

# **PROBIOTICS FOR SPORTS NUTRITION**

A HEALTHY GUT AND AN IMPROVED IMMUNE SYSTEM ARE KEY FACTORS TO HELP OVERTAKE THE COMPETITION.



### 70% "GOOD" BACTERIA 30% "BAD" BACTERIA

## WHY GUT BACTERIA MATTER

t may be hard to imagine, but our bodies are home to more than 100 trillion microorganisms...this means that the bacteria in your body outnumber your body's cells 10 to 1! You are more bacteria than you are...well, "you". The majority of these bacteria reside in the gut, and are roughly 70% "good" or healthy bacteria, and 30% "bad" bacteria.

The gut flora performs a variety of functions that are important for health. In fact, 70% of our immune cells are located in the digestive tract, making the health of the digestive tract critical to overall health. A healthy and wellbalanced gut flora facilitates digestion, protects us from pathogens, provides vitamins and nutrients and helps

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form the immune system. For athletes and fitness enthusiasts, optimizing digestion and immunity are major factors as they strive to improve performance.



#### **CLINICAL RESULTS:**

- Regulates microbial populations in the gut
- Improves digestion of dietary fats and complex carbs
- Aids in the digestion of fats and sugars into beneficial small chain fatty acids

# A HEALTHY GUT IMPROVES PERFORMANCE

#### **OPTMIZING DIGESTION**

Athletes and active individuals have some of the highest nutrient needs of anyone, and these needs are best met when digestion is improved. Healthy bacteria in the gut aid in the digestion of macronutrients, allowing for optimized nutrient uptake from the foods we eat. A good balance of "good" over "bad" bacteria in the gut is needed in order for those healthy bacteria to do their job.

**DE111** *Bacillus subtilis* is a probiotic spore that is clinically proven to regulate microbial populations in the gut. The study also demonstrated the strain's ability to improve digestion of dietary fats and complex carbohydrates. DE111 aids in the digestion of fats and sugars into beneficial small chain fatty acids, such as butyric acid. The genome sequencing of DE111 indicates that the strain indeed contains genes that produce butyric acid, a fatty acid that supports the health of the large intestine.

#### **IMMUNE HEALTH**

As one participates in physical activity, the body is subjected to stress that can greatly affect the immune system. During exercise, the body's immune response is sub-par as it experiences acute changes in the secretion of antibodies. The risk of illness is consequently increased, and an athlete can be more prone to bacterial and viral infections for up to 72 hours after training.

Since the gut harbors 70 percent of the body's immune cells, probiotics are increasingly documented for their benefits on the immune response. When probiotic bacteria can adhere to the gut epithelium, they enhance the "gut barrier" function of those cells by preventing the adhesion of pathogens.

DE111 has shown the ability to adhere to intestinal cells, as indicated by testing using Caco-2 cells. In addition, the genome sequencing of DE111 shows that the strain contains genes that support the body's production of the antibodies IgG and IgA. The presence of these antibodies primes one's system to be prepared when foreign bodies attack.



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#### **BODY COMPOSITION & PERFORMANCE**

In a clinical study involving collegiate female athletes, researchers found that DE111 had significant effects on body composition and athletic performance when consumed along with adequate post-workout nutrition.

In the study, twenty-three collegiate female athletes (soccer and volleyball) completed the same 10-week weight training program during the offseason, which consisted of 3-4 workouts per week. The training sessions included both upper and lower-body exercises as well as sport-specific training. These athletes consumed either DE111 or a placebo supplement in combination with a post-recovery protein drink for the duration of the 10-week training program. The results indicated COMPARED TO THE PLACEBO, THE PROBIOTIC DE111 PRODUCED STATISTICALLY SIGNIFICANT IMPROVEMENTS IN THE REDUCTION OF BODY FAT PERCENTAGE

that compared to the placebo, the probiotic DE111 produced statistically significant improvements in the reduction of body fat percentage, and a strong trend indicating improved performance of the deadlift exercise.

THESE FINDINGS ARE ENCOURAGING FOR ATHLETIC INDIVIDUALS, Both Professional and recreational, who are locking for ways to naturally Achieve maximum results from their training efforts.



#### **PROTEIN DIGESTION**

Everyone knows protein is a macronutrient that is essential to maintaining a healthy diet and lifestyle. For active individuals, whether

they're everyday fitness enthusiasts or serious athletes, the need for protein is even greater as it plays a key role in muscle recovery. Protein is a key building block to ensure one's muscles can rebuild their strength after being broken down during vigorous exercise. However, managing high-protein consumption can be difficult. The body is only able to digest a finite amount of protein with each meal, usually around 25 grams. Depending on the individual, it could be slightly less.

BEING ABLE TO ABSORB MORE OF THE AMINO ACIDS FROM THE PROTEIN ONE CONSUMES CAN HELP INCREASE MUSCLE GROWTH IN THE LONG RUN.

For an active individual to receive the full benefit, the protein they consume must be broken down so that its valuable amino acids can be absorbed in the small intestines and put to use in muscle recovery and building. Emerging research demonstrates that probiotics can play role in the use of protein for muscle growth and human recovery by promoting the absorption of key amino acids. Being able to absorb more of the amino acids from the protein one consumes can help increase muscle growth in the long run.

### **DIGESTIVE ISSUES FOR RUNNERS**

Approximately 30-60% of long-distance runners are impacted by gastrointestinal discomfort. These athletes experience digestive problems caused by reduced blood flow to the intestines. This is then redirected to the muscles, which affects the intestines and results in disrupted absorption. Due to performing long bouts of intense exercise, one of the GI issues that many runners face is acute diarrhea.

In a clinical study, DE111 was shown to help those who experience alternating periods of constipation and diarrhea. In the study, individuals who consumed DE111 experienced a significant increase in the proportion of normal stools, from 37% to 43% in a span of 12 weeks. In contrast, the placebo participants showed no change.





To learn more about how *Bacillus subtilis* DE111 can give athletes the performance boost they're searching for, contact Deerland Enzymes & Probiotics.

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