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Dog Tips

A Win-Win Strategy for Soothing Your Anxious Pup

If your dog is feeling stressed for any reason, or may be kenneled or boarded soon, you won't want to miss this important discovery. In a study, 90% of dogs who received this treatment showed a reduction in overall anxiety, including improved cortisol levels and heart rates.

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Nov 23, 2022 • 7 min read

STORY AT-A-GLANCE

- Research demonstrates the benefits of probiotic supplements for stressed dogs; a 2012 study concluded the beneficial bacteria Bifidobacterium animalis helps reduce stress in dogs moved from their homes to kennels
- A study of dogs entering shelters showed that Bifidobacterium animalis is just as effective as antibiotics in treating severe diarrhea
- In a 2016 study, 90% of dogs receiving the beneficial bacteria Bifidobacterium longum showed a reduction in overall anxiety
- It's important to select a high-quality pet probiotic for stressed pets or ensure your dog consumes some fresh, unprocessed prebiotic foods that ideally include fermented foods that naturally contain beneficial bacteria

If you have a pup who's feeling stressed for any reason (including nutritional and antibiotic stressors), or who may be kenneled or boarded soon, you might want to consider probiotics, given all the scientific evidence of the benefits of friendly bacteria supplementation to the overall health of dogs.

The growing body of research includes a 2019 university study of 16 Beagles that showed adding the beneficial bacteria Bacillus subtilis to ultraprocessed dog food improves fat and carbohydrate digestibility in the gut and results in "higher quality" poop along with healthier levels of ammonia in the digestive tract.[1]

Dogs need beneficial bacterial to not only maintain healthy levels of friendly bugs in the gut, but also to discourage potentially pathogenic bacteria from overtaking the gastrointestinal (GI) tract. The digestive tract is the largest immune organ in the body, and home to a huge population of bacteria.

Because the digestive tracts of canines evolved to handle a significant bacterial load from the food they consume, your dog's GI tract must maintain a healthy level of good bacteria to keep populations of bad bacteria in check and prevent digestive issues and other health problems.

Studies show animals without colonies of friendly bacteria in their gut, or with a poor balance of good-to-bad gut bacteria, are at high risk of developing disease, and any type of emotional or physical stressor exacerbates that risk.

Probiotics vs. Antibiotics to Treat Stress Colitis

The standard treatment for stress colitis in adult shelter dogs includes anti-parasitic drugs and antibiotics. In fact, many veterinarians in private practice treat dogs with diarrhea and other GI issues "off label" with the antibiotic metronidazole. These drugs put the GI tract under additional physiological stress and eliminate beneficial bacterial colonies, which can prevent full recovery and prolong symptoms and suffering.

In addition, overuse of antibiotics in veterinary medicine has resulted in the widespread problem of highly resistant strains of deadly bacteria.

Researchers at North Carolina State University's College of Veterinary Medicine conducted a study to compare the use of probiotics vs. metronidazole to treat acute diarrhea caused by stress colitis in shelter dogs.[2] The researchers examined the dogs, recorded their weights and body scores, and ran blood, urine and fecal tests. The dogs were randomly selected to receive either a probiotic containing Bifidobacterium animalis or metronidazole to treat the diarrhea.

There were 50 dogs total — 25 received the probiotic and 25 received the antibiotic. At the end of the study, 11 dogs treated with metronidazole were unresponsive, and were then given the probiotic. The fecal scores of all three groups of dogs (including those that didn't initially respond to the metronidazole) improved approximately 2-fold. Even the parasite-infected dogs showed the same level of improvement at the end of treatment.

Based on the fecal score data, study researchers concluded the probiotic "… is an equally effective treatment to the traditional antibiotic regime for the treatment of acute diarrhea in shelter dogs." The researchers further acknowledged that, "Antibiotic-treated dogs with limited improvement appeared to benefit significantly from subsequent probiotic treatment."

Probiotics as a Treatment for Anxiety

A 2016 study addressed the emotional and behavioral changes in dogs receiving a supplement containing the beneficial bacteria Bifidobacterium longum.[3]

The study involved 24 anxious Labrador Retrievers who were fed the same balanced diet for 15 weeks. For the first six weeks, 12 dogs received the probiotic supplement and the other 12 were given a placebo. During weeks 7 through 9, none of the dogs received the probiotic or a placebo (this is called a washout period). Then the same 12 dogs received probiotics for the final six weeks of the study.

The researchers evaluated certain behaviors linked to anxiety, such as barking, spinning, and pacing. They also tracked the dogs' cortisol levels and heart rates to determine stress levels.

The dogs who received the probiotic supplement showed a reduction in anxious behaviors and other signs of stress, and their cortisol levels and heart rates also improved. In fact, 90% of the supplemented dogs appeared to be less anxious overall. In addition, 83% had lower salivary cortisol measures and improved heart rate variability, and 75% also had lower average heart rates.

This is due in part to a growing body of research that suggests the health of an animal's GI tract affects overall physical well-being, which makes perfect sense when you consider that up to 80% of your pet's immune system is located within the GI tract.

Interestingly, studies show that GI health also affects a pet's psychological well-being and behavior. There's an important relationship and bidirectional communication between the GI tract and the brain — it's called the gut-brain axis. Research suggests the flora (microbiota) present in the digestive tract can affect moods and vice versa.

Probiotics May Alleviate Kenneling Stress

Stress and anxiety can trigger a variety of physical and behavioral problems in pets. In a 2012 study, researchers evaluated the use of probiotic supplements to reduce stress-related digestive problems in 134 healthy dogs who were moved from their homes to a kennel.[4]

The dogs were separated into four groups, three of which received different doses of the beneficial bacteria Bifidobacterium animalis. The dogs in the fourth or control group did not receive a probiotic supplement.

