

# FLORABOOST



## CLINICAL APPLICATIONS

- Helps Maintain Gastrointestinal Balance in Children
- Increases Secretory IgA for Enhanced Gut Immunity
- Supports Bowel Regularity
- Supports Digestion and Micronutrient Absorption

## GASTROINTESTINAL SUPPORT

FloraBoost is a probiotic formula for children, designed to deliver live bacteria that promote healthy gut microflora, protect intestinal integrity and boost immune function. The formula contains three strains of *Lactobacilli* and three strains of *Bifidobacteria*, as well as *Streptococcus thermophilus* and *Saccharomyces boulardii*, an extensively researched microorganism shown to help restore microflora balance by enhancing commensal organism function. The eight strains in FloraBoost have been strategically selected based on research supporting their survivability and adherence to the intestinal tract. FloraBoost comes in a powder form for easy administration to children.

### Overview

The gastrointestinal (GI) tract is a finely balanced environment where roughly 500 different strains of bacteria compete for space and nutrients. The natural microflora balance can be disrupted by medications, such as antibiotics, or poor dietary intake. One of the key benefits of probiotics is their ability to increase populations of healthy bacteria in the face of microflora imbalance. In addition, extensive research has identified other broad health benefits, including supporting healthy bowel function, increasing the production of important short-chain fatty acids that provide energy to the cells of the intestinal lining, boosting immune function, aiding in the digestion of difficult-to-break-down compounds like lactose and casein, and enhancing detoxification of harmful compounds.

Because probiotics are living organisms, there are various challenges associated with their manufacturing and distribution. For a probiotic to be effective, it must be shelf-stable through the expiration date and precisely delivered

to the intestinal tract, where it can have maximum benefit. The microorganisms in FloraBoost are protected, sealed, and freeze dried away from moisture, heat, light and oxygen. This allows the bacteria to remain dormant until they are exposed to moisture in the GI tract.

### Deficiency<sup>†</sup>

Many Americans, including children, consume excessive quantities of sugar and refined carbohydrates. These sugars can also have an effect on the microflora in the gut, causing dysbiosis, which can contribute to GI disturbances and immune challenges. Supplementing probiotics helps to maintain microflora balance in the gut after such disturbances occur.

### *Lactobacillus acidophilus* (La-14)<sup>†</sup>

*Lactobacillus acidophilus* is a beneficial bacteria strain that is normally found in the intestinal tract and mouth, and is commercially used in dairy products for the production of acidophilus-type yogurt. *L. acidophilus* ferments various carbohydrates to produce lactic acid, which increases the absorption and bioavailability of minerals, including calcium, copper, magnesium and manganese. The production of lactic acid also promotes health by creating an inhospitable environment for invading microbes.<sup>1</sup> *L. acidophilus* has been shown to protect intestinal cells by competing for adhesion space in the gut against harmful bacteria, such as *E. coli*. The *L. acidophilus* strain in FloraBoost has been specifically chosen because of its strong adherence and survival attributes in the GI tract. It has been demonstrated in vitro to tolerate exposure to gastric acid and bile salts, and has the ability to withstand antibiotics including Ciprofloxacin, Polymyxin B and Tetracycline.<sup>2</sup> In addition, a study of 73 children (aged

<sup>†</sup> These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

3-24 months, with bouts of occasional diarrhea and mild or moderate dehydration) found those given 10 billion CFU of *L. acidophilus* had a decreased duration and quantity of watery stools than those receiving placebo.<sup>3</sup>

### **Lactobacillus paracasei (Lpc-37)<sup>†</sup>**

*Lactobacillus paracasei* has been shown to protect against the harmful effects of bacteria such as *Staphylococcus aureus* (*S. aureus*).<sup>4</sup> *L. paracasei* colonizes the intestinal tract by reinforcing defense mechanisms that support an immune response. It does this by supporting T-helper cell production and secreting secretory IgA (sIgA), an antibody critical for supporting intestinal immunity.<sup>5</sup> *L. paracasei* Lpc-37 is a gastric acid-resistant strain and has been shown in vitro to withstand antibiotics such as Ciproflaxin and Vancomycin.<sup>6</sup> Together with *L. acidophilus*, *L. paracasei* has been shown to reduce duration of occasional diarrhea in children with long-term loose and watery stools (6-24 months).<sup>2</sup>

