

## Probiotics – The Health Friendly Gut Bacteria

Probiotics (dietary supplements of living bacteria), Prebiotics (dietary supplements of substrates preferentially fermented by certain gut bacteria) and Synbiotics (combination of prebiotics and probiotics) continue to elicit interest both from medical professionals and public.

Our gut flora, which comprises of more than 100 trillion bacteria, plays a major role in maintaining good health. It provides a barrier against harmful pathogenic bacteria, aids digestion by promoting the assimilation and absorption of food, builds immune responses and hence augments the host's ability to resist infections. While majority of these activities are beneficial, some of them may lead to the formation of toxic, cancerous substances and thus may have a negative impact on health. The nature of these activities is determined by the composition of the gut flora which consists of both beneficial and harmful organisms. For a state of healthy well being, it is important to ensure that the beneficial bacteria are present in adequate numbers – not only enough to promote well being but also to overcome the adverse effects of harmful pathogenic bacteria.

We start our life with a relatively healthy intestinal tract. Factors such as irregular food habits, indiscriminate use of antibiotics, stress, environmental pollution etc, all influence the composition and metabolic activities of the gut flora thus creating an imbalance. Soon the harmful organisms outnumber the beneficial ones making us more vulnerable to ill health and disease.

Nutrition plays an important role in influencing and altering the composition of the gut flora. Fermented foods such as sour milk and cultured dairy products containing beneficial bacteria have been consumed regularly as a part of the human diet

since the Vedic times, and especially all over India. The health benefits of Probiotics, however, first came to light when Nobel laureate Dr. Ellie Metchnikoff, a Russian biologist and, the father of Modern Immunology, published the book "Prolongation of Life". He observed that the reason behind the longevity of Bulgarian peasants was the consumption of large quantities of cultured food, especially yoghurt. He postulated that the growth of lactic acid bacteria in the intestines displaced the harmful disease causing organisms, reduced the production of toxins and thus improved health. These foods were rich in lactic acid bacteria such as *Lactobacillus bulgaricus* and *Streptococcus thermophilus* which helped to maintain the friendly bacteria that live in the gastrointestinal tract.

Although the consumption of curd and fermented milk drinks have nutritional benefits and may alleviate lactose intolerance, their inability to reach the intestines live limits their potential to significantly altering the gut flora. Dr. Metchnikoff's findings however sparked much interest in the science of using living micro-organisms to improve health and so came into being probiotics or bacteria for good health.

Probiotics are defined as "live micro-organisms that confer a health benefit on the host when consumed in adequate amounts (WHO/FAO)." Probiotic bacteria should be safe for consumption, reach the intestines alive in large numbers and impart specific health benefits to the host. These bacteria should maintain the balance of the intestinal flora by altering favorably the gut environment in such a manner that the growth of friendly beneficial bacteria are promoted and harmful disease causing organisms are inhibited.

Some of the commonly used probiotic bacteria include *Lactobacillus*, *Bifidobacteria* and the yeast *Saccharomyces boullardii*. Apart from their use as drugs, they are most commonly used in the form of probiotic dairy products and probiotic fortified foods. Today, there is emerging evidence that

probiotics offer innumerable benefits to the host by alleviating symptoms of lactose intolerance(1). They are also known to prevent acute diarrhea, traveler's diarrhea(2,3), antibiotic associated diarrhea(4,5), Rotaviral diarrhea(6), etc. Research has also shown that probiotics help to prevent the recurrence of cancers especially bladder and colorectal cancers(7,8). Research is underway to evaluate their role in regulating blood pressure, lowering cholesterol and reducing obesity in adulthood. However, probiotics don't work the same in everyone. Probiotics may be more effective in older people than in younger ones since more mature bellies may have fewer good bacteria. There is also some evidence that genetic factors — that is, how much good and bad bacteria you have in your gut — can affect your reaction to probiotics.

The consumption of probiotic dairy products to help lead a healthy life is a well accepted concept globally. In India too, with the growing interest in self care and optimum health at all ages' recognition of a link between diet and health has never been stronger. As a result, a spurt of health foods including probiotics has made their foray into the market. While the optimism associated with the use of these foods is undeniable, it is often counter balanced by the fact that this area has been highly unregulated from the scientific point of view. Guidelines governing the labeling of probiotics, such as indicating the species, strain and the number of bacteria present are required from regulatory authorities in India.

Like an old quote by Hippocrates goes, "Let food be thy medicine and medicine be thy food". Today more and more people are becoming increasingly aware that the key to a healthy life lies in the gut and there is a greater focus on eating right and healthy!

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