Depending on the strain of bacteria, probiotics have several possible modes of action:
- Competition for nutrients and adhesion sites
- Alteration of microbial metabolism
- Stimulation of the immune system
- Direct antimicrobial effect

Probiotic supplements must be non-pathogenic, non-toxic and not be able to transfer antibiotic resistance and instead maintain genetic stability.

In order to reach the intestinal tract in adequate numbers, probiotics must be able to survive transit time through the acidic environment of the stomach and persist in the presence of bile.

Prebiotics
Prebiotics are defined as ‘a non-digestible food source that beneficially affects the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon, and thus improves host health’.

Already present in the intestinal system of all animals and humans, probiotics are necessary for the digestion of nutrients and the balance of the intestinal microflora. Since 70% of the immune system originates in the digestive tract, a balanced microbial ecosystem is crucial for optimal health.

Research
Probiotics have proven helpful in providing preventative and supporting care for both humans and pets. Probiotics are useful both in the prophylactic approach to antibiotic-associated diarrhea and in the treatment of diarrhea induced by antibiotic treatment. Other studies have shown positive effects on the immune system.

Probiotics
Probiotics are defined as ‘a live microbial feed supplement which beneficially affects the host animal by improving its intestinal microbial balance’.

Pre- and probiotics in pet food

There is a growing awareness of probiotics and their health benefits. They offer an advantage especially to animals exposed to stress, infections, during weaning, illness and old age. Prebiotics stimulate the growth and/or activity of bacteria in the colon, improving host health. This focus on preventative healthcare is driving a growth in so-called ‘functional foods’ for pets.
For a food ingredient to be classified as a prebiotic it must be:
1. neither hydrolysed nor absorbed in the upper part of the intestinal tract
2. a selective nutritional source for non-pathogenic bacteria, stimulating the growth and/or activity of those microorganisms
3. stimulating local or systemic effects beneficial to the host’s health
4. able to promote a healthier composition of the colonic microflora (3)

Most prebiotics used in pet-food are non-digestible carbohydrates, such as inulin. These complex carbohydrates are able to resist the stomach acid and therefore reach the large intestines intact, where probiotic bacteria ferment them. Prebiotics also help to reduce pH in the large intestine thanks to the production of fatty acids, thus promoting the growth of probiotics (3 and 13).

Pet food containing pre- and probiotics
Based on the growing awareness of probiotics and their health benefits, a new group of pet foods has emerged – so-called ‘functional’ foods. Functional foods are defined as ‘foods that contain some health-promoting components beyond traditional nutrients‘ (7). Functional foods are consumed as part of a normal everyday diet and are not classified as supplements (4). One way to modify foods to become functional is by adding probiotics (7).

When providing nutritional supplements for pets, compliance with legislation is important. Thus, many manufactures are producing pet foods containing probiotics. Since probiotics are not drugs, there are fewer regulations regarding their use as supplements and food additives. Various studies are reporting poor quality control with probiotic products. A significant percentage of products either does not contain the organisms or the number of organisms stated on the label, or they contain additional species (12). Based on several tests and studies, there seems to be a great difference in the quality of probiotic pet foods (5 and 12).

The focus on preventative healthcare and probiotics in general will continue to grow, which means more products will emerge. Probiotics improve general health in animals, but offers an advantage especially to animals exposed to stress, infections, during weaning, illness and old age. Thus, the rationale for adding probiotics to pet foods seems well justified. However, it remains important to be aware of the quality of the product.

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