



PRODUCT FACT SHEET

PROBIOTIC COMPLETE™ Quad Action Intestinal Support

A combination of the important upper and lower digestive tract intestinal flora: *Lactobacillus acidophilus* and *Bifidobacterium*. A special polysaccharide matrix delivery system protects the probiotics from stomach acid to ensure optimum delivery in the gut. This product requires no refrigeration.

KEY FEATURES

- Contains 4 billion viable bacterial cells at time of manufacture and guaranteed to contain at least 2 billion viable bacterial cells at expiration date (2 year shelf life).
- Potency is guaranteed at the best by date, not time of manufacture.
- No refrigeration required or recommended.
- Unique Polysaccharide Matrix Delivery System.
- Provides a comprehensive blend of four different beneficial bacterial strains in a one-a-day capsule.
- LA-5® (*Lactobacillus acidophilus*) and BB-12® (*Bifidobacterium*) have been used in experimental and clinical studies.
- *Lactobacillus delbrueckii* ssp. *bulgaricus* and *Streptococcus thermophilus* are the beneficial strains of bacteria used in yogurt.

POLYSACCHARIDE MATRIX DELIVERY SYSTEM

This unique delivery system technology ensures probiotic survival through the acidic stomach and protects the probiotics from release until reaching the small intestine (for *acidophilus*) and large intestine (for *bifidus*) where these beneficial bacteria become rehydrated and released in their full biologically active state. The delivery system ensures bacteria survival through the passage of the stomach into the small intestine.

The polysaccharides consist of carbohydrates, such as potato starch and cellulose. This special Polysaccharide Matrix is insoluble at a low pH (high acidity). The human stomach has an average pH of 1.0 – 3.5. The gelatin capsule dissolves in the low pH gastric juices while the polysaccharides become rehydrated and form an insoluble Gel Matrix. This Gel Matrix protects the probiotic bacteria until release. The Gel Matrix is dissolved in the higher pH environment of the duodenum (upper part of the small intestine) and the probiotic bacteria are rehydrated and released in their full biologically active state.

Laboratory and clinical tests confirm the survival of probiotic bacteria with the Polysaccharide Matrix after exposure to extreme acid conditions in vitro and after passage through the stomach in vivo.



PROBIOTIC COMPLETE

ITEM #: 0717-0030-00

DESCRIPTION

Probiotic with unique polysaccharide matrix delivery system that assists in restoring and maintaining healthy intestinal flora. No refrigeration needed.

HOW SUPPLIED

Cream colored, opaque gelatin capsules; 30 per glass bottle.

DIRECTIONS

One to three gelatin capsules daily, preferably before meals with a glass of water.

Supplement Facts	
Serving Size 1 Capsule	Servings Per Container 30
Amount Per Serving	% Daily Value
LA-5® <i>Lactobacillus acidophilus</i>	840 million cells *
BB-12® <i>Bifidobacterium</i>	840 million cells *
<i>Streptococcus thermophilus</i>	220 million cells *
<i>Lactobacillus delbrueckii</i> ssp. <i>bulgaricus</i>	100 million cells *
* Daily Value not established.	





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BACKGROUND

The concept of probiotics is thought to date back to 1908, when Noble Prize winner Eli Metchnikoff suggested that the long life of Bulgarian peasants resulted from their consumption of fermented milk products. However, it was not until 1965 that the term “probiotic” was first used for describing substances secreted by one organism, which stimulate the growth of another. Then in 2002, probiotics were redefined as “microbial preparations or components of microbial cells that have a beneficial effect on health and wellbeing”¹, and this was likely done to reflect the fact that beneficial supplemental microbes have more than a probiotic effect.

Our current understanding about the mechanisms of action of probiotics is based largely on animal studies and in vitro studies with human tissue. Research indicates that, unlike what was previously theorized, supplemental probiotics and those from fermented foods are not likely to permanently colonize in the human digestive tract. Rather, they may be able to transiently colonize and/or exert their effects as they travel through the gastrointestinal (GI) system^{2,3}. The beneficial effects are thought to occur in three domains: luminal, mucosal and submucosal².

Luminal effects of probiotics include the promotion of a healthy microbial flora and preventing pathogenic bacteria from binding to epithelial cells of the GI tract². Probiotics accomplish this lowering gut pH and by elaborating antibacterial products called bacteriocins. Probiotics may also influence gene expression in pathogenic bacteria and thereby reduce their virulence. Additionally, probiotics can transiently bind to epithelial cells and prevent binding of pathogenic bacteria and their replication².

