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Department of Human Nutrition



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Facts and functions of prebiotics, probiotics and synbiotics

In recent years, health benefits associated with probiotics and prebiotics have piqued the curiosity of consumers. Many are questioning “how does ingesting live bacteria improve my health?”

Probiotics are live microorganisms with nearly 20 known species. The live and active bacteria (*Lactobacilli* and *Bifidobacteria*) found in foods such as yogurt, cottage cheese, buttermilk or other cultured dairy products are considered probiotics and may be the most familiar. Many consumers may not yet be familiar with **prebiotics** (inulin, fructo-oligosaccharides, polydextrose, arabinogalactan, lactulose, and lactitol), the non-digestible carbohydrates that promote the growth of “good” bacteria, also called probiotics, living inside the gut.

Digestion of food and absorption of nutrients primarily occur in the small

intestines. However, the non-digestible carbohydrates (prebiotics) found in onions, whole grains, bananas, garlic, honey, leeks, artichokes, fortified foods and beverages, and dietary supplements are able to pass through the small intestine intact and thereby able to enter the large intestines to stimulate the growth of the body’s own natural bacteria (probiotics) living inside the colon. Since vitamins, minerals and water are absorbed in the large intestines, prebiotics have been shown to increase the absorption of calcium and magnesium from the colon. Also, some researchers proposed that prebiotics may have a positive effect on the immune system and may decrease the risk for colorectal diseases.

Prebiotics serve as a food source for probiotics. The probiotics feed off the prebiotics and increase in number. Different probiotics have different actions in the gut. Each probiotic species

provides a distinctive health benefit. Therefore, an increase in the number of probiotics positively impacts the digestive system by improving digestive health such as reducing the symptoms of irritable bowel syndrome and inflammatory bowel diseases (e.g. Crohn’s disease); promoting regularity; reducing the growth of harmful bacteria; synthesizing vitamins (primarily B vitamins); decreasing lactose intolerance; improving serum cholesterol levels; and decreasing the risk of certain cancers.

Synbiotics are products that contain both probiotics and prebiotics. These products have the “good” bacteria (probiotics) and the non-digestible carbohydrate source (prebiotics) to encourage the growth of beneficial bacteria. Fermented dairy products (yogurt and kefir) are synbiotic because they contain live bacteria and the food source needed for them

to thrive. Without its food source, a probiotic would have a difficult time surviving in the digestive system because it cannot tolerate oxygen, low pH and temperature.

The most common synbiotic combinations available include *Bifidobacteria* and fructo-oligosaccharides (FOS), *Lactobacillus* GG and inulins, and *Bifidobacteria* and *Lactobacilli* with FOS or inulins.

Although benefits associated with prebiotics and probiotics are favorable, researchers are cautious about drawing firm conclusions because benefits vary, depending on type and amount of pre- and probiotic consumed. Therefore, more human studies need to be done to provide a better understanding of their direct effect on health.

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To find out more, call toll-free 1-888-369-4777.

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