Primary Benefits of Isotonix Digestive Enzymes with Probiotics*:

- **Provides essential enzymes to optimize nutrient absorption from food.**
- **Supports proper digestive function, improve moos and intestinal health and help neutralize food-borne toxins with Probiotics.**
- **Combats nutrition loss from processed foods**
- **Adds beneficial bacteria to the gut**
- **Helps improve the environment of the intestinal tract**
- **Supports the body in maintaining proper digestive functions**
- **Supports the immune system**
- **Promotes healthy bowel movements**

Key Ingredients:

Amylase (2400U*)
Amylases are enzymes that catalyze the hydrolysis of alpha-1, 4-glycosidic linkages of polysaccharides to yield dextrins, oligosaccharides, maltose and D-glucose. Amylases are derived from animal, fungal and plant sources. Pancreatin and pancrelipase contain amylase derived from the pancreas of animals, usually porcine pancreas. Amylase is also derived from barley malt and the fungus *Aspergillus oryzae*. There are a few different amylases. These enzymes are classified according to the manner in which the glysosidic bond is attacked. Alpha-amylases hydrolyze alpha-1, 4-glycosidic linkages, randomly yielding dextrins, oligosaccharides and monosaccharides. Alpha-amylases are endo-amylases. Exoamylases hydrolyze the alpha-1, 4-glycosidic linkage only from the non-reducing outer polysaccharide chain ends. Exoamylases include beta-amylases and glucoamylases (gamma-amylases, amyloglucosidases). Beta-amylases yield beta-limit dextrins and maltose. Gamma-amylases yield glucose. Amylases are used as digestants. Amylase activity is expressed as Dextrinizing Units or DU.

Protease (600U)
Proteases (proteinases, peptidases or proteolytic enzymes) are enzymes that break peptide bonds between amino acids in proteins. The process is called proteolytic cleavage, a common mechanism of activation or inactivation of enzymes especially involved in blood coagulation or digestion. They use a molecule of water for this and are thus classified as hydrolases.
Proteases occur naturally in all organisms and constitute one to five percent of the gene content. These enzymes are involved in a multitude of physiological reactions from simple digestion of food proteins to highly regulated cascades (e.g. the blood clotting cascade, the complement system, apoptosis pathways and the invertebrate prophenoloxidase activating cascade). Peptidases can break either specific peptide bonds (*limited proteolysis*), depending on the amino acid sequence of a protein, or break down a complete peptide to amino acids (*unlimited proteolysis*). The activity can be a destructive change abolishing a protein's function or digesting it to its principal components, an activation of a function or a signal in a signaling pathway.

Lactase (400U)
Lactase (LCT), a member of the ?-galactosidase family of enzyme, is involved in the hydrolysis of the disaccharide lactose into constituent galactose and glucose monomers. In humans, lactase is present predominantly along the brush border membrane of the differentiated enterocytes lining the villi of the small intestine.

Lactase is essential for digestive hydrolysis of lactose in milk. Deficiency of the enzyme causes lactose intolerance; most humans become lactose intolerant as adults.

Lactase has an optimum temperature of about 48° C for its activity and an optimum pH of 6.5. In humans, the gene is localized on the second chromosome (2q21). Bacterial and Archaea lactase lacks a membrane binding domain and free float around the cell; these also tend to be more general ?-galactosidase that will cleave more than just lactose.

Lipase (100U)
A lipase is a water-soluble enzyme that catalyzes the hydrolysis of ester bonds in water–insoluble, lipid substrates. Most lipases act at a specific position on the glycerol backbone of a lipid substrate (A1, A2 or A3). In the example of human pancreatic lipase (HPL), which is the main enzyme responsible for breaking down fats in the human digestive system, a lipase acts to convert triglyceride substrates found in oils from food to monoglycerides and free fatty acids. A myriad of other lipase activities exist in nature, especially when the phospholipases and sphingomyelinases are considered.
Lipases are ubiquitous throughout living organisms, and genes encoding lipases are even present in certain viruses. While a diverse array of genetically distinct lipase enzymes are found in nature. Most are built on an alpha/beta hydrolase fold (see image) and employ a chymotrypsin-like hydrolysis mechanism involving a serine nucleophile, an acid residue (usually aspartic acid), and a histidine. Some lipases work within the interior spaces of living cells to degrade lipids. In the example of lysosomal lipase, the enzyme is confined within an organelle called the lysosome. Other lipase enzymes, such as pancreatic lipases, are found in the spaces outside of cells and have roles in the metabolism, absorption and transport of lipids throughout the body. As biological membranes are integral to living cells and are largely composed of phospholipids, lipases play important roles in cell biology. Furthermore, lipases are involved in diverse biological processes ranging from routine metabolism of dietary triglycerides to cell signaling and inflammation. Several different types of lipases are found in the human body, including pancreatic lipase, hepatic lipase, lysosomal lipase, gastric lipase, endothelial lipase and as various phospholipases.

