the Royal Veterinary College.

Fabio Procoli, DMV, MVetMed, DACVIM, Dipl ECVIM-CA, MRCVS became Head of Internal Medicine at Ospedale Veterinario Portoni Rossi Anicura in Bologna in 2017 and is now Clinical Director. Dr. Procoli is President of the European Society of Comparative Gastroenterology.

Linda Toresson, DVM, PhD, Swedish Specialist in Small Animal Internal Medicine is a Senior Consultant in GI at the Evidensia Specialist Animal Hospital in Sweden and a post-doc at Helsinki University. Dr. Toresson's research interests include the intestinal microbiome, FMT, bile acid diarrhea, cobalamin deficiency, and the link between emotional stability and chronic enteropathies.

FOOTNOTES

¹ Adapted from the live broadcast of the Purina Institute Microbiome Forum Round Table 2025, First-Line Approach to GI Disease in Dogs and Cats, which is available on demand at [Microbiome Forum Round Table 2025](#).

² For more information on DI and how to perform an FMT, visit [Canine and Feline Microbiota Dysbiosis Index - Gastrointestinal Laboratory](#).

³ Toresson, L., Spillmann, T., Pilla, R., et al. (2023). Clinical effects of faecal microbiota transplantation as adjunctive therapy in dogs with chronic enteropathies—A retrospective case series of 41 dogs. *Veterinary Sciences*, 10, 271. doi: 10.3390/vetsci10040271



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