

PURINA®
PRO PLAN
VETERINARY
SUPPLEMENTS®

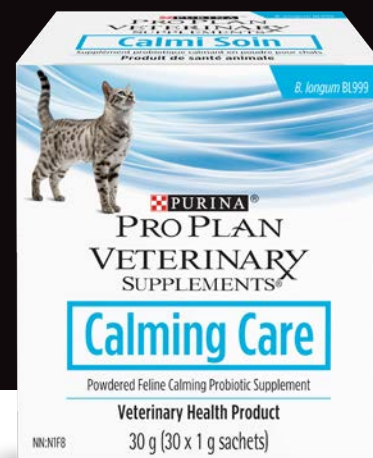
Calming Care

Powdered Canine and Feline Probiotic Supplement



Medical Indications (Canine and Feline):

- Anxiety
- Fear
- Stress



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



Improvement shown in 90% of dogs displaying anxious behaviours 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



Proprietary use of probiotic strain BL999 to help cats maintain calm behaviour



Improvement shown in cats displaying anxious behaviours such as pacing



Helps promote positive behaviours such as playing and seeking out social contact



Helps blunt cortisol, a marker of stress, and supports a healthy immune system

EXPLORING CANINE & FELINE ANXIETY

INDICATION OVERVIEW

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

29% of dogs.¹

SIGNS MAY INCLUDE

- ✓ PACING
- ✓ EXCESSIVE BARKING
- ✓ RELUCTANCE TO ACCEPT TREATS
- ✓ PANTING



POTENTIAL

PHYSIOLOGICAL EFFECTS

OF CANINE & FELINE ANXIETY²

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

- ✓ Inappropriate elimination
- ✓ Gastrointestinal disturbances
- ✓ Skin disorders/increased grooming
- ✓ Decreased appetite
- ✓ Disrupted social interactions
- ✓ Changes in physical activity



DIETARY MODIFICATION

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

PURINA® PRO PLAN VETERINARY SUPPLEMENTS® CALMING CARE

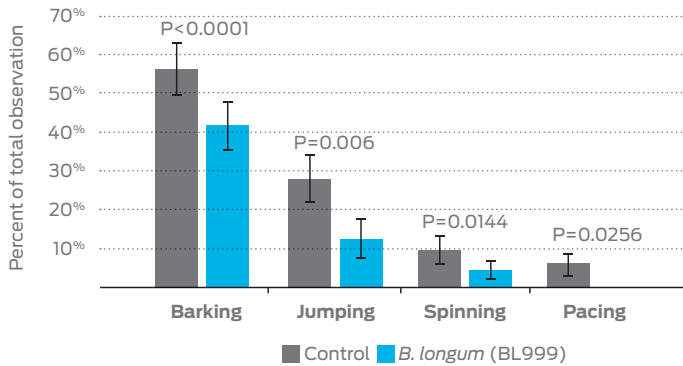
RESEARCH AND RESULTS

THE SCIENCE THAT SETS US APART



RESULTS: GENERAL BEHAVIOUR

PERCENT OF SCANS WHERE PROBLEM BEHAVIOUR WAS OBSERVED

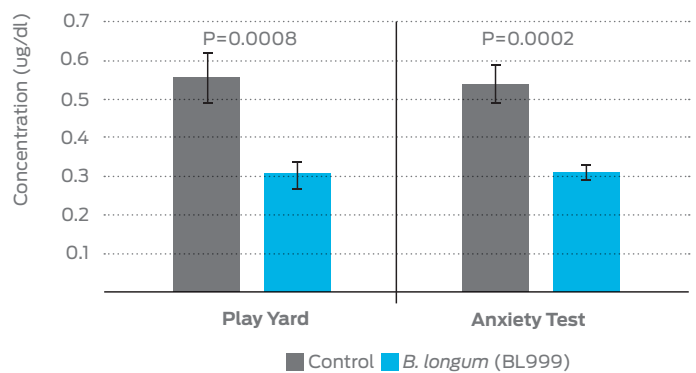


Significant impact of BL999 on dogs displaying day-to-day anxious behaviour (including significant reductions in barking, jumping, spinning and pacing) when supplemented with BL999 as compared to a placebo.³



