

# A Closer Look at Synbiotics

## A Powerful Combination of Prebiotics and Probiotics

When it comes to the gut microbiota, sometimes it's not only *what* you are feeding a patient, but also *how* bacteria and certain ingredients can work together in a beneficial way. **Synbiotics** are a mixture of prebiotics and probiotics that benefit the host by improving the survival and implantation of live beneficial bacteria in the gastrointestinal tract.<sup>1,2</sup> This is achieved by selectively stimulating the growth of beneficial bacteria to help maintain gut health.<sup>1,3</sup>

The World Health Organization defines **probiotics**<sup>2,5</sup> as "live microorganisms that when consumed in adequate amounts confer a health benefit on the host."<sup>4</sup>

- Modification of gut microbiota
- Compete with pathogenic bacteria for binding to gut mucosa
- Strengthening of gut epithelial barrier
- Modulation of host immune system
- Production of short-chain fatty acids

The health benefits of probiotics are strain specific. The probiotic strain *Enterococcus faecium* SF68®, found in FortiFlora® and FortiFlora® SA Synbiotic Action, has been shown to support the gastrointestinal, immune, and general health of cats and dogs.

**Prebiotics**, such as psyllium, are non-digestible carbohydrates that are selectively fermented by beneficial bacteria in the colon. Prebiotics may promote growth and metabolic activity of beneficial bacterial species.<sup>1,2</sup> This may improve microbial balance in the gastrointestinal (GI) tract and promote production of butyrate, the primary fuel source for colonocytes.<sup>2,3</sup>

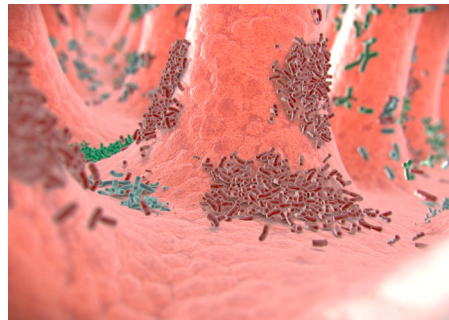
**Butyrate**, the short-chain fatty acid, may confer the following GI benefits:<sup>2,6,7</sup>

- Increase absorption of water and electrolytes
- Enhance mucosal blood flow
- Nourish gut epithelium to promote cell turnover
- Enhance mucosal size and stability through increasing microvilli size
- Reduce microbial adhesion of pathogenic bacteria
- Anti-inflammatory action to increase healing after an insult and decrease gut permeability
- Enhance immune system function
- Improve fecal quality and odor

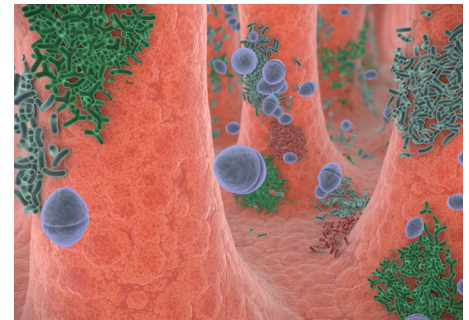
**Psyllium** is a prebiotic which has soluble and insoluble properties.



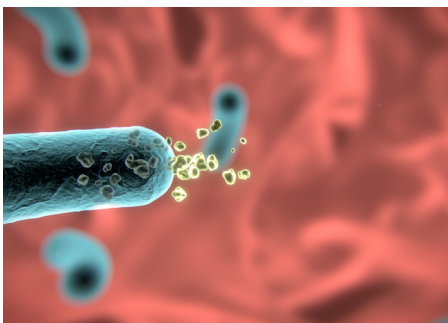
Maintaining a balance of beneficial and potentially pathogenic microorganisms is important to good health.



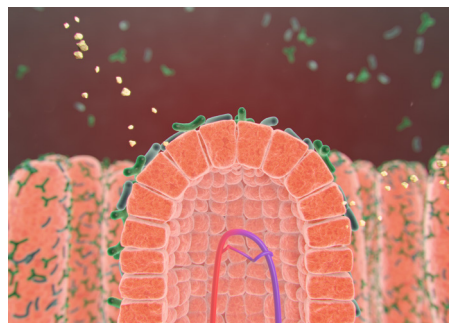
Shifts in microflora balance can lead to increased numbers of pathogenic bacteria, creating a dysbiosis.



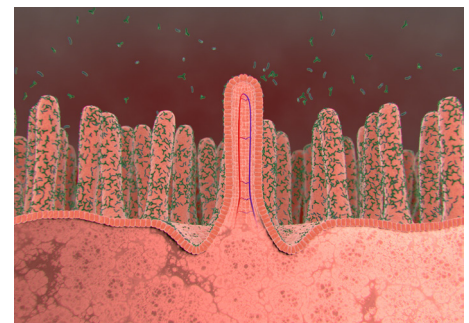
Probiotics can help restore the intestinal microbial balance.



Beneficial bacteria ferment prebiotics and produce short-chain fatty acids, including butyrate.



Butyrate is the primary energy source for colonocytes.



Benefits include increased surface area for better nutrient absorption and cellular turnover.

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4. Food and Agriculture Organization and World Health Organization. *Probiotics in food: Health and nutritional properties and guidelines for evaluation*. FAO, 2006.

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