

A Healthy Lifestyle With Probiotics and Prebiotics

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This publication describes prebiotics and probiotics and their health benefits.

Probiotics

Probiotics are live microorganisms that when administered in adequate amounts provide a beneficial health effect in humans.

The idea of food with microorganisms purposely added to the food seems startling since there is an emphasis on omitting microorganisms that cause food-borne illness from food.

Where did the idea of probiotics come from?

Probiotics have a long history. The Old Testament suggested that Abraham lived long and healthy because of consuming sour milk (it contains live microorganisms). In the 20th century, Russian scientist Elie Metchnikoff suggested Bulgarian peasants lived long and healthy lives because they consumed yogurt containing live bacteria.

Are microorganisms harmful?

Many bacteria are not harmful to us. In fact, our bodies carry about 100,000,000,000,000 (1×10^{12}) bacteria, mostly in our colon. They live and grow there and help strengthen our immune system. There are, however, harmful bacteria that cause infections, even disease. Probiotic bacteria are “good bacteria” that may help fight off harmful bacteria in our gastrointestinal (GI) tract.

Interesting Fact

The good bacteria are so abundant in our body that they make up 2 to 3 pounds of human body weight.

Are probiotics “safe?”

In general, probiotic bacteria are comprised of *Lactobacillus* and *Bifidobacterium* species. Probiotics are safe; they are deemed GRAS (generally recognized as safe) status by the Federal Food and Drug Administration.

Interesting Facts

Bifidobacteria are normal components of breast milk which keep the infant’s GI tract healthy. Lactobacillus is used to make cheese.

Do foods with added probiotics have active, living microorganisms?

Some probiotics are active and some are inactive in food products. Non-active probiotic bacteria are manufactured as dried bacteria that are stable and dormant. They will grow only when they reach the moist environment in the body. On the other hand, active probiotic bacteria are cultured in some food products such as yogurt.

What are the benefits of consuming probiotics?

Benefits of consuming probiotics are:

- **Reduce allergy conditions**
Exposing children to microbes before 6 years old may help the immune system tolerate allergens in later life.
- **Reduce cancer risk**
Rats fed fermented milk have a lower incidence of chemically induced tumors. One human study demonstrated that the group with bladder cancer consuming a probiotic had a longer recurrence-free period than the control bladder cancer group.
- **Reduce diarrhea incidence**
A paper in a 2002 Journal of Pediatrics concluded that *Lactobacillus* is safe and effective as a treatment for children with acute infectious diarrhea.
- **Reduces the risk of stomach ulcers**
Helicobacter pylori is the bacteria that causes stomach ulcers. Probiotics can reduce the metabolic activity of *H. pylori* bacteria and decrease the side effects of the antibiotic used to eradicate this bacteria.
- **Relieve symptoms of Irritable Bowel Syndrome**, with symptoms of diarrhea, gas, bloating, abdominal pain, cramps and/or constipation.

- **Reduce hypertension**
Fermented milk contains gamma-amino butyric acid which may decrease systolic blood pressure 10 to 20 mm Hg.
- **Strengthen immune system**
Animal and some human studies have demonstrated that probiotics (yogurt or lactic acid bacteria) enhance the level of certain immunoreactive cells like lymphocytes. Probiotics also enhance regulation of immune factors like cytokines and immunoglobulins.
- **Reduce kidney stone incidence**
High levels of oxalate are associated with a higher risk for kidney stones. Patients fed probiotics demonstrated less oxalate in their fecal excretion, suggesting probiotic bacteria may reduce oxalate absorption.
- **Good for the lactose intolerant**
Lactose intolerant individuals can consume fermented dairy products with fewer symptoms. Yogurt helps digestion because the lactic acid bacteria in yogurt break down lactose (milk sugar) before reaching the intestines.
- **Treat vaginosis**
Lactobacilli dominate a healthy vagina, and a lack of this microorganism is a risk factor for vaginosis. Positive effects have been reported when strains of *Lactobacilli* in yogurt were given to women with vaginosis.
- **Staying healthy**
Studies have demonstrated even healthy people can benefit from consuming probiotics. Results of these studies show a reduce incidence of cold, infections, and absences from work and day care centers.

Finding probiotic products

Probiotics have a long history associated with fermented dairy products. Common products are yogurt and some types of milk (cultured milk, acidophilus milk). Other examples of foods containing probiotics are miso, tempeh, sauerkraut, sourdough bread, salami, and some juices and soy beverages. Probiotics can be purchased in supplemental (tablet) form as well.

Prebiotics

A prebiotic is a nondigestible food ingredient that beneficially affects the host by selectively stimulating growth of beneficial bacteria in the colon.

What are benefits of consuming foods with prebiotic compound?

A research study confirmed that specific prebiotics (such as non-digestible oligosaccharides) enhance calcium absorp-

tion. Two preliminary studies suggest that prebiotics improve the human immune system and resistance against infections. Prebiotics also may help inhibit the growth of lesions in the GI tract and reduce the risk factors involved in colorectal diseases.

Are there any side effects from consuming prebiotics?

People who consume prebiotics may experience flatulence, stomach cramps, and discomfort in the GI tract, due to the gas released from fermenting prebiotics. However, the symptoms reported are very mild and usually occur when high amounts of prebiotics are consumed, such as 14 to 15 grams per day.

How may prebiotic products be identified?

Read the ingredient label for these terms: inulin, fructooligosaccharides (FOS), polydextrose, arabinogalactan, lactulose, or lactitol.

What foods have prebiotics?

Prebiotic compounds, such as inulin, are naturally found in a wide variety of foods like whole grains, onions, bananas, garlic, honey, leeks, and artichokes.

Food manufacturers may add prebiotic ingredients in fortified foods, beverages, dietary supplements, and some processed foods. When prebiotic ingredients are added to foods, they increase the fiber content of the product.

Interesting Fact

Prebiotics are added to increase the fiber content of foods; inulin and oligofructose are commonly added in the range of 3 to 6 grams per serving size.

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