Cellulase (20U)
Cellulase is an enzyme complex which breaks down cellulose to beta-glucose. It is produced mainly by symbiotic bacteria in the ruminating chambers of herbivores. Aside from ruminants, most animals (including humans) do not produce cellulase in their bodies, and are therefore unable to use most of the energy contained in plant material.
Enzymes which hydrolyze Hemicellulose are usually referred to as hemicellulase and are usually classified under cellulase in general. Enzymes that cleave lignin are occasionally classified as cellulase, but this is usually considered erroneous.

Cellulase is an enzyme derived from the fungi *Aspergillus niger* and *Trichoderma longbrachiatum* or other sources. Cellulose is an indigestible plant polysaccharide. It is the principal constituent of the cell wall of plants. Cellulase has cellulolytic activity, meaning that it hydrolyzes cellulose. Cellulase hydrolyzes the beta-D-1, 4-glycosidic bonds of cellulose. Cellulase derived from *Trichoderma longbrachiatum* is comprised of an enzyme complex consisting of cellulase, a glucosidase, cellobiohydrolase and a glucanase. This complex converts cellulose to beta-dextrins and ultimately to D-glucose. Cellulase is used as a digestive aid, particularly in animals, and for the management of flatulence. The activity of cellulase is expressed in cellulose units or CU.
Cellulase is used for commercial food processing in coffee. It performs hydrolysis of cellulose during drying of beans. Cellulase is used in the fermentation of biomass into biofuels, although this process is relatively experimental at present. Cellulase is used to address Phytobezoars, a form of cellulose bezoar found in the human stomach.

Maltase (125 MWU*)
Maltase is one enzyme produced by the cells lining the small intestine to break down disaccharides. It comes under the enzyme category carbohydrase (which is a subcategory of hydrolase), and the disaccharide it hydrolyses is maltose.

Maltase is secreted by the surface cells of the villi, which are thin projections on the mucosa. These are found throughout the small intestine, but differ in shape in the duodenum and ileum sections.

The maltase works like any other enzyme, with the substrate (maltose) binding with the active site. When the maltose has bonded with the maltase, the former is hydrolysed, split into its component parts (i.e. two molecules of ?-glucose.) This is done by breaking the glycosidic bond between the 'first' carbon of one glucose bond, and the 'fourth' carbon of the other (a 1-4 bond).

Sucrase (400 SU*)
Sucrase is the enzyme involved in the hydrolysis of sucrose to fructose and glucose. It is secreted by the tips of the villi of the epithilum in the small intestines. Its levels are reduced in response to villi blunting events such as ciliac sprue. Increases in Pregnancy/Lactation and Diabetes as villi hypertrophy.

Magnesium (Carbonate) (24 mg)
Foods rich in magnesium include unpolished grains, nuts and green vegetables. Green leafy vegetables are good sources of magnesium because of their chlorophyll content. Meats, starches and milk are less rich sources of magnesium. Refined and processed foods are generally quite low in magnesium. The average daily magnesium intake in the U.S. for males nine years and older is estimated to be about 323 milligrams; for females nine years and older, it is estimated to be around 228 milligrams. Some surveys report lower intakes, and some believe that the dietary intake may be inadequate for many.

Magnesium is a component of the mineralized part of bone and is necessary for the metabolism of potassium and calcium in adults. It helps maintain normal levels of potassium, phosphorus, calcium, adrenaline and insulin. It's also important for the mobilization of calcium, transporting it inside the cell for further utilization. It plays a key role in the functioning of muscle and nervous tissue. Magnesium is necessary for the synthesis of

all proteins, nucleic acids, nucleotides, cyclic adenosine monophosphate, lipids and carbohydrates. This mineral also helps maintain healthy kidneys and bladder. Further, magnesium helps indirectly in combating oxidative stress and lipid peroxidation involved with the aging process.

Magnesium is required for release of energy, regulation of the body temperature, proper nerve function, helping our bodies handle stress and regulating our metabolism. Magnesium works together with calcium to regulate the heart and blood pressure. Importantly, magnesium is also required by your body to build healthy bones and teeth, and is required for proper muscle development. It works together with calcium and vitamin D to help keep bones strong.

Potassium (Bicarbonate) (88 mg)
Foods rich in potassium include fresh vegetables and fruits such as bananas, oranges, cantaloupe, avocado, raw spinach, raw spinach, cabbage and celery.

