

# Your Pet's Gut Health: The Invisible Threat

Over 10% of pets now suffer from mysterious GI issues, with a groundbreaking index developed by Texas A&M offering new hope for early detection and treatment, changing the game for veterinary care.

Analysis by [Dr. Karen Shaw Becker](#)

## STORY AT-A-GLANCE

- Researchers at the Gastrointestinal Laboratory (GI Lab) at Texas A&M University's School of Veterinary Medicine and Biomedical Sciences recently developed and validated a Dysbiosis Index (DI) to assist veterinarians in assessing chronic GI dysfunction in dogs
- Dysbiosis (aka "leaky gut") describes a disruption in the gut microbiome, typically a reduction in microbial diversity characterized by a loss in beneficial bacteria; leaky gut syndrome can lead to a long list of GI and other disorders
- A primary cause of dysbiosis in dogs (and cats) is overuse of antibiotics; other contributors include an ultraprocessed diet, parasitic infections, and over-vaccination
- Successfully resolving dysbiosis in dogs involves addressing the diet and providing appropriate supplements; probiotics play a crucial role in both preventing and treating leaky gut syndrome and antibiotic-associated gastrointestinal side effects

Over 10% of all new veterinary visits are related to gastrointestinal (GI) issues in dogs and cats, according to the American Veterinary Medical Association.<sup>1</sup> It's important for veterinarians to determine whether these patients have acute or chronic GI dysfunction, which involves identifying abnormalities in the **gut microbiome**.

Toward that end, researchers at the Gastrointestinal Laboratory (GI Lab) at Texas A&M University's School of Veterinary Medicine and Biomedical Sciences<sup>2</sup> have developed a new diagnostic index to assist veterinarians in assessing chronic GI dysfunction in dogs. The index can also assist in diagnosing and treating GI disease in the future.<sup>3</sup>

*"For more than 20 years, we've been working on better understanding the microbiome and how it relates to health and disease," Dr. Jan Suchodolski, associate director of research for the GI Lab told AVMA.org. "A big challenge, until recently, is how do you define a normal or abnormal gut microbiome and how do you moderate it?"<sup>4</sup>*

## How the Digestive Process Works

Food digestion begins in your pet's mouth as she chews. When the food reaches her stomach, it mixes with hydrochloric acid and gastric juices. This mixture then travels to the small intestine where the pancreas secretes enzymes, and the gallbladder secretes bile to further assist digestion.

The chemical digestive process continues in the small intestine, where bacterial degradation takes place. Once the food is sufficiently broken down, the membranes of the intestinal mucosa absorb the smaller, simpler nutrients. The remaining food is either further digested and absorbed or moves into the large intestine where it's ultimately passed out of your pet's body as feces.

In order for this complex process to take place, the environment of your dog's GI tract must be healthy and fully functioning. The entire length of a healthy digestive tract is coated with just the right balance of bacteria to protect against foreign invaders, undigested food particles, toxins, and parasites.

However, if the gut bacterial balance gets thrown out of whack, the environment of the GI tract becomes unstable, which alters the process of digestion. The intestinal mucosa becomes inflamed and permeable, and begins to leak large, partially digested substances from food particles into the bloodstream.

These large complex substances are antigenic and allergenic, meaning they stimulate the immune system to produce antibodies against them. This is what sets the stage for leaky gut syndrome, aka dysbiosis.

## The Dysbiosis Index

The GI Lab researchers validated their Dysbiosis Index (DI) in August 2023 in the journal *Animals*.<sup>5</sup> They used the microbiomes of 296 dogs to demonstrate that the DI is an accurate tool to distinguish between acute and chronic GI dysfunction and also to detect non-GI disorders.

Dysbiosis (aka "leaky gut") is defined as "a disruption in the gut microbiome, typically a reduction in microbial diversity characterized by a loss in beneficial bacteria" (more about this shortly). The DI works by tracking the levels of various bacteria over time. Reference intervals allow researchers to evaluate how much the microbiome shifts. The tool accurately predicts the total shifts, as can be observed with DNA sequencing.

*"Chronic GI disease often is already present before clinical signs start," says Suchodolski. "So finding specific markers can tell us about the state of the organ. Clinical signs of GI disease can be mild, such as diarrhea or vomiting, or some can be signs of more severe dysfunction in the GI tract that's chronic."*

*Being able to better assess if the dysfunction is going to be long term is critical for veterinarians and clients when managing GI disease. The good news is that the majority of animals still respond with dietary modulation."*

Veterinary professionals don't often realize the long-term chronic changes that occur from GI disease, according to Suchodolski. Biomarker assessment is only one part of assessing GI health, and the GI tract should be treated as a whole system.

In the future, researchers hope to better understand additional and earlier markers, because the earlier they intervene, the more hope there is that the changes in the microbiome can be reversed.

## Gut Health Is Crucial to Overall Health

The microbiota (living microorganisms) in your pet's digestive system consists of bacteria, fungi, viruses, and protozoa, and there are an estimated 100 trillion of these microbial cells. They have an enormous influence on the health of your pet.

The right balance of intestinal microbiota is necessary to regulate the immune system, defend against opportunistic pathogens, and provide nutritional benefits. When an imbalance exists, meaning there are inadequate supplies of good bacteria, plus an overgrowth of bad bacteria and sometimes yeast, it can lead to dysbiosis and a long list of GI disorders and other, often seemingly unrelated diseases.

The most common cause of dysbiosis in veterinary medicine is the **overuse of antibiotics**. Antibiotics kill both good and bad bacteria, which upsets the healthy ratio of good-to-bad microorganisms and depletes the supply of friendly bacteria that keep the GI immune defenses strong and resilient.

