**Probiotic**

The concept of probiotic is the colonization of beneficial bacteria in the intestinal tract, promoting efficient functioning of digestion, helping prevent digestive upsets, and stimulating and maintaining the natural immunity of the body. Probiotic bacteria are normal inhabitants of the intestines and are normally found in the healthy gut of all humans. Probiotics are living organisms that are found naturally in foods such as [yogurt](https://www.bbcgoodfood.com/glossary/yogurt), [kimchi](https://www.bbcgoodfood.com/glossary/kimchi), [sauerkraut](https://www.bbcgoodfood.com/glossary/sauerkraut), [miso](https://www.bbcgoodfood.com/howto/guide/health-benefits-miso) and kefir. They are known as ‘good’ or ‘friendly’ bacteria as they compete for space and food against harmful bacteria and prevent them from settling in the gut.

**Why Take Probiotics Food?**

If you consume a perfectly balanced diet without a lot of processed products and lead a stress free life, probiotics may not be required as a supplementary aid to maintain your general health and immunity. However, in today’s world, we encounter stress every day from our environment and from the foods we eat. In addition, we also tend to consume many different forms of chemicals such as antacids, antibiotics, food to consume many different forms of chemicals such as antacids, antibiotics, food additives, alcohol and other foods and drugs that may eventually lead to a disturbance and reduction in the concentrations of beneficial bacteria without our gastrointestinal tract.

By the age of two or three, most children have developed some degree of intestinal balance and a fairly effective immune system. However, as we age, environmental and nutritional factors very often disturb this balance and create the need for probiotic supplementation. The result is *dysbiosis,* a disruption of the microflora and an increased susceptibility to potentially pathogenic bacteria. Dysbiosis may be caused when we are subjected to stressors such as the following-

1. Antibiotic therapy, Anti-inflammatory Steroids or Chemotherapy
2. Changes in food and water normally associated with travel
3. Hormonal fluctuations around puberty, during menstruation, preganancy, post natally or during menopause

**Composition of Probiotics (microorganisms)**

Lactic acid bacteria (*Lactobacilli,Streptococci* and *Bifidobacteria*), constitute the probiotic currently used preparations. These three genera have been shown to be important components of the gastrointestinal microflora, which are all relatively harmless. It has been shown in recent experiments that administrations of *Escherichia coli* to infants can prevent the colonization of the gut by the antibiotic resistant strains of *E.coli.*  A probiotic preparation may contain one or several of the different strains of bacteria.

***Lactobacilli*** – Fermented food and dairy products like yogurt contain the species of *Lactobacilli.* There are three types of *Lactobacilli,* including *Lactobacillus plantarum, Lactobacillus casei*, and *Lactobacillus sporogenes.* According to the Environmental illness resource, the benefits that *Lactobacilli* can provide preventing and treating diarrhea caused by antibiotics, prevention of vaginal and urinary tract infections, prevention of overgrowth of bacteria like *H. pylori, Salmonella* and *E. coli* and help with digestion of lactose products. In addition to these benefits, *Lactobacillus sporogenes* has also been shown to reduce LDL cholesterol levels, which is the “bad” cholesterol, and raise HDL cholesterol levels, making it a supplement for treating high cholesterol levels and heart disease.

***Bifidobacteria –*** The most common kind of intestinal bacteria found in infants include *Bifidobacteria.* As individuals get older, the level of the bacteria decreases, and they can naturally found occurring in the vagina as well as the intestines. The most commonly bacteria in humans include *Bifidobacteria infantis, Bifidobacteria breve, Bifidobacteria adolescentis* and *Bifidobacteria pseudocatenulatum.* The group of *Bifidobacteria* contains several kinds of probiotics, all of which are beneficial. These probiotics help to protect the intestinal lining, they produce acids to pH in the intestine balanced, they help decreases side effects of antibiotics, ensures regular bowel movements, and helps build B-complex vitamins.

***Streptococcus thermophilus-*** The most important lactic acid bacteria for commercial purposes, typically used as a starter culture for dairy foods other than yogurt, like mozzarella cheese is *Streptococcus thermophilus.* This bacterium is known to help an individual with malnutrition, resulting due to fasting. It reduces intestinal atrophy from short-term fasting and also possess anti-oxidant properties. This probiotic prevents nitrates from changing into nitrates that are known to cause cancer and has shown to protect the intestines from mucositis during chemotheraphy treatment.

**Types of probiotic foods-**

1. Yogurt
2. Kefir
3. Sauerkraut
4. Tempeh
5. Kimchi

**Health benefits of Probiotic food are-**

1. **Stimulation of immunity-** An optimum balance of the microflora is maintained by the use of probiotics in order to stimulate and maintain the natural immune system of the host. It has been observed that when probiotics are used regularly, the enhanced immune effects helps prevent illness.
2. **Direct antimicrobial effect-** Bacteriocins are known to be produced by many species of lactic acid bacteria. Also, the production of organic acids by these organisms can either have a direct effect or operate by reducing the pH of the gut, thus displaying an antimicrobial effect.
3. **Improvement in digestion-** Enzymes help in the breakdown of polysaccharides such as carbohydrates, thereby ensuring enough of nutrient flow is governed by the presence of the probiotics, which act effectively in the production of the requisite enzymes. The microflora also helps ferment the carbohydrates which have not been digested in the upper gut and produce vitamins which are a secondary source to the host.
4. **Competition for Adhesion Sites-** Most intestinal pathogens rely on adhesion to the gut wall. Adhering to adhesion sites along the gut wall is an important factor in colonization to prevent the pathogenic forms from being swept away by peristaltic movement of the food along the gastrointestinal tract.

One of the most important functions of these probiotic is to help prevent or limit the growth and colonization of potentially pathogenic bacteria such as *E.coli, Salmonella, Listeria, Campylobacter* and *Clostridia* within the gut caused by the pathogenic bacteria, thus preventing efficient digestion and ineffective nutrient absorption with the gut and may result in diarrhea or vomiting. When the gut microflora are well balanced with the beneficial microorganisms, colonizing the gut helps reduce the risk of pathogenic.

Reference

1. William C Frazier, Food Microbiology, Fifth Edition, McGraw Hill Education (India) Private Limited.