

Recovery SAP

Science-based intensive probiotic therapy to enhance recovery

Probiotics are beneficial bacteria that are normally found in a healthy gastrointestinal system. When someone is experiencing digestive upset — which could range from bloating and indigestion, to conditions such as irritable bowel syndrome (IBS) and inflammatory bowel diseases —, often probiotics can help to reduce or eliminate symptoms, by restoring a healthy balance. Different strains of bacteria will serve multiple functions in the intestinal tract, which can include inhibiting pathogenic bacteria, improving digestion, reducing inflammation, and stimulating gastrointestinal immunity by increasing the secretion of IgA and mucin. A higher concentration of probiotics is especially beneficial to help restore balance in the intestinal tract after taking an antibiotic, with conditions such as IBS, or during times of gastrointestinal distress.

ACTIVE INGREDIENTS

Each enteric vegetable capsule contains:

<i>Lactiplantibacillus plantarum</i> R1012	9 billion CFU
<i>Lactocaseibacillus paracasei</i> R0215	9 billion CFU
<i>Bifidobacterium longum</i> R0175	9 billion CFU
<i>Lactocaseibacillus rhamnosus</i> R0011	7.5 billion CFU
<i>Lactocaseibacillus paracasei</i> HA-196	6.5 billion CFU
<i>Lactobacillus helveticus</i> R0052	4 billion CFU
<i>Bifidobacterium infantis</i> R0033	1 billion CFU
<i>Bifidobacterium breve</i> R0070	1 billion CFU
<i>Bifidobacterium bifidum</i> R0071	1 billion CFU
<i>Lactobacillus delbrueckii</i> ssp. <i>bulgaricus</i> HA-137	1 billion CFU
<i>Streptococcus salivarius</i> ssp. <i>thermophilus</i> R0083	1 billion CFU

Other ingredients: Vegetable magnesium stearate, potato starch, ascorbic acid, inulin, arabinogalactan, saccharose (sucrose), skim milk, maltodextrin, yeast extract (peptone), trehalose, sodium ascorbate, soy peptone, in a capsule composed of hypromellose (carbohydrate gum), hypromellose acetate succinate, and purified water.

This product is non-GMO and vegetarian friendly.

Contains no: Gluten, soy, wheat, eggs, dairy, citrus, preservatives, artificial flavour or colour.

Keep refrigerated.

Recovery SAP contains 30 capsules or 60 capsules per bottle.

DIRECTIONS FOR USE

Adults, adolescents and children ≥ 6 years old: Take 1–2 capsules daily with water or juice or as directed by your healthcare practitioner. If you are on antibiotic(s), take at least 2–3 hours before or after.

Follow treatment with NFH's **ProBio SAP** to maintain intestinal health.

INDICATIONS

Recovery SAP:

- Can be used during antibiotic use to help prevent antibiotic-associated diarrhea, as well as subsequent to antibiotic use to quickly reestablish intestinal flora.
- Assists in improving intestinal microflora with *Bifidobacteria* and *Lactobacilli*, and decreases harmful bacteria such as *Clostridium* species and *E.coli*.
- Is used to help treat symptoms of IBS including gas, bloating, constipation, and diarrhea.
- Helps treat inflammation by reducing IL-8 (proinflammatory) and by increasing IL-6 (anti-inflammatory).
- Can be used to activate immune cells in the intestinal tract and to stimulate the secretion of IgA and mucin.
- May help alleviate allergic rhinitis.
- May help relieve symptoms of diverticular disease.

FEATURES

The high concentration of the 10 probiotic strains found in **Recovery SAP** allows the gastrointestinal tract to be effectively and quickly repopulated to prevent other bacteria or yeast from being able to populate.

The enteric vegetable capsule ensures the delivery of the live probiotics to the intestine because it is resistant to gastric and bile acids.

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for all **Recovery SAP** lot numbers have been tested by a third-party laboratory for identity, potency, and purity.

Scientific Advisory Panel (SAP):
adding nutraceutical research
to achieve optimum health



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WHAT ARE PROBIOTICS?

Probiotics can be defined as living microorganisms which, when ingested in adequate amounts, have beneficial effects on host health by improving intestinal microbial balance, as well as by modulating mucosal and systemic immunity. The most commonly used and studied probiotics are the *Lactobacillus*, *Bifidobacterium* and *Streptococcus* species, which belong to the lactic acid bacteria group. *Lactobacilli* and *Bifidobacteria* are normal inhabitants of the human colonic flora, thus giving a rationale for their use as component of functional foods and supplements.^[1]

WHAT ARE PREBIOTICS?

A prebiotic is a nondigestible food ingredient that beneficially affects the host by selectively stimulating the growth and/or activity of one or more bacterial species in the colon, and thus improves host health.^[2] Specifically, prebiotics (i.e. fructooligosaccharides [FOS] and arabinogalactan) promote growth of *Bifidobacteria* and *Lactobacilli*, decrease intestinal pH, produce short-chain fatty acids, and improve mineral absorption.^[2, 3, 4]

PROBIOTICS — GENERAL DOSE AND DURATION

Numerous studies that have evaluated the use of probiotics on physiological effects in humans, such as in the treatment of lactose intolerance, diarrhea, and colon cancer biomarkers, recommend ingesting a daily dose of 10^9 – 10^{10} live bacteria. Most ingested probiotics are transient, pass through the intestinal tract in 3–30 days, and do not permanently adhere to the intestinal wall. These probiotics exert their effects as they proliferate and metabolize while in the small intestine and colon. Different strains of probiotics exert different effects on human health. Thus, proven effects of one strain or species cannot be transferred to others.^[4] As a result, it is best to supplement with a high-dose multistrain probiotic to provide an optimal range of health benefits as well as suit the needs of different individuals.

