Bifido-PB30+ DF

Bifidus-Only Probiotics | VA-147 / VA-947

Key Features:

- **Dairy-Free,** Five Strains, 30 billion CFU
- Features **HN019 & BL-04-** Clinically Proven to Help Regulate Gut-Motility & Boost Immune System
- **Stability:** Acid & Bile-Resistant
- **Efficacy:** Human Gut-Anchoring Ability
- **Safety:** ATCC®-Registered & Antibiotic Resistance Tested

Description:

Bifidobacteria have been considered the most important organisms in the colonic flora. They are among the earliest microbiota genera to colonize the infant gut as they can be transmitted from the mother's birth canal, GI tract, and breast milk.[1] However, Bifidobacteria concentrations decrease as individuals age, with greatest declines observed in the elderly.[2]

Bifido-PB30+ provide a combination of 5 proprietary Bifidobacteria strains, which have been selected based on their superior gut-anchoring ability, resistance to pH and bile, and their ability to modulate intestinal microflora composition.

Indications:

- newborns with disrupted microbiota (ie. antibiotic use)
- restoring gut motility in the elderly
- patients with predisposition to **d-lactic acidosis**, such as Small Intestinal Bacterial Overgrowth (SIBO), and Short Bowel Syndrome

Description:

D-lactic acid is amongst the most abundant organic acids produced by bacteria in our gut, especially in the colon. While most d-lactate is consumed by the surrounding microbiota to make short chain fatty acids (SCFAs) that act as fuel for the colonocytes,[1] any excess is readily re-absorbed into our blood stream and processed by the liver and the kidneys.

However, when there is an excessive load of plasma d-lactic acid from the gut bacteria, it can potentially result in a condition called 'D-lactic acidosis'. [Figure 1] Symptoms of d-lactic acidosis may include altered mental status, slurred speech, and ataxia, with patients often appearing drunk.[2]

People with the following conditions are more susceptible to d-lactic acid accumulation:

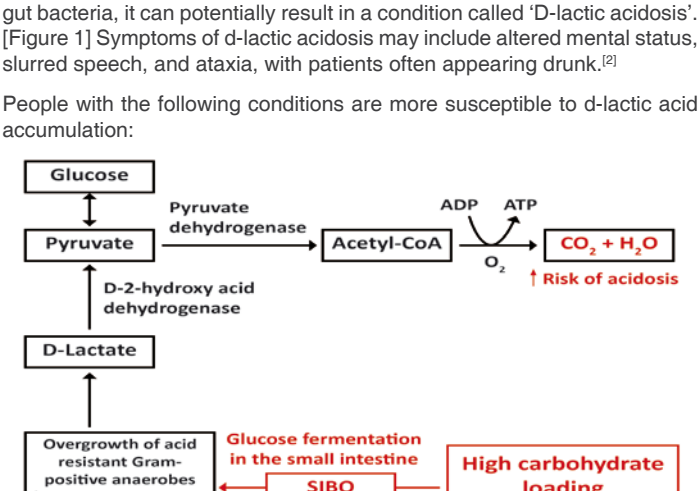


Figure 1. Pathogenesis of D-lactic acidosis. Source: Kidney International [4]

Quantity: 42 Vegetarian Capsules

Ingredients (per capsule):

Bifidobacterium bifidum (BB-06).....4 billion cfu
Bifidobacterium breve (BB-03).....5 billion cfu
Bifidobacterium longum subsp. infantis (BI-26).....1 billion cfu
Bifidobacterium lactis (BL-04).....10 billion cfu
Bifidobacterium lactis (HN019).....10 billion cfu

*May contain up to 45 billion viable cells per capsule at the time of manufacture.

Suggested Use: Take 1 capsule 1 - 3 times per day, or as directed by a health care practitioner. If you are on antibiotic(s), take at least 2-3 hours before or after.

- Chronic kidney disease (compromised excretion)
- Short bowel syndrome (prone to abnormally high production of d-lactic acid)
- Small intestinal bacterial overgrowth (SIBO) (prone to abnormally high production of d-lactic acid)

Short Bowel Syndrome

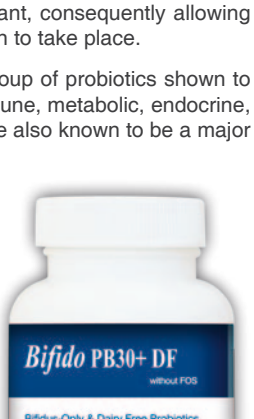
Short bowel syndrome is a group of symptoms that arises when a significant portion of the small intestine is resected - a procedure commonly done in patients with Crohn's disease. The resection of small intestine directly reduces the patient's digestive and absorptive capabilities. Therefore, d-lactic acidosis is most commonly seen in these patients after they consume a carbohydrate load,[3] as the unabsorbed carbohydrates act as a substrate for colonic bacteria to form large amounts of D-lactic acid and other organic acids that can get re-absorbed into the blood stream.

SIBO & Lactobacilli

The migrating motor complex (MMC) is at the center of the SIBO pathogenesis. It is a cyclic, recurring motility pattern that moves through the stomach and small intestine during fasting states and is interrupted by feeding. Also known as the "housekeeping wave," the MMC sweeps out any undigested food, bacteria and debris from the small intestine.

When the MMC is compromised in SIBO, it allows various bacteria to colonize in the proximal portion of the small intestine where the carbohydrates from foods are the most abundant, consequently allowing large amounts of lactate-producing fermentation to take place.

