The Benefits of Bifidobacterium *longum* BB536® for Athletes

Every advantage an athlete can get will help catapult them past their competition. And though nutritional ergogenic aids have typically concentrated on sports supplements or foods that improve training adaptations or directly affect performance parameters, more recent research has focused on the total athlete, recognizing that improvements in overall health will enable athletes to train their hardest, perform their best and optimize the recovery period between training sessions. Probiotics fit into the total well-being category by affecting several aspects of overall health, particularly gut health and immune functioning. Improvements in these areas will help athletes focus on their sport as opposed to gastrointestinal issues or a cold.

**Building Healthy Intestinal Flora**

Human intestinal flora contains more than one trillion bacteria, representing approximately 100–500 bacteria species per gram of colonic content. This bacteria is either beneficial, harmful or neutral. Beneficial bacteria, Bifidobacterium and Lactobacillus, suppress harmful bacteria, help metabolize dietary carcinogens, synthesize vitamins and ferment non-digestible dietary residues, making them essential to good health. And while bifidobacteria is the predominant species found in human intestines, the number of bifidobacteria decrease and other intestinal bacteria dominate as we age. In addition, the composition of bacterial flora changes over time as a result of gastric activity, intestinal transit, dietary factors, antibiotic use and bacterial interactions.

Interruptions in a healthy intestinal environment may result in many untoward health consequences including diarrhea, constipation, suppressed immune functioning and gastrointestinal distress – all issues that can sideline an athlete. However, supplemental probiotics support the role of colonizing bacteria in human health and can increase levels of beneficial bacteria while decreasing levels of harmful bacteria, mitigating these untoward health consequences associated with alterations in intestinal flora.

**Probiotics in Sports**

Gastrointestinal complaints are rampant in athletes with rates ranging from 30–70% depending on the sport and intensity of activity. Mechanical forces, alterations in gastrointestinal blood flow and neuroendocrine changes have been suggested as contributing factors to the pathophysiology of their gastrointestinal complaints. And though some gastrointestinal disturbances can be remedied by...
changing what foods are consumed and the timing of food intake in relation to activity, other digestive challenges may benefit from probiotic supplementation. In particular, *Bifidobacterium longum* BB536 is a highly effective, dairy-free, stable strain of bifidobacteria with 90 studies supporting its benefits. *B. longum* BB536 is preferential to animal-based strains of bifidobacteria, with effects that may persist for weeks even after consumption has stopped. In addition, *B. longum* BB536 effectively increases both the number and percentage of Bifidobacterium, decreases harmful bacteria, provides relief from constipation and improves intestinal functioning and fecal characteristics in healthy volunteers.

Double blind, placebo-controlled studies show healthy adults experienced a significant increase in beneficial bacteria, short chain and volatile fatty acids and decrease in both total aerobic bacteria and some disease-causing substances in the feces during *B. longum* BB536 supplementation. Additional studies show *B. longum* BB536 supplementation is associated with a significant decrease in a bacterial strain likely associated with acute and persistent diarrhea and inflammatory bowel disease. *B. longum* BB536 also improves the intestinal environment, stool characteristics and defecation frequency compared to placebo in healthy adults and those with constipation. And, *B. longum* BB536 supplementation improves antibiotic associated abdominal complaints while reducing incidence of antibiotic-induced diarrhea.

In addition to supporting digestive health, *B. longum* BB536 can modulate some aspects of immune functioning, which is especially important for athletes given the immunosuppressive effects of exercise. Prolonged strenuous exercise can temporarily suppress immune functioning for 3–24 hours after exercise. Additionally, overtraining – when an athlete is training excessively and not allowing adequate time for recovery, is associated with suppressed immune functioning and an increased incidence of upper respiratory tract infections. And, double-blind placebo-controlled trials show *B. longum* BB536 supplementation protects against some infections and this probiotic modulates the immune response to one of the most common allergic diseases in Japan, Japanese cedar pollen allergy. Supplementation with *B. longum* BB536 may also decrease the total number of *Bacteroides fragilis*, a group of bacteria associated with allergic diseases in several clinical trials and relieve clinical symptoms associated with Japanese cedar pollen allergy including eye symptoms, nasal itching, excess nasal mucous and blockage and throat symptoms. By helping alleviate several symptoms associated with this common allergy, *B. longum* BB536 led to a decrease in disruption of normal activities due to allergic symptoms while also decreasing reliance on allergy medication.

Though not commonly thought of as nutritional ergogenic aids for improving athletic performance, probiotics contribute to total athlete wellness and can help mitigate some forms of digestive distress and improve gastrointestinal functioning while also providing much needed immune system support. And, by alleviating symptoms that can sideline athletes, probiotics can keep them in the game and focused on their performance. However, it is important to note that benefits tied to probiotic use are strain and species specific. Bifidobacteria has a long history of safe use, and *B. longum* BB536 not only has a superb safety record but it also has 90 studies that support its benefits including improvements in some aspects of immune functioning and relief from several symptoms of gastrointestinal distress including those related to constipation and diarrhea. For optimal health of the human digestive tract, *B. Longum* BB536 should be consumed regularly and in conjunction with a high fiber diet that supplies the prebiotics needed for healthy bacteria to grow and multiply.