



Bifidophilus Flora Force

Stock #4080-4 (90 capsules)

NSP's Bifidophilus Flora Force is a probiotic supplement, providing 4 different strains of healthy intestinal flora: *Lactobacillus rhamnosus*, *Lactobacillus acidophilus*, *Lactobacillus casei* and *Bifidobacterium longum*. These important and beneficial bacteria are "friendly" microorganisms that naturally inhabit the intestinal tract, aiding digestion and absorption of nutrients, as well as enhancing immune function and protecting against harmful bacteria, viruses and fungi.

In the gastrointestinal tract, a delicate balance exists between the host and the intestinal bacteria, most of which are present in the colon—at least 400 different species of microflora exist in the human gastrointestinal tract. Intestinal bacteria alter the chemical composition of foods and drugs; break down dietary toxins; produce and degrade vitamins; create toxins and antitoxins; and inhibit the growth of certain pathogens (disease-producing organisms). Upsetting the balance of the intestinal microflora, such as can occur with antibiotic use, disease and aging, can negatively affect the beneficial role of these important

microorganisms.¹⁻⁵

Research has shown that certain live microorganisms known as probiotics can help re-populate the gastrointestinal tract with healthy bacteria. Probiotics are defined as live microorganisms that, once ingested, demonstrate a beneficial effect upon the body by improving the balance of the intestinal flora. The most reliable and well-researched probiotic organisms belong to either the lactobacillus or bifidobacteria genera—lactobacillus bacteria reside mainly in the small intestine and bifidobacteria colonize the large intestine. Probiotics inhibit the growth of harmful microorganisms, boost immune function, increase resistance to infection and promote healthy digestion. Probiotics have been shown to exert antimicrobial, antiallergenic, immunomodulatory, anticarcinogenic, antidiarrheal and antioxidant activities, as well as other health benefits. Probiotics prevent the growth of pathogenic organisms, not only by competing for nutrients and space, but also by secreting organic compounds such as lactic acid, hydrogen peroxide and acetic acid, which make the intestinal pH more acidic—most intestinal pathogens fail to thrive in an acidic environment—as well as producing bacteriocins, which act as natural antibiotics to kill unwanted microorganisms.¹⁻¹¹

Much of the research on probiotics has focused on diarrhea prevention and intestinal health, stomach ulcers, immunity and women's urogenital health. The benefits of probiotic-use that have had substantial support from published peer-reviewed human studies include preventing the onset of atopic dermatitis (an allergic, inflammatory skin disorder causing an itchy rash), preventing urogenital infections, and preventing and reducing the duration of diarrhea in infants and children, including antibiotic-associated diarrhea and some infectious and viral diarrheas such as rotavirus-induced diarrhea. In addition, promising data exist on the use of probiotics for combating *Helicobacter pylori* stomach infections, modulating mucosal immunity (the first line of defense against foreign invaders), reducing the risk of certain cancers, and decreasing serum cholesterol and oxaluria—the excess of calcium oxalate in the urine, which contributes to the formation of kidney stones. Furthermore, preliminary human studies suggest that probiotics have a positive effect in the treatment of colitis (inflammation of the colon), also known as irritable bowel disease (IBD)—a general term for a group of diseases involving intestinal-wall inflammation and characterized by recurrent crampy abdominal pain and diarrhea, including Crohn's disease and ulcerative colitis.^{1,3,5-9,12,13}

Each serving of Bifidophilus Flora Force contains 2.5 billion *Lactobacillus rhamnosus*, 2.5 billion *Lactobacillus acidophilus*, 2 billion *Lactobacillus casei*, and 1 billion *Bifidobacterium longum* cultures, along with fructooligosaccharides (FOS)—a dietary fiber that assists proliferation of these important bacteria.