RESULTS: SALIVARY CORTISOL

SALIVARY CORTISOL CONCENTRATION AFTER EXERCISE AND ANXIETY TEST

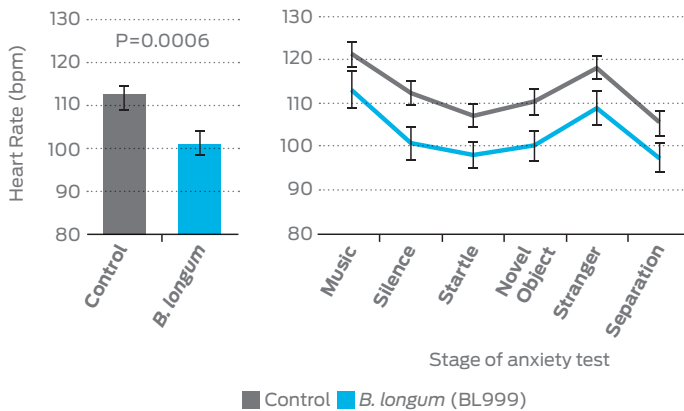


Dogs showed increased exploratory behaviour in a novel environment and had reduced salivary cortisol concentrations in response to both exercise and anxiety-inducing stimuli when supplemented with BL999 as compared to a placebo.³



RESULTS: HEART RATE

MEAN HEART RATE DURING ANXIETY TEST

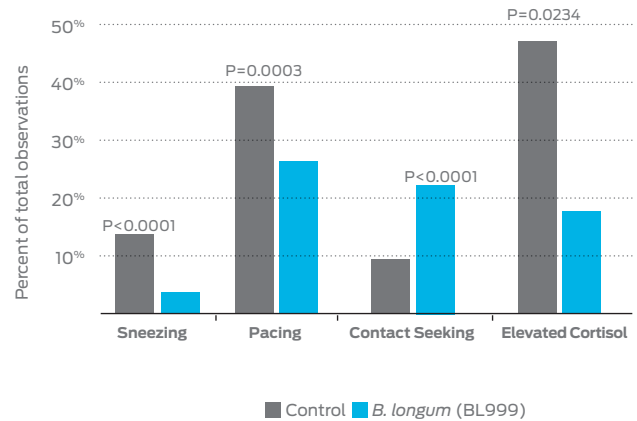


When considering cardiac activity, dogs showed a decrease in heart rate, indicating a more positive response to anxiety-inducing stimuli when supplemented with BL999 compared to a placebo.³