### **Bifidobacterium bifidum (Bb-02)<sup>†</sup>**

*Bifidobacterium bifidum* is a normal resident of healthy infant GI tracts and usually colonizes within 4 days of life.<sup>7</sup> It has been shown to effectively compete with harmful bacteria, such as *E. coli*, *S. aureus* and *Campylobacter jejuni*, which suggests *B. bifidum*'s lactic acid and acetic acid production provides an antagonistic action against pathogens to help maintain microflora balance. A study of 55 infants (5-24 months given either a formula with *B. bifidum* and *S. thermophilus* or non-supplemented formula for a course of 17 months) found that those receiving the probiotic formula had less occurrences of loose and watery stools (7% vs. 31%).<sup>9</sup>

### **Lactobacillus rhamnosus (Lr-32)<sup>†</sup>**

*Lactobacillus rhamnosus* has been frequently used in the prevention and treatment of occasional diarrhea in children.<sup>10</sup> Among 69 children, randomized to receive either a mixture of 20 billion CFU per dose of *L. rhamnosus* and *L. reuteri* or placebo twice daily for 5 days, those receiving probiotics had reduced duration of loose stool (82 hours vs. 101 hours in the placebo group). After early intervention with probiotics the length of hospitalization was reduced by 48% in the probiotic group.<sup>11</sup> *L. rhamnosus* has also been shown to promote GI health by increasing intestinal cell replication.<sup>12</sup>

### **Streptococcus thermophilus (St-21)<sup>†</sup>**

Among 80 infants, 6-36 months old, with occasional diarrhea, given either a formula supplement with *Bifidobacterium lactis* and *Streptococcus thermophilus* or non-supplemented formula, those receiving the probiotic formula had fewer incidences of diarrhea.<sup>13</sup> A second study of 80 breast-fed children, 6-24 months old, with occasional diarrhea for fewer than four days,

found those given either a yogurt containing *S. thermophilus* and *L. bulgaricus* had shorter hospital stays, better weight gain and reduced loose stool frequency.<sup>14</sup>

### **Saccharomyces boulardii<sup>†</sup>**

*Saccharomyces boulardii* is probiotic yeast that was first isolated from the skin of the tropical fruits lychee and mangosteen in 1923 by French scientist Henri Boulard, following the observation that mangosteen consumption controlled occasional diarrhea in natives of Southeast Asia. *S. boulardii* plays a role in supporting immune defense by increasing levels of a crucial antibody, sIgA, and creating a first line of defense that helps bind and clear harmful bacteria.<sup>15</sup> In one study, 200 children with occasional diarrhea were randomly given 250 mg/day of *S. boulardii* or placebo. Stool frequency and duration of diarrhea were greatly improved in the group that received the *S. boulardii*.<sup>16</sup> Among 269 children (6 months-14 years) given either antibiotic treatment plus 250 mg/twice per day of *S. boulardii* or placebo, those receiving the *S. boulardii* had lower incidence of loose and watery stools.<sup>17</sup>

### **Directions**

Add one scoop (1.7 grams) to a glass of water or the beverage of your choice, stir and drink, or as recommended by your health care professional.

### **Does Not Contain**

Gluten, corn, artificial colors and flavors.

### **Cautions**

If you are pregnant or nursing, consult your physician before taking this product.

<b>Supplement Facts</b> <sup>v2</sup>		
Serving Size 1 scoop (1.7 grams)		
Servings Per Container 30		
<b>1 scoop contains</b>	<b>Amount Per Serving</b>	<b>% Daily Value</b>
<b>Proprietary Blend</b>	5 billion CFU**	
<i>Lactobacillus acidophilus</i> (La-14)		*
<i>Lactobacillus rhamnosus</i> (Lr-32)		*
<i>Lactobacillus casei</i> (Lc-11)		*
<i>Bifidobacterium longum</i> (Bl-05)		*
<i>Streptococcus Thermophilus</i> (St-21)		*
<i>Bifidobacterium bifidum</i> (Bb-02)		*
<i>Bifidobacterium lactis</i> (Bl-04)		*
<i>Saccharomyces boulardii</i>	1 billion CFU**	*
* Daily Value not established		

