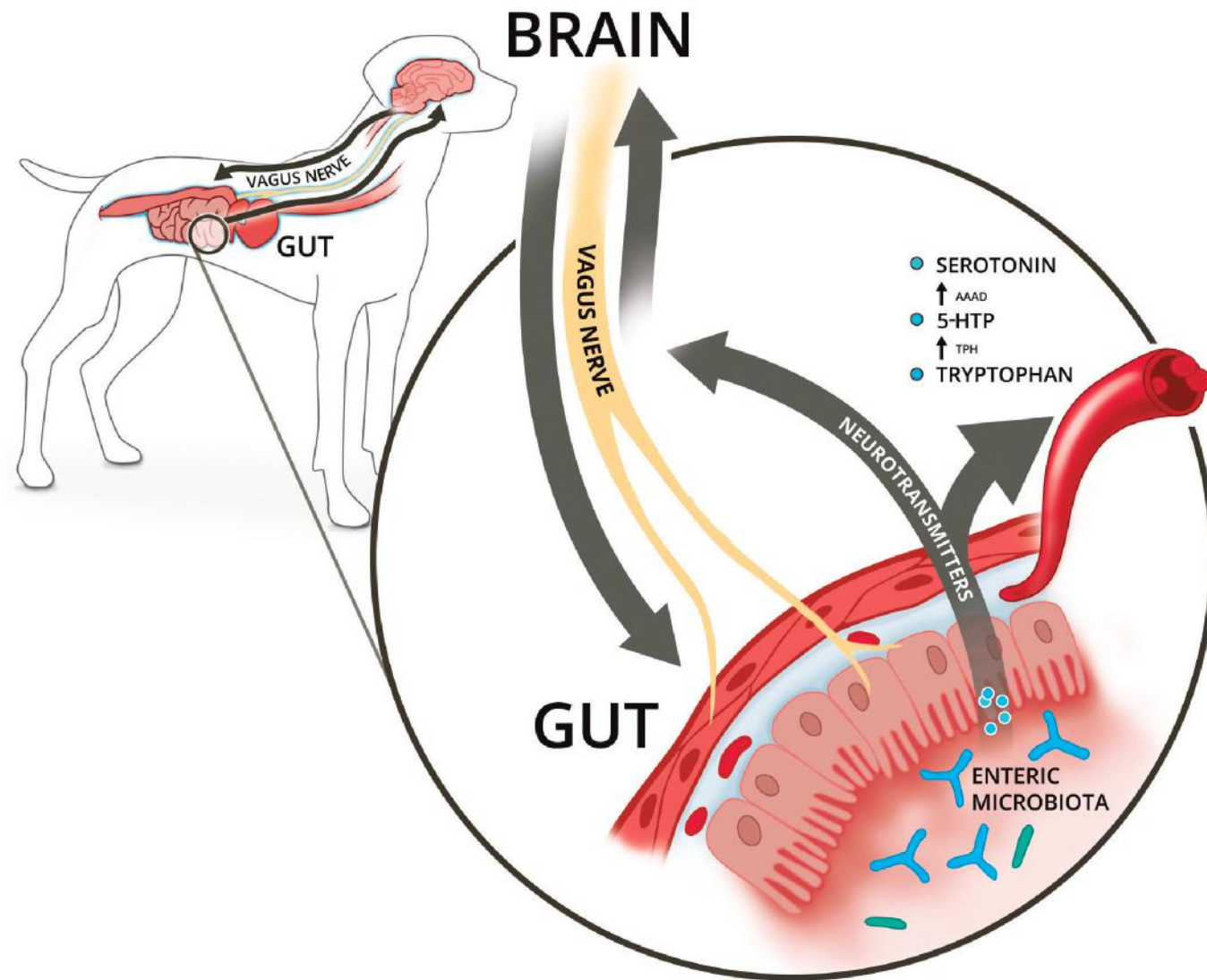


PROPOSED MECHANISM OF ACTION

The various routes of communication that exist in the brain-gut-enteric microbiota axis include the central nervous system, neuroendocrine and neuroimmune systems, the sympathetic and parasympathetic arms of the autonomic nervous system, the enteric nervous system and the intestinal microbiota.⁴



Harnessing the Power of Probiotics

Nestlé Research in Lausanne, Switzerland was a pioneer in the field of probiotics when it opened in 1987. It was one of the first research centers in the world to look at the interaction of probiotic bacteria with intestinal cells. Since then, Nestlé has published over 260 articles on its probiotic research.

