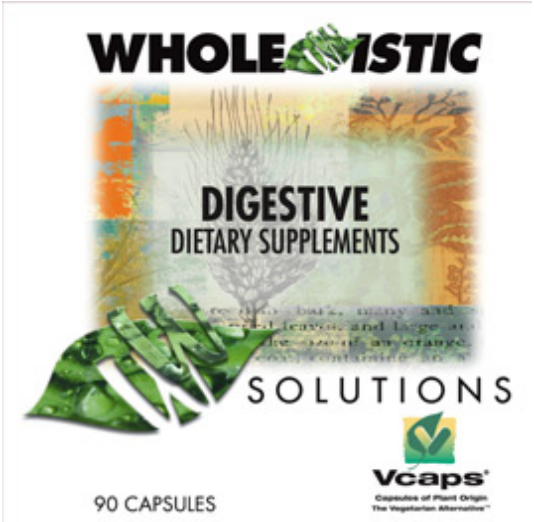
Digestive

This product was specially formulated to provide digestive support throughout a broad range of conditions. It is composed of a comprehensive, proprietary blend of microbial enzymes, probiotics (friendly flora), and select botanicals that act as nutritive sources. The enzymes are specifically formulated to digest ingested food of all food groups, and to provide support for the intestinal tract by creating an environment that is conducive to the colonization of the probiotics contained in this formulation. The wide array of probiotics in this formula is designed to aid digestion, strengthen the immune system and promote a healthy gastrointestinal tract.



Supplement Facts

Serving Size: 1 Capsule
Servings Per Container: 90

Amount Per Serving		% DV
Calcium (as calcium amino acid chelate)	0.75 mg	<2%
Magnesium (as magnesium amino acid chelate)	0.15 mg	<2%
Zinc (as zinc amino acid chelate)	0.5 mg	3%
Manganese (as manganese amino acid chelate)	0.2 mg	10%
Chromium (as chromium amino acid chelate)	10 mcg	8%
Whole-istic Solutions Proprietary Enzyme Blend	**134 mg**	
Amylase	8,000 DU	*
Glucoamylase	20 AGU	*
Protease 3.0	15 SAPU	*
Lipase AN	438 FIP	*
Malt Diastase	650 DP°	*
Peptidase	2,000 HUT	*
Cellulase	500 CU	*
Invertase	500 SU	*
Lactase	400 ALU	*
Alpha-galactosidase	35 GalU	*
Protease 4.5	1,500 HUT	*
Proprietary Probiotic Blend	**35 mg**	
Bifidobacterium longum	100 mil c.f.u.	*
Bifidobacterium bifidum	50 mil c.f.u.	*
Lactobacillus bulgaricus	50 mil c.f.u.	*
Lactobacillus plantarum	50 mil c.f.u.	*
Lactobacillus salivarius	50 mil c.f.u.	*
Lactobacillus casei	50 mil c.f.u.	*
Lactobacillus acidophilus	100 mil c.f.u.	*
Lactobacillus rhamnosus	50 mil c.f.u.	*
Beet root juice powder	40 mg	*
Atlantic kelp algae	20 mg	*

*Daily Value not established

Other Ingredients: Rice bran, vegetable cellulose and water

Carbohydrolytic Enzymes:

Carbohydrate digesting activity is accomplished by several of the included enzymes. Amylase hydrolyzes the interior alpha-1,4-glucosidic bonds of starch. This enzyme has a dextrinizing action that reduces the viscosity of gelatinous starch, amylose, and amylopectin solutions yielding soluble dextrins. Its saccharifying action liberates glucose and maltose. Malt Diastase augments the breakdown of starch by removing successive maltose units from the non-reducing ends of polysaccharides. Finally, to complete the hydrolysis of starch, Glucoamylase is added to assure the breakdown of maltose into glucose molecules. Like amylase, the action of glucoamylase terminates in the release of glucose from the hydrolysis of starch. However, glucoamylase hydrolyzes terminal linkages whereas amylase breaks interior bonds. Amylase does not appear to disrupt the ability of bifidobacteria to produce active biotocin (the antibiotic used by probiotics to kill pathogens). Additionally,

substrate adhesion of bifidobacteria can be inhibited by alpha-1,4-linked glucose sugars (amylose, maltose, maltodextrin and soluble starch), so enzymes that hydrolyze these sugars (amylase, maltase, etc.) may improve bacterial adhesion.

Lactase digests lactose (milk sugar) into glucose and galactose. Lactase deficiency is the most common and well-known form of carbohydrate intolerance. Most mammals, including humans, have high intestinal lactase activity at birth. But, in some cases, this activity declines to low levels during childhood and remains low in adulthood. The low lactase levels cause maldigestion of milk and other foods containing lactose. It is estimated that approximately 70% of the world's population are deficient in intestinal lactase with more than one-third of the U.S. population presumed to be unable to digest dairy products. Supplemental lactase has been found to decrease the symptoms of lactose intolerance associated with the consumption of dairy foods.

