



幼犬

# 为幼犬发育中的免疫系统提供支持

在幼犬出生时, 其免疫系统具有一定的功能性, 但尚未发育成熟。特定营养素可以为幼犬发育中的免疫系统提供支持, 并有助于增强免疫应答, 帮助抵御疾病或感染。



重要信息

## 抗氧化营养素：

- 与其他细胞相比, 免疫细胞产生的自由基 (可导致损伤的不稳定分子) 更多, 并且易于遭受破坏和氧化损伤。
- 抗氧化营养素 (如维生素 E、 $\beta$ -胡萝卜素、维生素 C、叶黄素、类黄酮、锌和硒) 有助于保护免疫细胞免受自由基损害, 并帮助发育中的免疫系统对疫苗接种产生最佳反应。

## 牛初乳：

- Purina 研究表明, 喂食初乳中所含的生物活性物质和抗体可在任何生命阶段提供免疫益处。
- 研究发现, 以初乳喂养的成年犬表现出对犬瘟热病毒疫苗接种更强且更长的免疫应答, 6 个月后抗体水平增加 50%。

您知道吗？

70% 的免疫系统位于肠道中。

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## 重要信息 (续)

### 益生菌：

- 益生菌是有助于维持肠道细菌最佳平衡的活体微生物。益生菌可促进更健康的免疫功能，多年来一直应用于解决动物因饮食、应激和抗生素治疗而表现出的功能紊乱问题，帮助维持和恢复健康的肠道微生物群。

### 益生元：

- 益生元属于可溶性纤维，是促进肠道有益菌生长的营养来源。益生元也能为肠道本身的健康提供支持。宠物食品中含有的益生元包括纯化菊粉、小麦糊粉和菊苣根。

### 更多资源

Case, L. P., Daristotle, L., Hayek, M. G., & Raasch, M. F. (2011). *Canine and feline nutrition* (3rd ed.). Mosby. doi:10.1016/B978-0-323-06619-8.10025-8

Jean-Philippe, C. Beneficial effects of dietary colostrum supplementation in kittens, *Nestlé Purina Scientific Update on Feline Nutrition*, 4, 1–8.

Satyraj, E., Reynolds, A., Pelker, R., Labuda, J., Zhang, P., & Sun, P. (2013). Supplementation of diets with bovine colostrum influences immune function in dogs. *British Journal of Nutrition*, 110(12), 2216–2221. doi:10.1017/S000711451300175X

#### Nestlé Purina Probiotic SF68 Studies:

Benyacoub, J., Czarnecki-Maulden, G. L., Cavadini, C., Sauthier, T., Anderson, R. E., Schiffrin, E. J., & von der Weid, T. (2003). Supplementation of food with *Enterococcus faecium* (SF68) stimulates immune functions in young dogs. *Journal of Nutrition*, 133(4), 1158–1162.

Bybee, S. N., Scorza, A. V., & Lappin, M. R. (2011). Effect of the probiotic *Enterococcus faecium* SF68 on presence of diarrhea in cats and dogs housed in an animal shelter. *Journal of Veterinary Internal Medicine*, 25(4), 856–60. doi:10.1111/j.1939-1676.2011.0738.x

Fenimore, A., Martin, L., & Lappin, M. R. (2017). Evaluation of metronidazole with and without *Enterococcus faecium* SF68 in shelter dogs with diarrhea. *Topics in Companion Animal Medicine*, 32(3), 100–103. doi:10.1053/j.tcam.2017.11.001

Lappin, M. R., Veir, J. K., Satyaraj, E., & Czarnecki-Maulden, G. L. (2009). Pilot study to evaluate the effect of oral supplementation of *Enterococcus faecium* SF68 on cats with latent feline herpesvirus 1. *Journal of Feline Medicine and Surgery*, 11:650–654.

Simpson, K. W., Rishniw, M., Bellosa, M., Liotta, J., Lucio, A., Baumgart, M., & Bowman, D. (2009). Influence of *Enterococcus faecium* SF68 probiotic on giardiasis in dogs. *Journal of Veterinary Internal Medicine*, 23(3):476–481. doi:10.1111/j.1939-1676.2009.0283.x

Torres-Henderson, C., Summers, S., Suchodolski, J., & Lappin, M. R. (2017). Effect of *Enterococcus faecium* strain SF68 on gastrointestinal signs and fecal microbiome in cats administered amoxicillin-clavulanate. *Topics in Companion Animal Medicine*, 32(3), 104–108. doi:10.1053/j.tcam.2017.11.002

Veir, J. K., Knorr, R., Cavadini, C., Sherrill, S. J., Benyacoub, J., Satyaraj, E., & Lappin, M. R. (2007). Effect of supplementation with *Enterococcus faecium* (SF68) on immune functions in cats. *Veterinary Therapeutics*, 8(4), 229–238.

Waldron, M., Kerr, W., Czarnecki-Maulden, G. L., & Davis, J. (2012). *Supplementation with Enterococcus faecium SF68 Reduces Flatulence in Dogs*. Presented at the International Scientific Congress of the European Society of Veterinary and Comparative Nutrition, Bydgoszcz, Poland.

#### Nestlé Purina Prebiotic Studies:

Patil, A. R., Czarnecki-Maulden, G., & Dowling, K. E. (2000). Effect of advances in age on fecal microflora of cats. *Federation of American Societies for Experimental Biology Journal*, 14(4), A488.

Patil, A. R., Carrion, P. A., & Holmes, A. K. (2001). Effect of chicory supplementation on fecal microflora of cats. *Federation of American Societies for Experimental Biology Journal*, 15(4), A288.

Czarnecki-Maulden, G. L. (2001). Microflora and fiber in the GI tract: Helping the good guys. *Veterinary Forum*, 18(9), 43–45.

Czarnecki-Maulden, G. (2000). The use of prebiotics in prepared pet food. *Veterinary International*, 2(1), 19–23.

Czarnecki-Maulden, G. L., & Russell, T. J. (2000a). Effect of chicory on fecal microflora in dogs fed soy-containing or soy-free diets. *Federation of American Societies for Experimental Biology Journal*, 14(4), A488.

Czarnecki-Maulden, G. L., & Russell, T. J. (2000b). Effect of diet type on fecal microflora in dogs. *Federation of American Societies for Experimental Biology Journal*, 14(4), A488.

Purina Institute 提供易于掌握的科学信息，帮助宠物活得更长寿、更健康，促进人们在讨论宠物健康时将营养放在第一位。