For more information, visit www.PurinaProPlanVets.com or call us at 1-800-222-VETS (8387), 8:00 am to 4:30 pm CST, Monday-Friday.
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PURINA[®]
PRO PLAN[®]
VETERINARY
SUPPLEMENTS

Calming Care



Proprietary use of probiotic strain BL999 to help dogs maintain calm behavior



Improvement shown in dogs displaying anxious behaviors such as excessive vocalization, jumping, pacing, and spinning

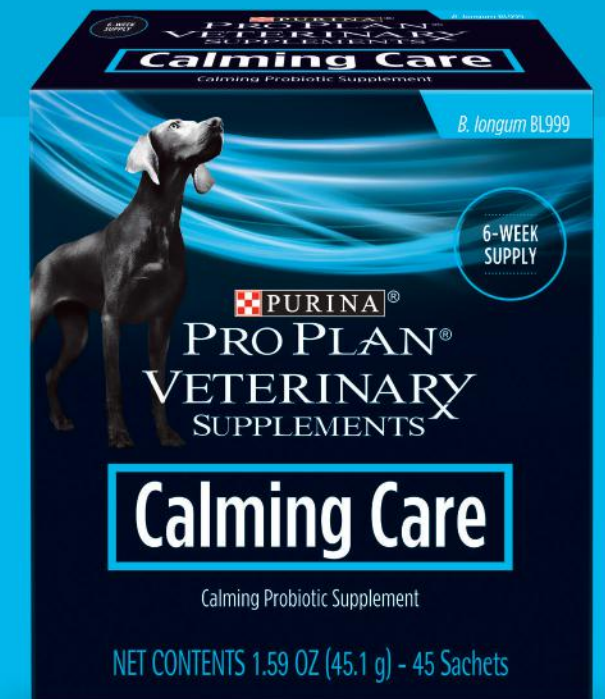


Helps dogs maintain positive cardiac activity during stressful events

- Helps blunt cortisol response to anxious events and supports a healthy immune system

MEDICAL INDICATION

- ✓ Canine Anxiety



EXPLORING CANINE ANXIETY

INDICATION OVERVIEW

In an online survey, owners reported signs consistent with fear or anxiety in

29% of dogs.¹

Signs may include **pacing, reluctance to accept treats, excessive barking, and panting.**

DIETARY MODIFICATION

Diet-related changes in **gut-microbiota influence the brain** via the gut-brain axis and may, in turn, **influence behaviors including anxiety.**

POTENTIAL PHYSIOLOGICAL EFFECTS OF CANINE ANXIETY²

If anxious dogs are living in a state of chronic physiological stress, this can:

Cause gastrointestinal distress or contribute to inflammatory bowel disease

Suppress the immune system

Cause integumentary problems such as pyoderma or pruritus

Negatively impact the reproductive system



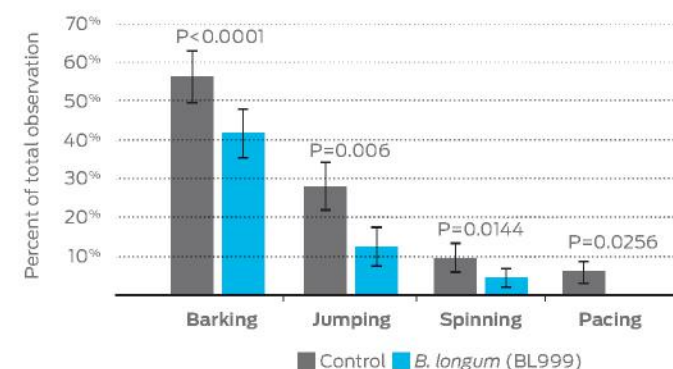
PURINA® PRO PLAN® VETERINARY SUPPLEMENTS CALMING CARE CANINE

RESEARCH AND RESULTS³

THE SCIENCE THAT SETS US APART

RESULTS: GENERAL BEHAVIOR

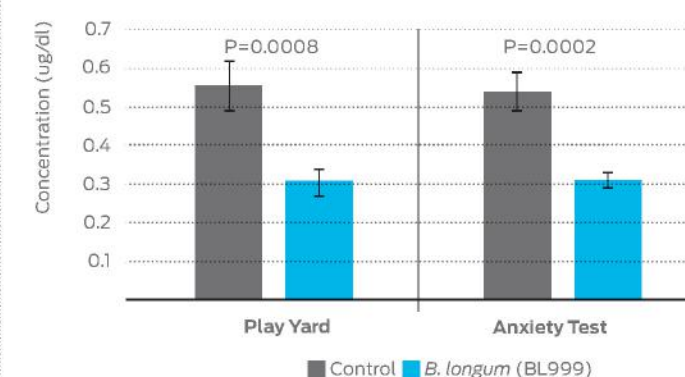
PERCENT OF SCANS WHERE PROBLEM BEHAVIOR WAS OBSERVED



Significant impact of BL999 on dogs displaying day-to-day anxious behavior (including significant reductions in barking, jumping, spinning and pacing) when supplemented with BL999 as compared to a placebo.

RESULTS: SALIVARY CORTISOL

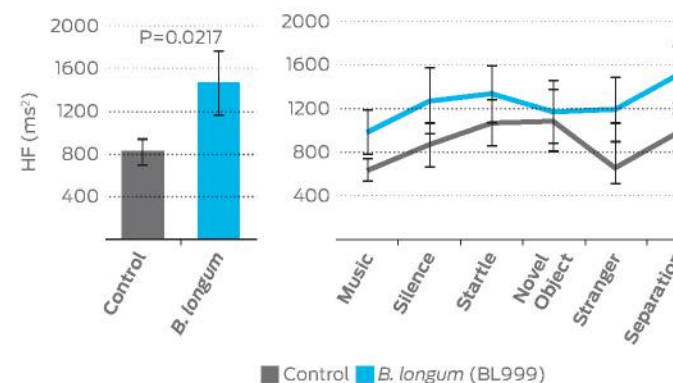
SALIVARY CORTISOL CONCENTRATION AFTER EXERCISE AND ANXIETY TEST



Dogs showed increased exploratory behavior in a novel environment and had reduced salivary cortisol concentrations in response to both exercise and anxiety inducing stimuli when supplemented with BL999 as compared to a placebo.

RESULTS: HEART RATE VARIABILITY

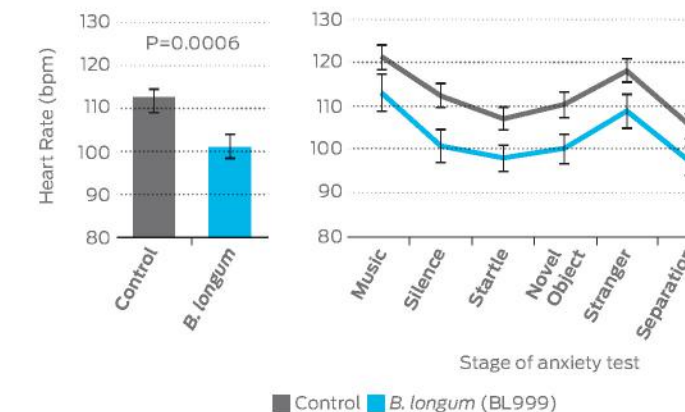
ESTIMATE OF VAGAL TONE DURING ANXIETY TEST



When considering cardiac activity, dogs showed a decrease in heart rate and an increase in heart rate variability, indicating a more positive response to anxiety-inducing stimuli when supplemented with BL999 compared to a placebo.

RESULTS: HEART RATE

MEAN HEART RATE DURING ANXIETY TEST



1. Denenberg, S., Landsberg, G. M., Blizzard, T. (2013). Prevalence of Fearful and Anxious Behaviors in Dogs in the United States. *Proc of the ACVB/AVSAB Veterinary Behavior Symposium*. Chicago, 50-51. In an online survey of 1201 owners of 1960 dogs using multiple answer format.
2. Dreschel, N. A. (2010). The effects of fear and anxiety on health and lifespan in pet dogs. *Applied Animal Behaviour Science* (2010), 157-162.

3. Trudelle-Schwarz McGowan, R. Tapping into those gut feelings: impact of BL999 (*Bifidobacterium longum*) on anxiety in dogs. *ACVB Symposium* 2018.
4. S. Grenham, G. Clarke, J. E. Cryan, T. G. Dinan (2011). Brain-gut-microbe communication in health and disease *Front. Physiol.*, 2, 1-15.