Potassium is an essential macromineral that helps to maintain fluid balance. It also plays a role in a wide variety of biochemical and physiological processes. Among other things, it is important in the transmission of nerve impulses, the contraction of cardiac, skeletal and smooth muscle, the production of energy, the synthesis of nucleic acids, the maintenance of intracellular tonicity and the maintenance of normal blood pressure. Potassium promotes normal muscle relaxation and insulin release. It also promotes normal glycogen and protein synthesis. Potassium is an electrolyte that promotes proper heartbeat. Potassium is also important in releasing energy from protein, fat and carbohydrates during metabolism.

Potassium also regulates water balance and supports the body's normal recuperative powers. Potassium promotes joint health and comfort. Potassium is crucial for the elimination of wastes. Potassium promotes head comfort, promotes faster healing of cuts, bruises and other minor injuries and generally contributes to a sense of well-being. Potassium is stored in the muscles.

Lactobacillus sporogenes - Lactospore®* (150,000,000 CFU**)**
Lactobacillus sporogenes is a lactic acid bacillus preparation manufactured and distributed by the SABINSA CORPORATION.

The foundations of probiotic (meaning "in favor of life") microbiotherapy lie in the postulate of Metchnikoff, a Russian physician, that the growth of toxin-producing putrefactive organisms in the gastrointestinal tract could be controlled by the implantation of beneficial lactobacilli in the gut. The clinical application of preparations containing lactobacilli was initiated on the basis of Metchnikoff's Theory of Longevity, which associates with prolonged youthfulness and a healthy old age with the continuous ingestion of lactobacilli. Metchnikoff attributed the longevity of the residents of the Balkan countries to the regular consumption of Bulgarian buttermilk. In the early 1900's, he claimed to have successfully cured many of his patients who suffered from a wide variety of organic illnesses, ranging from dry skin to gastrointestinal disorders, through the therapeutic use of Lactobacilli. Metchnikoff suggested that aging is the process of chronic putrefactive intoxication caused by certain intestinal bacteria and that these harmful effects could be mitigated through regular ingestion of live *Lactobacillus* cultures - a postulate that created a sensation in those early days. The

enthusiasm shown then by eminent doctors of that time, advocating the therapeutic use of *Lactobacillus*, laid the foundations of lactobacillus therapy or microbiotherapy.

Fermented milks have been a part of the human diet since ancient times. Their efficacy in alleviating gastrointestinal disorders has been exploited in systems of traditional medicine the world over. Lactic acid bacteria, the indigenous microbial flora in fermented milks and natural inhabitants of the human gastrointestinal tract were thought to be responsible for the longevity of their hosts through their curative and prophylactic actions.

The role of lactic acid bacteria in gastrointestinal microecology has been the subject of extensive research. It is widely believed that these bacteria prevent the growth of putrefactive microorganisms responsible for ill health by competitive inhibition, the generation of a non-conducive acidic environment and/or by the production of bacteriocins. Their metabolites may include B group vitamins. Their proteolytic, lipolytic and beta-galactosidase activities promote the digestibility and assimilation of ingested nutrients, thereby rendering them valuable in convalescent/ geriatric nutrition. Lactic acid bacteria also colonize the skin and mucus membranes and promote skin and urinary tract health. Lactobacilli promote vaginal health. They utilize glycogen in the vaginal epithelial cells to produce lactic acid which helps to maintain the pH of this environment between 4.0 and 4.5, which creates a healthy environment.

***U, MWU, SU = Units of enzyme activity**
****CFU = Colony forming units**

These statements have not been evaluated by the Food and Drug Administration.
This product is not intended to diagnose, treat, cure or prevent any disease.

Scientific Studies:

- Afonso, C. L., E. R. Tulman, Z. Lu, E. Oma, G. F. Kutish, and D. L. Rock. 1999. The genome of Melanoplus sanguinipes entomopoxvirus. J Virol 73:533-52.
- Anthony H, Collins CE, Davidson G, et al. Pancreatic enzyme replacement therapy in cystic fibrosis: Australian guidelines. J Pediatr—Child Health. 1999; 35:125-129.
- Barrett A.J., Rawlings ND, Woessner JF. The Handbook of Proteolytic Enzymes, 2nd ed. Academic Press, 2003. ISBN 0120796104.
- Billigmann P. [Enzyme therapy—an alternative in treatment of herpes zoster. A controlled study of 192 patients]. [Article in German]. Fortschr Med. 1995; 113:43-48.
- Bock U, Kolac C, Borchard G, et al. Transport of proteolytic enzymes across Caco-2 cell monolayers. Pharm Res. 1998; 15:1393-1400.
- Brady, L., A. M. Brzozowski, Z. S. Derewenda, E. Dodson, G. Dodson, S. Tolley, J. P. Turkenburg, L. Christiansen, B. Huge-Jensen, L. Norskov, and et

