

## Therapeutic Action of Probiotics

Billions upon billions of bacterial cells make a home in a healthy human body. These bacteria are not infectious, but actually beneficial (these guys are our friends). More than 500 different species can be found in the intestinal track alone. Bacterial cells outnumber human cells **ten to one**. From their perspective, we are their hotel manager and they are our guests. This analogy is a good one because your body has gone through a lot of trouble to present these “guests” with a suitable living environment (the intestinal lining serves as an excellent ecosystem for bacteria). **These invited guests serve us well by synthesizing vitamins, fighting off infection, aiding in digestion, and supporting a healthy immune system.** However, sometimes we are exposed to malicious strains of bacteria which become unwanted tenants by creating infections. Most of the time the immune system, in combination with the beneficial bacteria, can eliminate infections when given enough time and supported through nutrition. But in some instances, an infection can become too much and other actions need to be taken. Human technology, past and present, has produced a number of ways to fight infections, one of them being antibiotics. Others include probiotics, and nutritional and herb combinations. Even still, sometimes antibiotics become necessary.

When you take an antibiotic, not only do you kill the deleterious strains that are causing the infection, but you are also killing the friendly bacteria. What's worse is that the friendly bacteria were actually helping you eliminate the bad ones. As a result, a number of problems can arise when taking antibiotics. For one, antibiotics can create an imbalance in the ecosystem of your intestinal flora, resulting in diarrhea. In these instances, probiotics can help to quickly reestablish a healthy intestinal flora. Antibiotics can actually create an infection of another sort, *Candida albicans*. Normally, a healthy gut flora will keep this infectious yeast at bay. Once antibiotics kill and weaken their neighbors, they can rapidly grow and become too much to constrain. *Candida albicans* have been associated with all sorts of chronic illnesses, one of the most common being chronic fatigue syndrome. The use of probiotics during and immediately after antibiotic treatment will help minimize the destructive effects of antibiotics to the beneficial flora.

Extensive biomedical research has documented considerable evidence for the wide-ranging therapeutic properties of probiotic organisms and has established their role in maintaining optimal health. **The major areas of probiotic therapeutic action include:**

- Competition against harmful micro-organisms including *Candida*, preventing colonization of pathogens through the production of inhibitory substances including acids and hydrogen peroxide and natural antibiotics;
- Enhancement of digestion of lactose (milk sugar);
- Reduction in blood cholesterol levels;
- Immune enhancement, including enhanced macrophage activity (a type of white blood that ingests (takes in) foreign material);
- Reduction in the levels of and deactivation of potential cancer causing chemicals, particularly in the colon and direct anti-tumor activity of certain strains;
- Reduction in liver toxicity;
- Enhancement of peristalsis, digestion, regularity and re-absorption of nutrients, In infants, promotion of healthy digestive tract colonization;

- Enhancement and balance of estrogen levels, prevention of osteoporosis through increased calcium uptake;
- Protection against food poisoning, travelers' diarrhea, allergies, skin problems;
- Enhancement of vitamin status (B, K), digestion of proteins, fats, carbohydrates.

Even without the use of antibiotics, our intestines can become out of balance. **Our internal organs may be disrupted by numerous external influences listed below.**

- Diet, particularly if high in fat, sugar and meat. People who eat a varied diet with high proportions of vegetables and fruits have higher numbers of beneficial organisms in their colons than do heavy meat and sugary food eaters;
- Drugs such as antibiotics, steroids, hormones including the Pill;
- Environmental pollution;
- Household cleaning chemicals;
- Stress, which may cause profound changes to the mucosal lining of the colon;
- Depressed immunity including illnesses such as cancer and treatments such as chemotherapy and radiation;
- Natural aging which results in a decline of acidic gastric juices and a consequent drop in the numbers of probiotic inhabitants.

All of the above may change the conditions within the inner environment of parts of our body and encourage the entry and colonization by pathogenic bacteria. When our previously healthy ecological balance is shifted, harmful micro-organisms – E. coli, Klebsiella, Bacteroides, Streptococci and Staphylococci species and yeasts such as Candida species – invade, colonize and take over. Following the disruption of our internal intestinal ecology, our health may suffer fairly dramatic and far-reaching negative consequences, including bacterial overgrowth, lowered immunity, increased risk of cancer, allergies, impaired digestion and toxic overload.

During antibiotic therapy, taking probiotics as well keeps the intestinal flora in proper balance. They can be taken together, but not at the same time of day. In order for the probiotics to be the most effective, they should be taken at least two hours after each dose of antibiotic. For bacterial infections of the intestinal environment, please follow the guidance of your health care practitioner for proper dosing and the correct strain of probiotics.

Here at Boulder Natural Medicine Clinic, we use only pharmaceutical grade quality probiotics to ensure adequate repopulation of friendly gut bacteria. If you have any questions regarding testing for bacterial overgrowth, digestive issues, or probiotics, please give the office a call @ (303)447-1339.

Thank you!