

Everyday Synbiotic for Wellbeing, Gut Health, & Immunity

Research Highlights

- ✓ Clinical evidence demonstrates that the spore-forming probiotics *Bacillus coagulans* SNZ 1969® and *Bacillus subtilis* DE111® support gut health, promoting healthy bowel function and regularity, helping relieve occasional constipation, and providing immune support.
- ✓ Chicory root is rich in inulin-type fructans, among the most widely studied prebiotic fibers.
- ✓ A synbiotic combines probiotics and prebiotics to achieve health benefits on the host.

Introduction

A healthy gut microbiota defends against harmful microorganisms, supports the immune system, and maintains homeostasis. However, factors like unhealthy dietary habits, antibiotics, age, or infections can disrupt this balance, potentially leading to various health issues. To address this, strategies like using probiotics and incorporating prebiotics into the diet are suggested to regulate and improve gut health.

Probiotics are live microorganisms that, when administered in adequate amounts, confer a health benefit on the host.¹ Prebiotics, non-digestible fibers and compounds, serve as nourishment for beneficial bacteria (probiotics) in the digestive system, promoting their activity and growth and thereby contributing to the maintenance of a healthy balance in the gut.²

Two Probiotic Strains from *Bacillus* Genus

Strains from the *Lactobacillus* and *Bifidobacterium* genera are commonly known for their probiotic activities. However, *Bacillus* species, with their unique ability to produce spores, have captured researchers' interest. *Bacillus* spores are resistant to high temperature and can withstand the stomach's harsh acidic environment, only germinating in the intestine when nutrients are present. This enhances their survival rate in the gastrointestinal tract, thereby better exerting probiotic effects.³

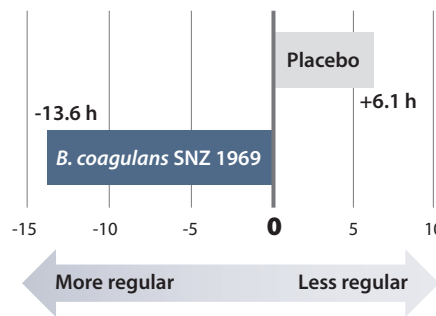
The following describes two specific *Bacillus* strains—both with GRAS (Generally Recognized as Safe) status—and select clinical evidence indicating their role in supporting gut health, promoting healthy bowel function and regularity, helping relieve occasional constipation, and providing immune support.

1. *Bacillus coagulans* SNZ 1969

Study 1: 80 healthy adults with occasional constipation were randomized to *Bacillus coagulans* SNZ 1969 (1 billion CFU/day) or placebo for 8 weeks. Compared with placebo, the probiotic intervention:⁴

- Significantly improved regularity as indicated by shortened colonic transit time (figure).
- Improved completeness and quality of bowel movements.
- Beneficially modulated the gut microbiome.

Mean change in colonic transit time (h)

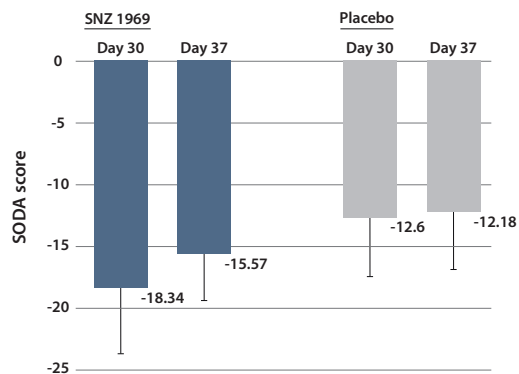


Study 2: 60 healthy adults with gastrointestinal (GI) discomfort were randomized to *Bacillus coagulans* SNZ 1969 (2 billion CFU/day) or placebo for 30 days, with the end of study assessment occurring seven days post intervention. Compared with placebo, the probiotic intervention:⁵

- Significantly reduced severity of dyspepsia assessment (SODA) scores, indicating reduced GI discomfort (figure).
- Significantly improved the total SODA subscores for pain intensity, nonpain symptoms, satisfaction, and symptom of sour taste.