Lactobacillus rhamnosus - Dietary consumption of *L. rhamnosus* was shown to enhance systemic cellular immune responses in healthy volunteers and thus, appears to be beneficial as a dietary supplement to boost natural immunity. Oral intake of *L. rhamnosus* has also been shown to alleviate clinical symptoms of gastrointestinal inflammation and atopic dermatitis, and significantly reduce the occurrence of atopic eczema (an inflammatory skin condition characterized by redness, itching and oozing lesions that become scaly, crusted or hardened) in children. In addition, two separate studies involving children (ages 1 to 36 months) showed that *L. rhamnosus* significantly shortened the duration of acute-onset rotavirus diarrhea compared to placebo. Furthermore, a landmark study published in the *Journal of Allergy and Clinical Immunology* documented a clear connection between food allergy and intestinal flora. A one-month trial involving 10 infants with food-allergy-related dermatitis showed that *L. rhamnosus* provided significant clinical improvements in the infants' conditions, compared to those given a placebo.^{6,7,14-21}

Lactobacillus acidophilus has demonstrated significant antioxidant activity and has been shown to prevent several intestinal pathogens from attaching to human intestinal cells, including *Escherichia coli*, *Yersinia pseudotuberculosis*

and *Salmonella typhimurium*. *L. acidophilus* also inhibits the growth of *Helicobacter pylori* and has been proven effective in reducing the duration of acute diarrhea in children. In addition, *L. acidophilus* is regarded as a successful natural treatment for bacterial vaginosis, particularly in pregnant women, due to the lack of systemic side effects. Furthermore, a controlled clinical study found that *L. acidophilus* can reduce serum cholesterol and thus, demonstrates the potential for reducing the risk of coronary heart disease.^{3,22-28}

Lactobacillus casei significantly increased natural killer (NK) cell activity in healthy volunteers, particularly those exhibiting low NK activity. In addition, a controlled pilot study showed that *L. casei* reduced the duration of winter infections (gastrointestinal and respiratory) by 20% in elderly people. Furthermore, a 4-month double-blind, randomized trial involving 928 children (ages 6 to 24 months) found that *L. casei* significantly reduced the frequency of diarrhea.²⁹⁻³¹

Bifidobacterium longum exhibited protective effects against invasion of the intestinal mucosa by dietary antigens, as well as significantly suppressed colon tumor incidence in animal studies. *B. longum* has also demonstrated significant antioxidant activity. In addition, a randomized, double-blind trial found that *B. longum* improved lactose digestion in 15 lactose malabsorbers, as evidenced by reduced symptoms of flatulence. Furthermore, a study involving 32 patients with borderline to high cholesterol (serum total cholesterol ranging from 220 to 280 mg/dl) showed that *B. longum* reduced total cholesterol in approximately 50% of treated patients, with significant decreases among those with total cholesterol levels greater than 240 mg/dl.^{22,32-35}

Fructooligosaccharides are a type of nondigestible fiber, derived from foods such as asparagus, garlic, Jerusalem artichoke and onion, that can be considered a prebiotic—a nutritional substance that stimulates the growth of probiotic organisms, leading to a beneficial balance of healthy and harmful intestinal flora. FOS specifically stimulate bifidobacteria growth, while suppressing the growth of potentially harmful pathogens such as *Clostridium perfringens* in the colon. In addition, FOS enhance magnesium absorption in humans and have been shown to reduce colon tumor development in animal studies.^{3,7,36-42}

References:

- ¹Trenev, N. *Probiotics: Nature's Internal Healers*. Garden City Park, NY: Avery, 1998.
- ²Murray ND, M.T. *Encyclopedia of Nutritional Supplements*. Rocklin, CA: Prima Publishing, 1996.
- ³Lukaczer ND, D. "The Probiotic Solution for Colitis." *Nutrition Science News*, December 2000.
- ⁴Mindell PhD, E. *Earl Mindell's Supplement Bible*. NY, NY: Fireside Books, 1998.
- ⁵Probiotics." *PDRhealth*, 2003. <http://www.pdrhealth.com/drug_info>. Accessed October 2003.
- ⁶Reid PhD, G. "Probiotics—Good Bacteria Meet Functional Foods." *Natural Foods Merchandiser*; November 2002.
- ⁷Wolfson ND, D. "A Probiotics Primer." *Nutrition Science News*; June 1999.
- ⁸Lininger DC, S., et al. *The Natural Pharmacy, 2nd ed*. Rocklin, CA: Prima Health, 1999.
- ⁹Fetrow PharmD, C. & Avila PharmD, J. *Professional's Handbook of Complementary & Alternative Medicines*. Springhouse, PA: Springhouse Corp., 1999.
- ¹⁰Mital, B.K. & Garg, S.K. "Anticarcinogenic, hypocholesterolemic, and antagonistic activities of *Lactobacillus acidophilus*." *Critical Reviews in Microbiology*; 1995, 21(3):175-214.
- ¹¹Kailasapathy, K. & Chin, J. "Survival and therapeutic potential of probiotic organisms with reference to *Lactobacillus acidophilus* and *Bifidobacterium* spp." *Immunology and Cell Biology*; 2000, 78(1):80-88.
- ¹²Vancikova, Z. "Mucosal immunity—basic principles, ontogeny, cystic fibrosis and mucosal vaccination." *Current Drug Targets - Immune, Endocrine and Metabolic Disorders*; 2002, 2(1):83-95.
- ¹³Szajewska, H. & Mrukowicz, J.Z. "Probiotics in the treatment and prevention of acute infectious diarrhea in infants and children: a systematic review of published randomized, double-blind, placebo-controlled trials." *Journal of Pediatric Gastroenterology and Nutrition*; 2001, 33 Suppl 2:S17-25.
- ¹⁴Sheih, Y.H., et. al. "Systemic immunity-enhancing effects in healthy subjects following dietary consumption of the lactic acid bacterium *Lactobacillus rhamnosus* HN001." *Journal of the American College of Nutrition*; 2001, 20(2 Suppl):149-156.
- ¹⁵Schultz, M., et. al. "Immunomodulatory consequences of oral administration of *Lactobacillus rhamnosus* strain GG in healthy volunteers." *Journal of Dairy Research*; 2003, 70(2):165-173.
- ¹⁶Pessi, T., et. al. "Interleukin-10 generation in atopic children following oral *Lactobacillus rhamnosus* GG." *Clinical and Experimental Allergy*; 2000, 30(12):1804-1808.
- ¹⁷Kalliomaki, M., et al. "Probiotics in primary prevention of atopic disease: a randomised placebo-controlled trial." *Lancet*; 2001, 357(9262):1076-1079.
- ¹⁸Shornikova, A.V., et. al. "A trial in the Karelian Republic of oral rehydration and *Lactobacillus* GG for treatment of acute diarrhoea." *Acta Paediatrica*; 1997, 86(5):460-465.
- ¹⁹Guandalini, S., et. al. "*Lactobacillus* GG administered in oral rehydration solution to children with acute diarrhea: a multicenter European trial." *Journal of Pediatric Gastroenterology and Nutrition*; 2000, 30:54-60.
- ²⁰Reid PhD, G. "Beneficial Bacteria." *Natural Foods Merchandiser*; April 2003.
- ²¹Majamaa, H., et al. "Probiotics: a novel approach in the management of food allergy." *Journal of Allergy and Clinical Immunology*; 1997, 99(2):179-185.
- ²²Lin, M.Y. & Chang, F.J. "Antioxidative effect of intestinal bacteria *Bifidobacterium longum* ATCC 15708 and *Lactobacillus*