Invertase is a disaccharidase that works to break down sucrose (refined table sugar) into glucose and fructose. The prevalence of processed and highly refined foods in the American diet means that we consume a great amount of this sugar which can contribute to undue digestive stress. It is theorized that unrecognized sucrose intolerance is a contributing factor in many allergies. Supplemental Invertase can increase the assimilation and utilization of this sugar.

Alpha-Galactosidase is included to hydrolyze a particular family of complex sugars (oligosaccharides) found in some vegetables, and whole grains, as well as in legumes. These particular sugars, raffinose, stachyose, and verbascose, are indigestible because humans do not produce alpha-galactosidase, required to break them down. As a result, the body does not absorb them. Left in the intestine, these sugars are fermented by the normal bacteria that inhabit the lower intestine with the subsequent formation of gas and bloating. Alpha-galactosidase diminishes intestinal gas production by enhancing the breakdown of these carbohydrates before they reach the lower intestine.
The fibrous structure of the cell walls in many fruits, vegetables and grains pose a particular digestive problem for many people because these various fibers are essentially indigestible. We do not produce the enzymes necessary to digest them and therefore, they pass through the upper digestive tract and proceed to the colon where the colonic bacteria begin a fermentation process. This process can cause bloating, gas, and abdominal distress. Several fiber-hydrolyzing enzymes have been added to this product to facilitate the partial breakdown of these food components.

Cellulase is actually a complex consisting of three distinct enzymes that together convert cellulose (one of the basic components of cell walls) to glucose. Cellulase contributes to the effective breakdown of some of the specific fibrous cell walls present in grains, fruits and vegetables. Cellulase does not appear to disrupt the ability of bifidobacteria to produce active biotocin (the antibiotic used by probiotics to kill pathogens). It is theorized that Candida's cell wall is composed of cellulose making it vulnerable to cellulase. The cell would be disrupted and the yeast would die.

WHOLISTIC SOLUTIONS

Proteolytic Enzymes:

The proteolytic enzymes in this formula are capable of enhancing the breakdown of protein under many different digestive conditions. Protease 3.0 and Protease 4.5 are endopeptidases that cleave interior peptide bonds of protein at different optimum pH levels. This enables protein digestion to begin further up in the digestive tract where the pH is lower, and to continue and augment the endogenous proteases that are active in the higher pH environment of the small intestine. Peptidase FP is an exo-peptidase that selectively hydrolyzes the protein molecules at the terminus of the peptide chain, liberating an amino acid.

Lipolytic Enzyme:

This formula also contains lipase, the enzyme that specifically digests fats (triglycerides) into free fatty acids and glycerol, enabling easier absorption of fat-soluble nutrients through the intestinal mucosa. Considerable digestive distress and even malabsorption of nutrients such as vitamins A and E can result from improper fat digestion. Lipase does not appear to disrupt the ability of bifidobacteria to produce active biotocin

Botanicals:

Beet (b*eta vulgaris*) Beet is a blood-building herb that detoxifies blood and renews it with minerals and natural sugars. The root juice is the part used for this formulation. Beet juice contains betaine, which has many health benefits, including stimulating the function of liver cells and protecting the liver and bile ducts; as well as aiding with the building of red corpuscles and adding tone to blood. Beets also contain phosphorus, sodium, magnesium, calcium, iron, and potassium, as well as fiber, vitamins A and C, niacin, folic acid, and biotin.

The Kelp algae (Ascophyllum nodosum) included in this formula is known for it nutrient dense nature, as it is a rich source of vitamins, minerals, and many trace elements, particularly iodine and selenium. Iodine has long been known to stimulate thyroid metabolism in deficient individuals thus increasing energy and aiding with weight loss. Not only does kelp help with obesity, but it also can help with constipation, indigestion, ulcers, colitis, gallstones, bronchitis, emphysema, asthma, and disorders of the genitourinary and reproductive systems. In addition, to kelp's ability to help provide a healthy intestinal environment, it is also reported to be useful to brain tissue, sensory nerves, and as a blood-vessel cleanser in the treatment of atherosclerosis.

Rice Bran (*oryza sativa*) is a source of insoluble fibers (lignin and hemicellulose) and is a high quality source of nutrients, including magnesium, niacin, thiamin, and vitamin B6. Shown to lower cholesterol levels, and its insoluble fibers increase fecal bulk and can improve general bowel health.

Probiotics:

Probiotics contribute to gastrointestinal health. They produce lactic acid and keep the colon environment slightly acidic to aid in preventing the growth of harmful organisms. Some of the benefits of the individual probiotics are outlined below.

The *Lactobacilli (casei, acidophilus, rhamnosus,* and *plantarum*) produce lactic acid, which creates an acidic environment that is unfriendly to some harmful bacteria. Their by-products, called bacteriscins, can manifest antimicrobial properties and inhibit the growth of some pathogens. The

Lactobacilli, as well as *Bifidobacterium* also help minimize the symptoms of dairy intolerance.