RESULTS: GENERAL BEHAVIOUR

PROPORTIONAL COMPARISONS OF CATS SUPPLEMENTED WITH BL999 OR CONTROL AND SUBJECTED TO MILD STRESS FROM CHANGE IN HOUSING



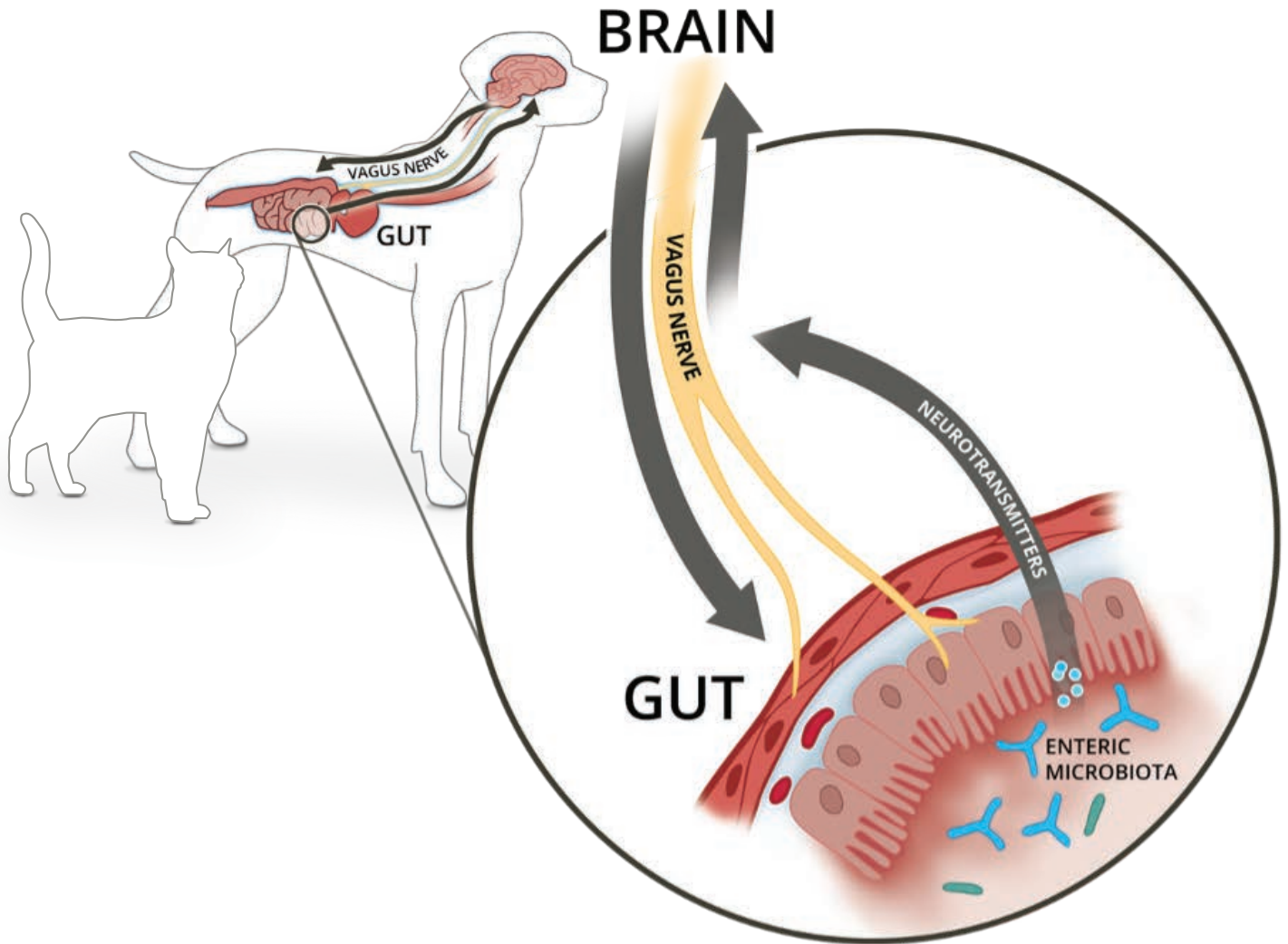
During the stress periods, cats supplemented with BL999 were significantly less likely to have sneezing associated with reactivated FHV-1, to have abnormal serum cortisol concentrations, and to pace in cages, and were more likely to reach out to the scorers through the cage bars as compared to placebo.⁴

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. Seksel, T. (2014). Stress and Anxiety - How Do They Impact the Pet? *Proc of the 39th Congress of the World Small Animal Veterinary Association*. Cape Town, South Africa.

3. Trudelle-Schwarz McGowan, R. Tapping into those 'gut feelings': impact of BL999 (*Bifidobacterium longum*) on anxiety in dogs. *ACVB Symposium 2018*.
 4. Davis H., Franco P., Gagné J., et al. Effect of *Bifidobacterium longum* 999 supplementation on stress associated findings in cats with feline herpesvirus 1 infection. *ACVIM Forum 2021 Proceedings*.

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.⁵



5. Grenham, S., Clarke, G., Cryan, J. F., Dinan, T. G. (2011). Brain-gut-microbe communication in health and disease. *Front. Physiol.*, 2, 1-15.

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 300 articles on its probiotic research.

For more information, visit www.ProPlanVeterinaryDiets.ca or call us at 1-866-884-VETS (8387).

Have a Case consult? We are here to help. Contact our Canadian Veterinary Resource Centre at canadavetconsult@purina.nestle.com

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