Additionally, *Bacillus coagulans* SNZ 1969 (1 billion CFU/day) has been shown to improve GI discomfort and health-related quality of life in 92 adults with functional GI symptoms.⁶

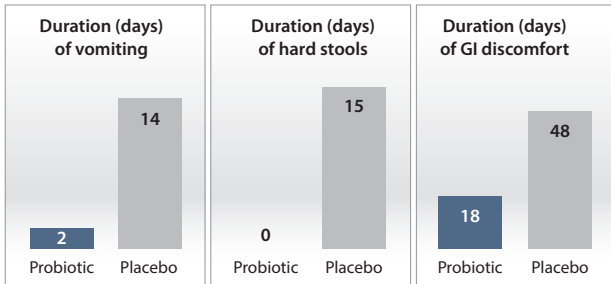
Score changes from baseline



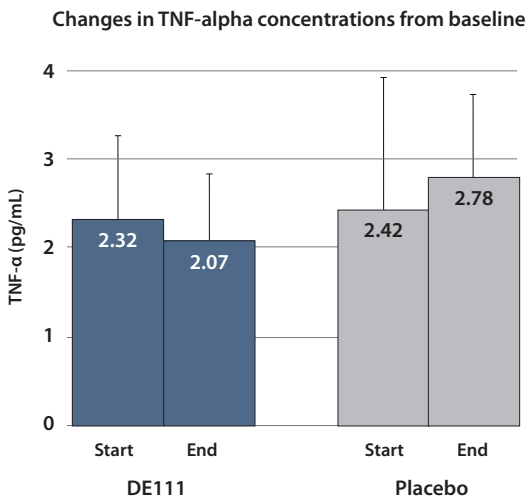
2. *Bacillus subtilis* DE111

Study 1: 102 day-care attending children were randomized to *Bacillus subtilis* DE111 (1 billion CFU/day) or placebo for 8 weeks, and their immune function and gut health was assessed. The study found that the probiotic intervention.^{7,8}

- Supported healthy gut microbiome by increasing alpha diversity and reducing Firmicutes-to-Bacteroidetes ratio.
- Supported healthy immune function, GI health, and normal bowel movements (figure).



Study 2: 25 healthy collegiate male athletes were randomized to *Bacillus subtilis* DE111 (1 billion CFU/day) or placebo for 12 weeks following offseason training (a time of academic and physical stress). TNF- α concentrations were significantly lower in those receiving probiotic compared with placebo (figure).⁹



Additional clinical studies have demonstrated the benefits of this strain. One 90-day study involving 50 healthy adults with occasional constipation and/or diarrhea showed the group using *Bacillus subtilis* DE111 (1 billion CFU/day) reported an increased frequency of normal type stools compared to those in the placebo (43.1% vs. 35.4%, respectively).¹⁰ Another 4-week study involving 46 healthy adults found *Bacillus subtilis* DE111 (1 billion CFU/day) supported cardiovascular health; the probiotic intervention helped lower total cholesterol and non-HDL cholesterol by a mean of 8 mg/dL and 11 mg/dL, respectively.¹¹

Prebiotic fiber from Chicory Root

The root of chicory (*Cichorium intybus*) is rich in inulin-type fructans, among the most widely studied prebiotic fibers. Inulin-type fructans cannot be digested by the enzymes in the GI tract and thus can reach the colon intact, where they are utilized by the gut microbes, leading to the production of short-chain fatty acids and other metabolites that elicit health benefits.^{12,13}

Chicory root is bifidogenic. A systematic review of randomized controlled trials has found that supplementation with chicory-derived inulin-type fructans increases abundance of the health-promoting *Bifidobacterium* in the gut at a dose of as little as 3 grams per day.¹⁴

Summary: Synbiotic Formulation

The concept of complementary synbiotic involves combining probiotics and prebiotics to confer a health benefit on the host.¹⁵ A synbiotic can be delivered in a formulation utilizing chicory root as the prebiotic matrix to house *Bacillus coagulans* SNZ 1969 and *Bacillus subtilis* DE111. This convenient combination may help users improve compliance and may contribute to achieving long-term wellness goals.

References:

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