- acidophilus ATCC 4356." *Digestive Diseases and Sciences*; 2000, 45(8):1617-1622.
- ²³Bernet, M.F., et. al. "Lactobacillus acidophilus LA 1 binds to cultured human intestinal cell lines and inhibits cell attachment and cell invasion by enterovirulent bacteria." *Gut*; 1994, 35(4):483-489.
- ²⁴Chatterjee, A., et. al. "The bactericidal effects of Lactobacillus acidophilus, garcinol and Protykin compared to clarithromycin, on Helicobacter pylori." *Molecular and Cellular Biochemistry*; 2003, 243(1-2):29-35.
- ²⁵Vilaichone, R.K., et. al. "Inhibitory effect of Lactobacillus acidophilus on Helicobacter pylori in peptic ulcer patients: in vitro study." *Journal of the Medical Association of Thailand*; 2002, 85 Suppl 1:S79-84.
- ²⁶Simakachorn, N., et. al. "Clinical evaluation of the addition of lyophilized, heat-killed Lactobacillus acidophilus LB to oral rehydration therapy in the treatment of acute diarrhea in children." *Journal of Pediatric Gastroenterology and Nutrition*; 2000, 30(1):68-72.
- ²⁷Andreeva, P. & Dimitrov, A. [The probiotic Lactobacillus acidophilus—an alternative treatment of bacterial vaginosis]. *Akusherstvo i Ginekologija (Sofia)*; 2002, 41(6):29-31.
- ²⁸Anderson, J.W. & Gilliland, S.E. "Effect of fermented milk (yogurt) containing Lactobacillus acidophilus L1 on serum cholesterol in hypercholesterolemic humans." *Journal of the American College of Nutrition*; 1999, 18(1):43-50.
- ²⁹Nagao, F., et. al. "Effects of a fermented milk drink containing Lactobacillus casei strain Shirota on the immune system in healthy human subjects." *Bioscience, Biotechnology, and Biochemistry*; 2000, 64(12):2706-2708.
- ³⁰Turchet, P., et. al. "Effect of fermented milk containing the probiotic Lactobacillus casei DN-114001 on winter infections in free-living elderly subjects: a randomised, controlled pilot study." *Journal of Nutrition, Health & Aging*; 2003, 7(2):75-77.
- ³¹Pedone, C.A., et. al. "Multicentric study of the effect of milk fermented by Lactobacillus casei on the incidence of diarrhoea." *International Journal of Clinical Practice*; 2000, 54(9):568-571.
- ³²Takahashi, T., et. al. "Effects of orally ingested Bifidobacterium longum on the mucosal IgA response of mice to dietary antigens." *Bioscience, Biotechnology, and Biochemistry*; 1998, 62(1):10-15.
- ³³Singh, J., et. al. "Bifidobacterium longum, a lactic acid-producing intestinal bacterium inhibits colon cancer and modulates the intermediate biomarkers of colon carcinogenesis." *Carcinogenesis*; 1997, 18(4):833-841.
- ³⁴Jiang, T., et. al. "Improvement of lactose digestion in humans by ingestion of unfermented milk containing Bifidobacterium longum." *Journal of Dairy Research*; 1996, 79(5):750-757.
- ³⁵Xiao, J.Z., et. al. "Effects of milk products fermented by Bifidobacterium longum on blood lipids in rats and healthy adult male volunteers." *Journal of Dairy Research*; 2003, 86(7):2452-2461.
- ³⁶Almada BSc, A. "Appliance Of Science." *Functional Foods & Nutraceuticals*; December 2002.
- ³⁷Gibson, G.R. & Roberfroid, M.B. "Dietary modulation of the human colonic microbiota: introducing the concept of prebiotics." *Journal of Nutrition*; 1995, 125(6):1401-1412.
- ³⁸Buddington, R.K., et. al. "Dietary supplement of neosugar alters the fecal flora and decreases activities of some reductive enzymes in human subjects." *American Journal of Clinical Nutrition*; 1996, 63(5):709-716.
- ³⁹Reid PhD, G. "Prebiotic Plethora Colonises The Field." *Functional Foods & Nutraceuticals*; November 2002.
- ⁴⁰Bouhnik, Y., et. al. "Short-chain fructo-oligosaccharide administration dose-dependently increases fecal bifidobacteria in healthy humans." *Journal of Nutrition*; 1999, 129(1):113-116.
- ⁴¹Tahiri, M., et. al. "Five-week intake of short-chain fructo-oligosaccharides increases intestinal absorption and status of magnesium in postmenopausal women." *Journal of Bone and Mineral Research*; 2001, 16(11):2152-2160.
- ⁴²Bornet, F.R., et. al. "Nutritional aspects of short-chain fructooligosaccharides: natural occurrence, chemistry, physiology and health implications." *Digestive and Liver Disease*; 2002, 34 Suppl 2:S111-120.