Probi® Select Active

probi SELECT™

Intestinal health and immune function for athletes

During exercise, the body centralizes all available energy to the working muscle groups, and slows down other organs, such as the gastrointestinal (GI) tract. Many athletes encounter various GI symptoms, such as abdominal discomfort, flatulence and diarrhea. Another issue during sport performance is a compromised immune system with recurrent infections.

The human gut microbiota is a diverse and complex system including many different types of bacteria. A less diverse bacterial content and more harmful or pathogenic bacteria, a so-called bacterial dysbiosis, may also cause the above described GI-symptoms. By adding probiotics to the diet, athletes and sport practitioners can counteract the adverse GI-symptoms, which may arise due to either the exercise *per se*, or by bacterial dysbiosis, and promote a well-functioning GI-tract.

During exercise, the immune system can be negatively affected, and a so-called "open window" may arise and last between 2-8 hours. During this "open window", the body is much more sensitive to various pathogenic bacteria and viruses. This leads to a sensitive immune system which makes us more prone to various infections, most commonly upper respiratory tract infections.

The adverse effects on intestinal health and immune function can be explained both by bacterial dysbiosis, an increased intestinal permeability and by a suppression of several immune parameters in direct proximity to the exercise.

To combat the indications coupled to sport performance as described, recent research show that a healthy gut microbiota is of significant relevance. By adding well characterized and clinically proven probiotics, both a healthier GI bacterial environment, an improved intestinal barrier and a well-regulated immune system is achieved. Probi Select Active is suitable for the physically active individual, promoting intestinal health and a strong immune function.

Short facts

Strain: *Lactobacillus plantarum* DSM 6595
Indication: Improved intestinal health and enhanced immune system for athletes
Documentation: Multiple preclinical and clinical studies
Recommended daily dose: minimum 10^9 CFU

Probi® Plantarum 6595

Patented and clinically documented by Probi

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Probi Select Active is based on the clinically documented and patent protected strain *Lactobacillus plantarum* 6595. Several studies have shown that *L. plantarum* 6595 survives the passage through the GI tract, and attaches to the intestinal cells through a specific mannose-dependent binding mechanism. The bacteria can thereby exert its effects on the intestinal wall, and immune system.
L. plantarum 6595 has also been shown to be present in the intestine up to 11 days after end of intake[1].

The clinical dose (1 billion cfu/day) maintains a healthy gut environment and promotes a strong immune defense.

Benefits of *Lactobacillus plantarum* 6595:

a) Survives the passage through the GI-tract and attaches to intestinal cells
– main criterion to be active in the intestine

b) Reduces gut permeability and translocation
– decreases GI and immune dysfunction

c) Supports the immune system, having anti-inflammatory and immune-enhancing effects
- decreases risk for infections

d) Improves GI diversity
- a healthier, more resilient gut

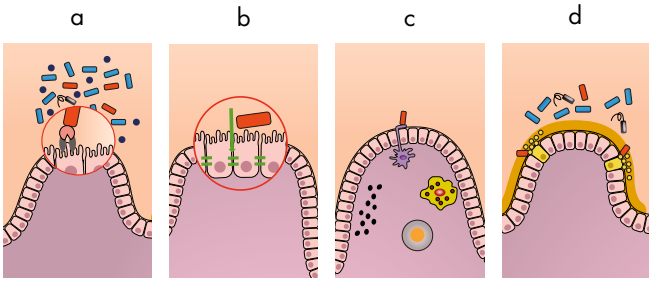

Figure 1. *Lactobacillus plantarum* 6595 is a clinically supported probiotic bacteria proven to a) survive the passage through the GI-tract and attach to the intestinal cells, b) reduce gut permeability and c) support the immune system, resulting in a d) well-balanced and healthy gastrointestinal environment.

Supporting preclinical and clinical studies

Lactobacillus plantarum 6595 possess direct anti-microbial activity against pathogenic bacteria such as *Listeria, E coli, Yersinia, Shigella* and others[2].

Three separate preclinical studies[3-5] have shown a reduced translocation and intestinal permeability in animals after addition of *L. plantarum* 6596. One of the studies investigated the effect of *L. plantarum* 6595 in oatmeal fiber vs an elemental diet (control) in an animal model of induced enterocolitis[4], and found the *L. plantarum* 6595 to significantly decrease bacterial translocation to both blood and organs compared to control (Figure 2).

Reduced intestinal permeability was also confirmed in a clinical study where patients with acute pancreatitis had a significantly reduced bacterial translocation after intake of *L. plantarum* 6595[6].

The anti-inflammatory effects of *L. plantarum* 6595 have been shown both *in vitro*[7] and in several clinical studies[6,8-10]. The incidence of infections was investigated in two separate studies, including totally 172 subjects undergoing surgical interventions. The studies were randomized, double-blind and placebo-controlled with the supplementation of 10^9 cfu/day[8-9]. The risk of achieving infections was significantly decreased in both studies; 30% vs 10% (p=0.01) in study 1 and 45% vs 13% (p=0.02) in study 2 (Figure 3).

Figure 2. Results from an animal study showing significantly decreased intestinal permeability after addition of *Lactobacillus plantarum* 6595, compared to control.

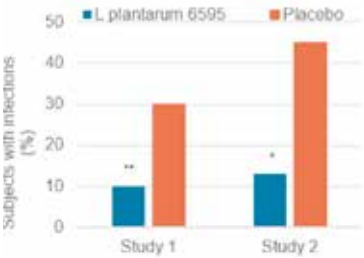

Figure 3. Results from two clinical studies showing significantly decreased incidence of infections after intake of *Lactobacillus plantarum* 6595.

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