

HOT TOPIC

Probiotics



In focus

Probiotics offer many benefits, but with so many options available, pet owners may not know how to select the best quality and most appropriate one for their pet's needs.

The Purina Institute provides the science to help you take the lead in conversations about nutrition.

let's
takeback
the conversation.

Learn more about the power of nutrition at
PurinaInstitute.com

Why would my pet need probiotics?

The intestinal tract – or gut – is home to trillions of bacteria that can have a huge impact on overall pet health.¹ An imbalance in bacterial populations can affect the body's immune system, lead to digestive disorders, inflammation of the intestines or diarrhea.^{2,3} The gut microbiota can even affect brain development and behavior.⁴ Probiotics are live bacteria that can help to shift gut microbiota toward more beneficial bacterial species, helping maintain an optimal balance.

“The World Health Organization defines probiotics as **“live microorganisms that, when administered in adequate amounts, confer a health benefit on the host.”**”⁵

Common causes of imbalanced gut bacteria



Antibiotics



Stress



Age



Illness



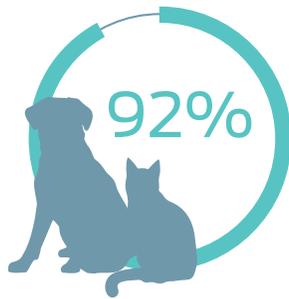
Diet change

How do probiotics work?

The most important immune-related function of the “good” bacteria is to protect from infection by harmful bacteria.⁶ The beneficial bacteria in probiotics prevent potentially pathogenic bacteria from flourishing by competing for space, secreting antibacterial substances, nourishing gut cells, and creating a more acidic environment that is unfavorable for pathogens.²

Maintaining an optimal balance of “good” and “bad” bacteria also improves fecal quality and can reduce flatulence.⁶ Beyond the gut, probiotics can also have positive impacts on behavior, helping anxious dogs maintain calm behavior.⁷

A Purina study on the effects of a strain of *Bifidobacterium longum* on anxiety in dogs resulted in significantly less anxious behaviors such as barking, jumping, spinning and pacing. Additionally, 83% of dogs studied had lower levels of cortisol, and 75% had lower heart rates.⁷



OF VETERINARY PROBIOTICS STUDIED DID NOT DELIVER WHAT THEIR LABEL DESCRIBED.⁹

Of the numerous probiotic products available for use, many do not contain the particular strains or quantity of Colony-Forming Unit (CFU) stated on the label. A CFU represents one bacterial cell and is the unit of measurement used to estimate the number of live, viable bacteria in a product. A 2011 study at the University of Guelph evaluated the labels and bacterial contents of 25 veterinary probiotic products and found only two of the 25 products delivered what the label described, highlighting the importance of choosing a reliable product.⁹

How do I know if a probiotic is good?

Probiotics are extremely strain-specific, and different strains within the same species can have very different health effects. Probiotics are also dose-dependent, therefore, clinical research is needed to establish the correct required amount of a particular strain of bacteria.

To be effective, studies should demonstrate that a particular probiotic:

- Remains live and viable until the time of consumption
- Is resistant to digestion by the stomach acids and intestinal enzymes
- Reduces or prevents the adherence of pathogenic bacteria in the gut
- Produce products that are unfavorable to the growth of “bad” bacteria
- Promotes normal and balanced bacterial populations in the gut
- Is safe for the pet
- Enhances the overall health of the pet⁸

Is it better to have more bacteria, or more strains of bacteria?

Probiotic effectiveness is very strain-specific and dose-dependent. Different strains within the same species of bacteria can provide very different health effects, so blending them may not always be complementary and careful research needs to be done to ensure they do not work against each other.^{10,11} It is also important to consider that more CFU on the label of a product may not mean it is more effective, unless there is research showing the benefits of using a higher dosage. It is key that a product deliver the right dosage of a single, or blend of, probiotic proven by research to be effective for specific health concerns (i.e. diarrhea, general GI upset, anxiety, etc.).¹²

References

1. Sender, R., Fuchs, S., & Milo R. (2016). Revised estimates for number of human and bacteria cells in the body. *PLoS Biology*, 14(8):e1002533. doi:10.1371/journal.pbio.1002533
2. Kelly, M. The Role of Probiotics in GI Tract Health, Nestlé Purina Petcare, Purina ProPlan Veterinary Diets.
3. Ng, S.C., Hart, A.L., Kamm, M.A., Stagg, A.J., & Knight, S.C. (2009). Mechanisms of action of probiotics: Recent advances. *Inflammatory Bowel Diseases*, 15, 300–310. doi:10.1002/ibd.20602
4. Wiley, N.C., Dinan, T.G., Ross, R.P., Stanton, C., Clarke, G., & Cryan, J.F. (2017). The microbiota-gut-brain axis as a key regulator of neural function and the stress response: Implications for human and animal health. *Journal of Animal Science*, 95, 3225–3246.
5. World Health Organization (WHO) & Food and Agriculture Organization of the United States (FAO). (2006). *Probiotics in food: Health and nutritional properties and guidelines for evaluation*. (ISSN 0254-4725)
6. Czarnecki-Maulden, G.L., Kelly, M.R., & Cline, J.L. *The -Otics: Pre and Probiotics...What are they? Are they useful in your practice?* Nestlé Purina Petcare, Checkerboard Square, St. Louis, MO.
7. McGowan, R.T.S. (2016). *Oiling the brain or cultivating the gut: Impact of diet on anxious behavior in dogs*. Proceedings of the Nestlé Purina companion Animal Nutrition Summit, March 31-April 2, Florida, 91–97.
8. Rolfe, R.D. (2000). The role of probiotic cultures in the control of gastrointestinal health. Proceedings of the Probiotic Bacteria: Implications of Human Health Symposium. *Journal of Nutrition*, 130, 396S–402S. doi:10.1093/jn/130.2.396S
9. Weese, J.S., & Martin, H. (2011). Assessment of commercial probiotic bacterial contents and label accuracy. *The Canadian Veterinary Journal = La revue vétérinaire canadienne*, 52, 43–46.
10. Kekkonen, R.A., Kajasto, E., Miettinen, M., Veckman, V., Korpela, R., & Julkunen, I. (2008). Probiotic. *Leuconostoc mesenteroides ssp. cremoris* and *Streptococcus thermophilus* induce IL12 and IFN- γ production. *World Journal of Gastroenterology*, 14, 1192–1203.
11. Viljanen, M., Kuitunen, M., Haahela, T., Juntenen-Backman, K., Korpela, R., & Savilhati, E. (2005). Probiotic effects on faecal inflammatory markers and on faecal IgA in food allergic atopic eczema/dermatitis syndrome infants. *Pediatric Allergy and Immunology*, 16, 65–71.
12. Sanders, M.E. (2008). Probiotics: Definition, sources, selection, and uses. *Clinical Infectious Diseases*, 46, S58–S61. doi:10.1086/523341