**ID# 859051 30 Servings**

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## References

1. Lipski E. Digestive Wellness. New Canaan (CT): Keats Publishing; 1996. p. 60-61.
2. Danisco. *Lactobacillus acidophilus* La-14 probiotic identity card.
3. Simakachorn N, Pichaipat V, Rithipornpaisarn P, Kongkaew C, Tongpradit P, Varavithya W. Clinical evaluation of the addition of lyophilized, heat-killed *Lactobacillus acidophilus* LB to oral rehydration therapy in the treatment of acute diarrhea in children. *J Pediatr Gastroenterol Nutr.* 2000; Jan 30(1):68-72.
4. Bendali F, Madi N, Sadoun D. Beneficial effects of a strain of *Lactobacillus paracasei* subsp. *paracasei* in *Staphylococcus aureus*-induced intestinal and colonic injury. *Int J Infect Dis.* 2011; Nov 15(11):e787-94.
5. Chiang SS, Pan TM. Beneficial effects of *Lactobacillus paracasei* subsp. *paracasei* NTU 101 and its fermented products. *Appl Microbiol Biotechnol.* 2012 Feb;93(3):903-16.
6. Danisco. *Lactobacillus paracasei* Lpc-37 probiotic identity card.
7. Bezirtzoglou E, Stavropoulou E. Immunology and probiotic impact of the newborn and young children intestinal microflora. *Anaerobe.* 2011 Dec;17(6):369-74.
8. Fooks LJ, Gibson GR. Mixed culture fermentation studies on the effects of synbiotics on the human intestinal pathogens *Campylobacter jejuni* and *Escherichia coli*. *Anaerobe.* 2003 Oct;9(5):231-42.
9. Saavedra JM, Bauman NA, Perman JA, Yolken RH, Oung I. Feeding of *Bifidobacterium bifidum* and *Streptococcus thermophilus* to infants in hospital for prevention of diarrhea and shedding of rotavirus. *Lancet.* 1994 Oct;344(8929):1046-9.
10. Danisco. *Lactobacillus rhamnosus* Lr-32 technical information.
11. Rosenfeldt V, Michaelsen KF, Jakobsen M, Larsen CN, Møller PL, Pedersen P, Tvede M, Weyrehter H, Valerius NH, Paerregaard A. Effect of probiotic *Lactobacillus* strains in young children hospitalized with acute diarrhea. *Pediatr Infect Dis J.* 2002 May;21(5):411-6.
12. McClemens J, Kim JJ, Wang H, Mao YK, Collins M, Kunze W, Bienenstock J, Forsythe P, Khan WI. *Lactobacillus rhamnosus* ingestion promotes innate host defense in an enteric parasitic infection. *Clin Vaccine Immunol.* 2013 Jun;20(6):818-26.
13. Corrêa NB, Péret Filho LA, Penna FJ, Lima FM, Nicoli JR. A randomized formula controlled trial of *Bifidobacterium lactis* and *Streptococcus thermophilus* for prevention of antibiotic-associated diarrhea in infants. *J Clin Gastroenterol.* 2005 May;39(5):385-9.
14. Apella MC, González SN, Nader de Macías ME, Romero N, Oliver G. In vitro studies on the growth of *Shigella sonnei* by *Lactobacillus casei* and *Lactobacillus acidophilus*. *J Appl Bacteriol.* 1992 Dec;73(6):480-3.
15. Rodrigues AC, Cara DC, Fretez SH, Cunha FQ, Vieira EC, Nicoli JR, Vieira LQ. *Saccharomyces boulardii* stimulates sIgA production and the phagocytic system of gnotobiotic mice. *J Appl Microbiol.* 2000 Sep;89(3):404-14.
16. Kurugöl Z, Koturoğlu G. Effects of *Saccharomyces boulardii* in children with acute diarrhoea. *Acta Paediatr.* 2005 Jan;94(1):44-7.
17. Kotowska M, Albrecht P, Szajewska H. *Saccharomyces boulardii* in the prevention of antibiotic-associated diarrhoea in children: a randomized double-blind placebo-controlled trial. *Aliment Pharmacol Ther.* 2005 Mar;21(5):583-90.