Before the study began, all 134 dogs were gradually transitioned to the same diet. The dogs in the three test groups received a daily probiotic supplement for five weeks before being moved to the kennel, and for 20 days after the move.

The researchers tracked the dogs' fecal scores based on the appearance of the poop, the number of times they pooped per day, and the bacterial population in the poop. They also tracked serum cortisol levels to determine the dogs' stress levels.

The study results showed higher levels of probiotic bacteria populations in the three groups of dogs who received the supplement. The concentrations of bacteria suggested they were dose-responsive, meaning they were the result of supplementation.

The dogs who received the highest doses of probiotics had larger populations of friendly bacteria in their poop than the dogs who received weaker doses. In addition, fewer dogs given the supplement had "unacceptable" poop (too runny or too dry) during their first week in the kennel.

The researchers concluded the probiotic supplement "… supported optimal stool production and may help to prevent stress-related gastrointestinal upsets and diarrhea" in dogs who've been recently relocated and kenneled.

Additional Dog-Friendly Beneficial Bacteria Strains

The above studies explore just a few of many beneficial bacteria strains that work to create a healthy balance in your dog's GI system. Others that have proved beneficial for dogs (and cats) include:

- Bifidobacterium lactis
- Streptococcus thermophilus
- Lactobacillus acidophilus
- Saccharomyces boulardii
- Bifidobacterium bifidum
- Enterococcus faecium
- Lactobacillus casei

- Lactobacillus rhamnosus
- Lactobacillus plantarum
- Lactobacillus bulgaricus
- Bifidobacterium breve
- Bacillus sporogenes

If your pet is physically, emotionally, or pharmaceutically stressed (or will be dealing with an upcoming stressor) and you're considering a probiotic supplement, avoid human probiotics, and probiotics added to commercial pet food. Probiotic formulas used by humans were developed specifically to fortify the bacterial species found in the human GI tract.

Pets have specific strains of bacteria unique to them, so they do best with a rotation of probiotic strains suited for their own species. Emerging research suggests soil-based sporebiotics and microbiome transplants may also be more beneficial for animals with chronic gut issues, including vomiting, diarrhea, inflammatory bowel disease (IBD) or irritable bowel syndrome (IBS) than probiotic supplements, which can exacerbate cases of bacterial overgrowth.

New research shows "sterile filtrates" of dead probiotic metabolites may actually be safer and better suited for seriously debilitated humans and dogs: the theory they must be alive no longer holds, but the strain and the concentration do (and giving the same dead strain over and over feeds small intestinal bacterial overgrowth (SIBO), so it's still not recommended to give food with the same strains repeatedly).

I now recommend rotating between at least 3 brands of probiotics to avoid SIBO, unless you're just giving them for a year following antibiotic therapy. If your pet has been diagnosed with SIBO, a specific type of prebiotic bacteriophage designed to kill E. coli can also curative.[5]

In essence, my recommendation now is to give supplements if you've given your dog antibiotics. Otherwise, give lots of different live foods that feed the microbiome.

Regardless of what you feed, and especially if you only feed kibble, rotate through prebiotic-rich whole food toppers and a variety of supplements (both soil and bacteria based), not committing to one brand and nothing in perpetuity. If you make nutritionally complete homemade food, rotate recipes frequently, incorporating a wide variety of veggies and fruits.

If you buy commercially available pet food, rotate brands and proteins at least 4 times a year. When it comes to gut health, we'll be learning, unlearning, and relearning for the foreseeable future as we unravel the amazing complex gut mysteries in our pets.

In a nutshell, using specific pet probiotic supplements with a variety of beneficial strains to rebuild a decimated microbiome after stressors is a wise idea. If your goal is to avoid dysbiosis or you're looking to build a strong, resilient microbiota, using food as medicine is the best approach.

If your goal is to fortify your dog's already healthy gut or you want to prevent gut issues from occurring, start by diversifying the diet, including increasing the number of microbiome-building fresh foods you're using as treats, or adding as toppers to the bowl.

Prebiotic fibers found in low glycemic, raw produce help naturally build your dog's microbiome, and can be included in whatever he's currently eating (up to 10% of his calories a day). Some of my favorite fresh foods to nourish the microbiome are:

- Apiaceous vegetables (carrots, cilantro, parsnips, fennel, celery, parsley)
- Dandelion greens
- Jerusalem artichoke
- Brussels sprouts
- Okra
- Fermented vegetables
- Broccoli sprouts
- Asparagus
- Avocado (no pit or skin)
- Culinary and medicinal mushrooms
- Cruciferous vegetables
- Green bananas
- Chicory vegetables (endive, escarole, radicchio)
- Jicama
- Nori/seaweed

Offering these nourishing foods pureed or minced as meal toppers (or as training treats throughout the day) is a great way to build a resilient gut in your pup.

Ideally, your dog should receive most of her nutrients and beneficial bacteria from fresh, whole foods. Research shows that swapping even 20% fresh food for ultraprocessed kibble can make a notable difference in gut health. If your pet consumes mostly processed food, consider adding some fermented veggies, since they not only provide a wider variety of beneficial bacteria than probiotic supplements, but also far more of them.

Finally, maximizing your dog's time outside exposed to unsprayed, healthy soil, is one of the best (and cheapest) ways to help rebalance the external and internal microbial terrain.

Sources and References

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