Lactobacillus acidophilus is known to thwart the growth of pathogenic microorganisms, including *Candida Albicans*, by producing both lactic acid and antibiotic compounds. Lactic bacteria produced by *L. acidophilus* act to block the receptors or adhesion sites of pathogens, creating a barrier against infectious organisms. They also prevent production of toxic amines by putrefactive bacteria, thus helping to prevent and treat hepatic encephalopathy.

Lactobacillus casei can decrease the duration of diarrhea.

Lactobacillus acidophilus, bifidobacterium bifidum and longum, and l*actobacillus casei* have also been shown in human clinical studies to reduce the levels of some colonic enzymes (such as ß-glucuronidase) which are implicated in the conversion of procarcinogens to carcinogens. The *bifidobacterium (bifidum* and *longum) inhibit* the growth of pathogenic organisms. In particular, research shows that nitrite-producing organisms are specifically inhibited by this probiotic.

Lactic bacteria produced by *L. acidophilus and L. rhamnosus* act to block the receptors or adhesion sites of pathogens, creating a barrier against infectious organisms. They also prevent production of toxic amines by putrefactive bacteria, thus helping to prevent and treat hepatic encephalopathy. Also *L. rhamnosus* has been shown to accelerate the evacuation of excrement.

Lactobacillus plantarum produces a high percentage of lactic acid, which acts to inhibit harmful microorganisms.

Lactobacillus salivarius has been shown to produce alpha-galactosidase, which can help reduce flatulence. In addition, *L. salivarius has* been shown to be highly resistant to tetracycline and chloramphenicol antibiotics.

L. bulgaricus is intransient in the human intestine, yet important as it passes through by creating the acidic environment helpful in inhibiting harmful bacteria (such as e. coli) and other microorganisms. *L. bulgaricus* works alongside the other lactic bacteria in producing small amounts of hydrogen peroxide, and in producing lactic acid, thereby creating a more acidic environment, inhibitory to undesirable microorganisms.
Several investigators who have studied anti-tumor activity and production of immunity have reported an increase in immunity by lactic bacteria.
Another benefit of probiotics is their ability to regulate bowel movements and halt diarrhea.
Probiotics contribute to gastrointestinal health by providing a toning and health-promoting activity.
They have also been shown to prevent side effects associated with antibiotic treatment and eliminate bad breath due to intestinal imbalances.

Minerals:
Minerals are nutrients that exist in the body and in food in organic and inorganic combinations. They act as catalysts for many biological reactions within the human body, including digestion.

Calcium (as Calcium Chelazome®) is the most abundant mineral in the body, and has many more important functions. Its primary purpose in this formula is to help activate several enzymes, including lipase, and help regulate the passage of nutrients in and out of the cell walls.

Magnesium (as Magnesium Chelazome®) activates enzymes necessary for the metabolism of carbohydrates and amino acids. It also promotes the absorption and metabolism of other minerals, such as calcium, phosphorus, sodium, and potassium. Supplementing the diet with magnesium helps prevent depression, dizziness, muscle weakness, twitching, heart disease, and high blood pressure, and also aids in maintaining proper pH balance.

Zinc (as Zinc Chelazome®) is another essential trace mineral. Nutritionally, it serves many purposes. It is related to the normal absorption and action of vitamins, especially the B complex. It is a constituent of at least 25 enzymes involved in digestion and metabolism, it is a component of insulin, and it is part of the enzyme that is needed to break down alcohol. It also plays a part in carbohydrate digestion and phosphorus metabolism.

Manganese (as Manganese Chelazome®) plays a role in activating numerous enzymes. It aids in the utilization of choline and is an activator of enzymes that are necessary for utilization of biotin, thiamine, and ascorbic acid. Manganese is a catalyst in the synthesis of fatty acids and cholesterol. It also plays a part in protein, carbohydrate, and fat assimilation.

Chromium (as Chromium Chelavite™) is essential for proper insulin activity. In studies worldwide, supplemental chromium has improved blood sugar levels and other symptoms in people with glucose intolerance, type 1 and type 2 diabetes, steroid-induced diabetes, and gestational diabetes. Typical Western diets barely supply the adequate intake for chromium. Several dietary and lifestyle factors can further deplete chromium levels. High sugar ingestion, trauma, stress and hard exercise increase its elimination: while age decreases its' absorption. One study involving over 40,000 people revealed that the chromium content of their hair, sweat and urine decreased with age. This may be why the elderly are more prone to adult diabetes, glucose intolerance, and impaired insulin sensitivity. Aging was found to have negative effects on glucose, insulin, blood lipids, insulin sensitivity, body weight, body fat and lean body mass. Chromium has positive effects on all of these variables.

WHOLESTIC SOLUTIONS

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