Probiotics Encyclopedia Article

Probiotics

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Probiotics

Probiotics is a term that refers to the consumption of certain **microorganisms** in an effort to improve overall health and the functioning of the body's microflora.

The use of microorganisms as a health aid is not new. People have asserted the health fortifying attributes of yogurt and fermented milk for thousands of years. However, the cause of the beneficial effect was unknown. A century ago, the Russian microbiologist **Élie Metchnikoff** (1845-1916) began the scientific assessment of the probiotic role of microorganisms.

Based on Metchnikoff's work and that of others, it appeared well established (but not clinically proven) by the 1920s that *Lactobacillus acidophilus* acted to relieve the conflicting conditions of constipation and diarrhea. Capsules containing living **bacteria** were popular items in drug stores of the day. However, with the advent of **antibiotics** as a cure for many ailments, the public interest in probiotics waned. The emphasis shifted to the treatment of infections, as opposed to the prevention of infections.

In the 1990s the interest in probiotics surged. A number of studies established the clinical significance of *Lactobacillus* and *Bifidobacterium* in improving the efficiency of lactose absorption, in the treatment of diarrhea in children, and in combating recurrent vaginal **yeast** infections.

Probiotic bacteria exert their effect by colonizing surfaces, such as found in the intestinal tract or the vagina. Compounds can also be produced by the adherent bacteria that are inhibitory to other types of bacteria. The net effect of these processes is the competitive exclusion of potentially harmful bacteria by the beneficial probiotic bacteria.

The exclusion process can extend to other infectious agents as well. For example, colonization of the intestinal tract with *Lactobacillus* GG has been shown to significantly reduce the length of diarrheal illness caused by rotavirus. The rotavirus had no place to adhere and were washed out of the intestinal tract.

Probiotics also have shown potential in relieving skin disorders that are the result of an allergic reaction to a food. The colonization of the intestinal wall appears to restore the ability of nutrients to cross from the intestinal canal to the bloodstream. This ability to absorb food nutrients is disrupted in those with some food **allergies**.

The molecular basis for the competitive exclusion behavior of bacteria such as *Lactobacillus* and *Bifidobacterium* is the subject of continuing study. The identification of the precise molecular agents that are responsible for surface blocking will expand the use of probiotics.