Lactobacillii are the most commonly utilized group of probiotics shown to exert a number of beneficial effects on the immune, metabolic, endocrine, and nervous systems. However, Lactobacilli are also known to be a major group of d-lactic acid producing bacteria in our gut [3],[4] and have been found in excessive numbers via aspiration of the duodenum in SIBO patients.[5] This might explain why some SIBO patients experience adverse reactions from taking probiotics, as Lactobacilli spp. are found in almost all probiotic supplements in the market.



This is where Bifidobacteria-only probiotics can be useful.

The Ideal Metabolic Facilitators & Immune Modulators

Bifidobacteria are often considered the most important organisms in the colonic flora. They are among the earliest microbiota genera to colonize the infant

gut as they can be transmitted from the mother's birth canal, GI tract, and breast milk.[6] However, Bifidobacteria concentrations decrease as individuals age, with the greatest declines observed in the elderly.[3]

Bifidobacteria have been shown to mostly colonize the large intestine, making them the preferred choice of probiotics for SIBO.

Moreover, while Bifidobacteria can mediate carbohydrate fermentation in the large intestine and contribute to the production of important short-chain fatty acids (SCFAs), their energy production can shift to rely on an alternative metabolic pathway termed the 'bifid shunt', which produces more energy in the form of ATP from carbohydrates than the lactate-producing fermentative pathway [Figure 2].[7]

This alternative energy production pathway makes Bifidobacteria more beneficial for individuals predisposed to d-lactic acid accumulation (i.e. short bowel syndrome, chronic kidney disease, and SIBO).

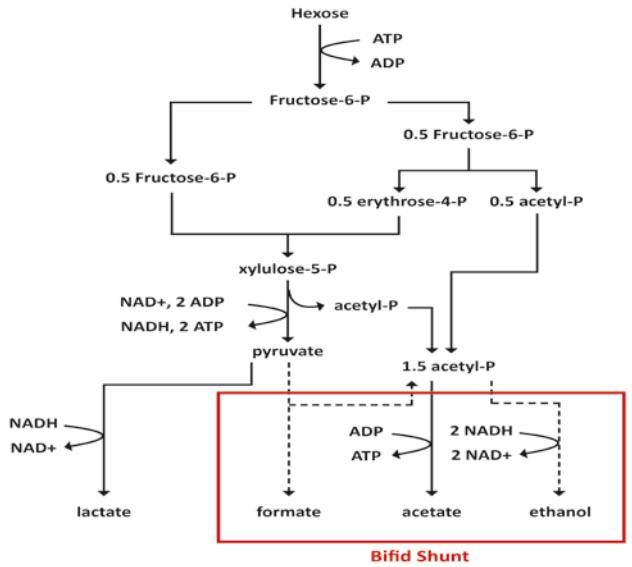


Figure 2. Bifid Shunt Pathways[7]

Improve Whole Gut Transit Time & Enterohepatic Metabolism

Functional bowel disorders are non-specific conditions, often associated with disturbed whole gut transit time (WGTT), without any identifiable structural or biochemical cause and often diagnosed, by exclusion, as 'irritable bowel syndrome' (IBS).

WGTT is directly associated with enterohepatic bile acid and steroid hormone re-absorption, as well as colonic pH and short-chain fatty acid concentrations. Thus, it has been postulated that functional gastrointestinal symptoms may be associated with an increased risk of gallstones, and possibly bowel and breast cancer, when presenting concomitantly with prolonged WGTT.[8]

In a randomized controlled trial (RCT) involving 100 subjects with functional gastrointestinal symptoms, [9] ***B. lactis HN019*** was demonstrated to significantly decrease the WGTT over 14 days of intervention (17.2 billion per day = 33% reduction, 1.8 billion per day = 25% reduction) with no change observed in the placebo group. Furthermore, HN019 was shown to significantly improve 8 of 9 and 7 of 9 functional GI symptom scores (particularly, constipation significantly reduced) in the high dose and low dose groups, respectively; whereas, only 2 of 9 symptoms showed a statistically significant improvement with placebo.

This RCT demonstrated that HN019 could play an integral part in not only the excretion of toxic metabolites, but also restoring gut motility in IBS-Constipation and IBS-Mixed.

The Foundation to A Healthy Immune System

B. infantis is passed from mother to baby during vaginal birth and is considered a superior colonizer of infant gut due to its unique ability to digest oligosaccharides in the human milk.[10] However, with the growing practice of C-section, avoidance of breastfeeding, and exposure to antibiotics in mother's life, colonization of B. infantis has been largely eliminated in babies born today.

Preclinical data has shown that *B. infantis* has anti-inflammatory activity, and could decrease intestinal permeability in premature intestinal cells. In premature infants, B. infantis was found to decrease Enterobacteriaceae (e.g. Salmonella, E. coli, Klebsiella, and Shigella) and reduce the risk of necrotizing enterocolitis.

Colonization with *B. infantis* is also associated with better weight gain, increased thymic index, and better response to vaccines.

In a phase I clinical trial, *B. infantis* supplement showed fewer and better formed stool in healthy term breastfed infants, compared to "frequent, watery" stool in the control group.[11] Multiple clinical trials and a metaanalysis found B. infantis supplementation significantly relieves IBS symptoms (abdominal pain, gas/bloating, bowel dysfunction, etc), as well as normalization of inflammatory markers.[12],[13]

Due to the fact that up to 84% of IBS cases are caused by SIBO, [14] *B. infantis* can also be useful in both Recovery or Remission Phases of SIBO treatments.

Moreover, in an RCT involving 465 participants, *B. lactis* Bl-04 was demonstrated to support the immune system and reduce the risk of respiratory infection by 27% (p=0.02).[15]

Reference:

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