With these functions in mind, we should envision that the regular consumption of probiotics and/or their supplementation has a modest anti-microbial effect and also allows for a less appreciated benefit, which is the elimination of potentially unhealthy bacteria in the evacuated stool. The chemical composition of feces is not typically a common consideration for most and so viewing bowel movements as a method of removing excess bacteria could be perceived as a superficial notion. However, in fact, bacteria comprise at least 55% of fecal solids⁴.

Mucosal effects of probiotics involve the interaction of ingested probiotics with mucosal cells of the GI tract². Probiotics may enhance the production of mucin and stimulate the release of defensins by GI epithelial cells. Mucin serves as an antibacterial shield that prevents the mucosal binding of enteric pathogens, while defensins are antibacterial peptides. Probiotics also reduce gut permeability by enhancing the integrity of epithelial tight junctions².

Submucosal effects of probiotics include the modulation of both the innate and adaptive arms of the immune system. An example of this is the stimulation of secretory IgA production, which serves to bind enteric pathogens and prevent their translocation. Probiotics also prevent the activation of nuclear factor kappa-B (NF- κ B)², a pro-inflammatory signaling molecule that leads the elaboration of cytokines, eicosanoids and other inflammatory

mediators by most cells types. Additionally, probiotics may be able to increase intestinal immune cell release of interleukin-10 (IL-10), which is an anti-inflammatory cytokine².

These beneficial effects of probiotics described above can be summarized as anti-inflammatory in nature⁵, as they promote both host tissue and commensal bacteria homeostasis^{2,5,6}. This view is also consistent with our understanding that as we age, there is a shift in our gut microflora toward a pro-inflammatory status that is thought to perpetuate a systemic pro-inflammatory state⁷.

“The localized inflammatory process that is present in the intestine of the elderly may be caused by an abnormally activated response to commensal bacteria due to an abrogated mucosal immune tolerance, changes of the microbiota composition, expression of virulence factors by bacteria or some basic defect in the mucosal barrier that results in an overwhelming stimulation of immune cells by nonpathogenic bacterial products”⁷.

Research suggests that an inappropriately altered microbial flora throughout the lifecycle, commonly called intestinal dysbiosis, is associated with a variety of GI complaints. Important to consider is the extensiveness of negative gut health issues and thus the need to consider improving gut ecology.

Approximately 12-20% of the adult population suffers from a gut health concern^{9,10,13}, which suggests that up to 1 in 5 adults are compromised by dysbiotic gastrointestinal symptoms such as pain, bloating, constipation, and diarrhea. From a musculoskeletal perspective, a substantial number of patients with fibromyalgia are also thought to suffer with intestinal dysbiosis¹⁴, and women with two or more gastrointestinal complaints are more likely to suffer with low back pain¹⁵.

Diet is known to be a key factor that modulates the intestinal microflora^{16,17}. An excessive consumption of refined carbohydrates, which characterizes the average American’s diet, seems to be a primary culprit^{18,19}. Not surprisingly, when patients with IBS consume a very low carbohydrate diet, their IBS symptoms improve¹⁹, supporting the view that patients with intestinal dysbiosis need to adopt a diet that does not “feed” the dysbiotic state.

Interestingly, even without dietary change, symptom reduction to varying degrees has been noted with probiotic supplementation for patients with GI concerns^{20,21}. The beneficial effects of probiotics discussed earlier are proposed to be beneficial to liver health by reducing low-grade inflammation caused by bacterial endotoxin absorption²². The systemic effects of gut dysbiosis may also promote negative health issues, as supplemental probiotics have a demonstrated clinical benefit²³⁻²⁵.



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SAFETY

The safety profile of probiotics is excellent. Different studies have shown that the use of probiotics in healthy subjects and even in immunocompromised patients, involves a very low risk of bacterial complications, although over 80 cases of bacteremia

have been reported in Finland, associated with severe prior comorbidities or surgery¹⁰. See the recent review of the safety profile of supplemental probiotics by Whelan and Myers²⁶, which is available at Anaboliclabs.com.

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THE ANABOLIC DIFFERENCE

Anabolic Laboratories' nutritional products are made in a registered, licensed and inspected pharmaceutical facility. Our in-house laboratories and manufacturing facilities are routinely inspected by the United States Food and Drug Administration (FDA) and Drug Enforcement Administration (DEA). We also maintain a Good Manufacturing Practice (GMP) certification from the Natural Products Association.

As a pharmaceutical manufacturer, the standards used for raw materials, production and finished product testing exceed FDA requirements for the nutritional products industry. Our pharmaceutical requirements for manufacturing are the foundation for the guaranteed quality of our nutritional products. Anabolic Laboratories sets the nutritional supplement industry standard for label accuracy, potency and purity as dictated by the FDA for pharmaceutical and nutritional products.



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