Recovery SAP contains a much higher concentration of probiotics compared to many therapeutic probiotic sources. It may be used to restore intestinal balance in cases of acute irritable bowel syndrome (IBS), after experiencing diarrhea, and after taking a course of antibiotics in order to restore optimal ratios of gastrointestinal flora.

PROMOTION OF GUT HEALTH

There are many ways that probiotics may act to improve gut health. Infectious diarrhea and GI disorders, such as irritable bowel syndrome, are conditions associated with altered microbial balance, favoring the development of harmful or pathogenic species. Probiotics may aid in restoring microbial balance through competition with pathogenic microorganisms for nutrients and binding sites on epithelial cells. As well, by producing bacteriocins (antimicrobial substances), organic acids and hydrogen peroxide, probiotics may inhibit the growth of pathogenic bacteria.^[1]

ANTIBIOTIC USE

Antibiotics can selectively decrease tissue invasion and eliminate aggressive bacterial species, or globally decrease luminal and mucosal bacterial concentrations, depending on the spectrum of activity.^[5] Antibiotic-associated diarrhea (AAD) occurs in 25% of patients receiving antibiotics. A progressive increase in incidence and severity of AAD can be seen over the last decade, and is largely attributed to the common use of broad-spectrum antibiotics.^[6]

Studies showed an overall reduction in the risk of AAD when probiotics were coadministered with antibiotics.^[7, 8, 9] In addition to preventing AAD, other studies show the protective effects of probiotics against traveler's diarrhea and acute pediatric diarrhea.^[10, 11, 12] The advantages of probiotic therapy include multiple mechanisms of action against pathogenic bacteria. Ingestion of probiotic bacteria may enhance host flora by lowering intestinal pH, thereby decreasing colonization and invasion by pathogenic organisms; stimulating host immune function; and suppressing pathogenic bacteria colonization.^[13] **Recovery SAP** may be used during antibiotic use to help prevent AAD, used in symptomatic treatment of diarrhea, or used to establish or maintain optimal gastrointestinal ratios of microflora.

TREATING SYMPTOMS OF AN IRRITABLE BOWEL

The imbalance of intestinal microflora can lead to an array of symptoms involving the bowels, which may include intermittent abdominal pain, fluctuation between diarrhea and constipation, bloating and flatulence. Irritable bowel disease may also be associated with chronic and recurring intestinal infections, ulcerative colitis, Crohn's disease and pouchitis.

Studies have found the intestinal microflora in IBS patients to be imbalanced, and the frequency of symptoms of IBS to increase after enteric infections.^[14] The reestablishment of probiotic bacteria is critical after infection to restore intestinal health. A 2008 meta-analysis showed probiotic use is associated with improvement in global IBS symptoms compared to placebo (pooled relative risk [RR_{pooled}] 0.77, 95% confidence interval [95% CI] 0.62–0.94).^[15] Probiotics are also associated with lower frequencies of abdominal pain compared to placebo (RR_{pooled} = 0.78 [0.69–0.88]).^[15]

EFFECTS ON THE IMMUNE SYSTEM AND INFLAMMATION

In addition to improving intestinal microflora, there is now evidence that probiotics have beneficial effects on the immune system. Eighty percent of all immunologically active cells of the body are found in the gut-associated lymphoid tissue (GALT). Normal microfloral balance is necessary for the development of GALT, suggesting the importance of microbe–gut immune system interactions in the development of the immune system. Studies show that probiotics influence the development of both specific and nonspecific cellular and humoral gut mucosal immune responses.^[16]

Some probiotics enhance the mucosal barrier by increasing the production of innate immune molecules, including goblet-cell-derived mucins and trefoil factors and defensins. Other probiotics mediate their beneficial effects by promoting adaptive immune responses (secretory immunoglobulin A (IgA), regulatory T-cells, interleukin (IL)10).^[17] Studies have shown the ability of probiotics to modulate signaling pathways and ultimately resulting in decreased tumour necrosis factor (TNF)-induced IL8 production.^[18, 19]

Secretory IgA is a very important component of antibody response. Secretory immunoglobulin A is the most important and predominant immunoglobulin in mucosal surfaces. It provides protection against antigens, potential pathogens, toxins, and virulence. IgA-producing B-cells can help prevent overgrowth of unwanted bacterial species. Studies have shown that probiotics can stimulate the production of IgA by plasma cells.^[20] An association with specific types of bacterial species (particularly *Lactobacilli* and *Bifidobacteria*) helps the host maintain adequate gut barrier and immune mechanisms.^[21]

DIVERTICULAR DISEASE, ALLERGIC RHINITIS AND GUT HEALTH

Recent evidence supports the role played by probiotics in the treatment of gut and immune system disorders. A systematic review of 13 studies showed that probiotic strains can help manage symptoms of diverticular disease at various stages.^[22] Specific strains of probiotics such as *L. paracasei* in combination with other strains may play an important role in treatment and prevention of allergic rhinitis.^[23] Further research is required to fully understand the mechanism of action of probiotics in the treatment of digestive and immune system disorders.

SAFETY OF PROBIOTIC SUPPLEMENTATION

The safety record of probiotics is excellent, with *Lactobacilli* and *Bifidobacteria* designated as generally recognized as safe (GRAS).^[1] The lack of pathogenicity when probiotic use extends to all age groups and to immunocompromised individuals.^[24]

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