Too many pets are given antibiotics these days, often at a very young age. These are either topical or oral antibiotics prescribed for minor conditions that can often be treated with natural substances.

To make matters worse, additional medications like corticosteroids such as prednisone or NSAIDs (nonsteroidal anti-inflammatory drugs) are administered along with antibiotics. These drugs exacerbate the gut problems created by the antibiotics.

Many of these same pets are also fed highly processed commercial diets containing a long list of preservatives and additives. The simple meat proteins in most of these diets have been altered by the extreme processing that pet food undergoes. They are usually combined with plant proteins and grains. The resulting mix is a brew of chemically altered proteins that are very difficult to digest, process, and assimilate.

Combine a poor diet with environmental stressors such as poor water quality and excessive chemical and drug exposure, and we've set the stage for many of the diseases we see in pets today.

Additional contributors to a leaky gut include ingestion of toxins, parasitic infections, vaccines (they stimulate gut-associated lymphoid tissue or GALT), and stress.

## Resolving Dysbiosis

Each case of dysbiosis is unique, so a customized healing protocol must be designed for each patient based on the animal's specific set of symptoms and underlying disorders.

It's very important to recognize that your dysbiotic dog has a very fragile immune and digestive system. A sudden change in diet or a harsh GI detox protocol could make him worse instead of better.

Sometimes we address diet first, and then begin working to heal the gut. Other times a better approach is to provide GI support before making any dietary changes. And then there are some pets who require a leaky gut protocol and a dietary change simultaneously.

Resolving dysbiosis involves addressing **food allergies** and intolerances, as well as any underlying nutritional deficiencies caused by malabsorption or inefficient digestion. Appropriate probiotics, digestive enzymes, and nutraceuticals should be given to help reduce inflammation in the GI tract.

## Probiotics and Dysbiosis

**Probiotics** are extremely important in the treatment of dysbiosis. They reseed your pet's gut with good bacteria and prevent an overgrowth of bad bacteria, which returns the intestine and mucosal lining to good health.

However, there are many different types of probiotics, each having its own merits and benefits. Some animals can't tolerate milk-based probiotics. Others can't tolerate probiotics derived from yeast cultures or even certain strains of non-dairy organisms, which is why it's important to work with a veterinarian who understands all of the different facets of dysbiosis.

Research suggests the conventional veterinary community is starting to embrace the idea that supplementation with beneficial bacteria in the form of probiotics can help pets regain and maintain gut health. For example:

- In two placebo-controlled studies, probiotics significantly shortened episodes of diarrhea in dogs with acute gastroenteritis.<sup>6,7</sup>
- Shelter cats given probiotics also had a significant decrease in the duration of diarrhea.<sup>8</sup>
- Dogs with moderate to severe inflammatory bowel disease (IBD) were given either probiotics or the drugs prednisone (corticosteroid) and metronidazole (antibiotic). While it took the dogs on probiotics about a week longer for their symptoms to resolve, both groups had similar remission rates.<sup>9</sup> In addition, only the dogs given probiotics showed enhanced T regulatory cell function and normalization of dysbiosis 30 days post-treatment.

Traditional veterinarians (and MDs) are also coming around to the realization that probiotics are an excellent way to prevent antibiotic-associated gastrointestinal side effects (AAGS). According to one study, AAGS is a problem for 5% to 39% of people, and up to 70% of children.<sup>10</sup>

Just a 7-day course of antibiotics can alter the **fecal microbiome** and increase bacterial resistance for at least 4 years,<sup>11</sup> and administration of probiotics is associated with about a three-fold decrease in AAGS in people.<sup>12</sup> And while the incidence of AAGS in pets isn't known, studies show that antibiotic therapy does indeed "derange" the microbiome of dogs and cats similar to its effect on humans.<sup>13</sup>

Veterinary researchers believe antibiotic-associated gastrointestinal side effects play a significant role in dogs and especially cats receiving antibiotics, who are much more likely to show a decrease in appetite, aversion to food, and vomiting.

In general, removing highly processed, high-stress foods from a sick pet's diet in favor of a balanced species-specific, low-stress diet, plus appropriate supplements to address inflammation and yeast, if necessary, and support of other organ systems including the liver and pancreas, can relieve symptoms, address the root cause of the leaky gut, and get the pet on the road to recovery.

## Sources and References

<sup>1,3,4</sup> [AVMA.org, January 16, 2024](#)

<sup>2</sup> [Texas A&M Gastrointestinal Laboratory](#)

<sup>5</sup> [Sung, C-H. et al. Animals 2023. 13\(16\), 2597](#)

<sup>6</sup> [Journal of Small Animal Practice, 2010 Jan;51\(1\):34-8](#)

<sup>7</sup> [Veterinary Therapeutics, 2009 Fall;10\(3\):121-30](#)

<sup>8</sup> [Journal of Veterinary Internal Medicine, Vol 25, Iss 4, July/August 2011, Pages 856-860](#)

<sup>9</sup> [PLoS One, April 10, 2014. Comparison of Microbiological, Histological, and Immunomodulatory Parameters in Response to Treatment with Either ...](#)

<sup>10,12</sup> [Alimentary Pharmacology & Therapeutics, 2012 Jun;35\(12\):1355-69](#)

<sup>11</sup> [PLoS One, March 24, 2010. Short-term antibiotic treatment has different long-term impacts on the human throat and gut microbiome](#)

<sup>13</sup> [BMC Microbiology, 2009 Oct 2;9:210](#)

---