al. 1990. A serine protease triad forms the catalytic centre of a triacylglycerol lipase. Nature 343:767-70.
- Carriere, F., C. Withers-Martinez, H. van Tilbeurgh, A. Roussel, C. Cambillau, and R. Verger. 1998. Structural basis for the substrate selectivity of pancreatic lipases and some related proteins. Biochim Biophys Acta 1376:417-32.
- Chapin III, F.S., P.A. Matson, H.A. Mooney. Principles of Terrestrial Ecosystem Ecology. Springer-Verlag New York, NY. 2002
- Coenen TMM, Bertens AMC, De Hoog SCM, Verspeek-Rip CM. Safety evaluation of a lactase enzyme preparation derived from Kluyveromyces lactis. Food Chem Toxicol. 2000; 38:671-677.
- de Smet PA, Pegt GW, Meyboom RH. [Acute circulatory shock following administration of the non-regular enzyme preparation Wobe-Mugos]. [Article in Dutch]. Ned Tijdschr Geneeskd. 1991; 135:2341-2344.
- Diaz, B. L., and J. P. Arm. 2003. Phospholipase A(2). Prostaglandins Leukot Essent Fatty Acids 69:87-97.
- Dominguez-Munoz JE, Birckelbach U, Glassbrenner B, et al. Effect of oral pancreatic enzyme administration on digestive function in healthy subjects: comparison between two enzyme preparations. Aliment Pharmacol Ther. 1997; 11:403-408.
- Eckert K, Grabowska E, Stange R, et al. Effects of oral bromelain administration on the impaired immunocytotoxicity of mononuclear cells from mammary tumor patients. Oncol Rep. 1999; 6:1191-1199.
- Egmond, M. R., and C. J. van Bemmel. 1997. Impact of Structural Information on Understanding of Lipolytic Function, p. 119-129, Methods Enzymol vol. 284.
- Farkas G, Takacs T, Baradnay G, Szasz Z. [Effect of pancreatin replacement on pancreatic function in the postoperative period after pancreatic surgery]. [Article in Hungarian]. Orv Hetil. 1999; 140:2751-2754.
- Gilbert B, Rouis M, Griglio S, de Lumley L, Laplaud P. 2001. Lipoprotein lipase (LPL) deficiency: a new patient homozygote for the preponderant mutation Gly188Glu in the human LPL gene and review of reported mutations: 75 % are clustered in exons 5 and 6. Ann Genet 44(1):25-32.
- Girod, A., C. E. Wobus, Z. Zadori, M. Ried, K. Leike, P. Tijssen, J. A. Kleinschmidt, and M. Hallek. 2002. The VP1 capsid protein of adeno-associated virus type 2 is carrying a phospholipase A2 domain required for virus infectivity. J Gen Virol 83:973-8.
- Goni FM, Alonso A. 2002 Sphingomyelinases: enzymology and membrane activity. FEBS Lett. 531(1):38-46.
- Greenberger NJ. Enzymatic therapy in patients with chronic pancreatitis. Gastrenterol Clin North Am. 1999; 28:687-693.
- Hedstrom L. Serine Protease Mechanism and Specificity. Chem Rev 2002;102:4501-4523.
- Heikinheimo, P., A. Goldman, C. Jeffries, and D. L. Ollis. 1999. Of barn owls and bankers: a lush variety of alpha/beta hydrolases. Structure Fold Des 7:R141-6.
- Hooper NM. Proteases in Biology and Medicine. London: Portland Press, 2002. ISBN 1855781476.
- Identification of a variant associated with adult-type hypolactasia. Nat Genet 2002;30: 233-7. Free text. PMID 11788828.
- Kaul R, Mishra BK, Sutrador P, et al. The role of Wobe-Mugos in reducing acute sequelae of radiation in head and neck cancers—a clinical phase-III randomized trial. Indian J Cancer. 1999; 36:141-148.

- Kiessling WR. [Anaphylactic reaction in enzyme therapy of multiple sclerosis]. [Article in German]. Fortschr Neurol Psychiatr. 1987; 55:385-386.
- Klein G, Kullich W. [Reducing pain by oral enzyme therapy in rheumatic diseases]. [Article in German]. Wien Med Wochenschr. 1999; 149:577-580.
- Lowe, M. E. 1992. The catalytic site residues and interfacial binding of human pancreatic lipase. J Biol Chem 267:17069-73.
- Olds LC, Sibley E. Lactase persistence DNA variant enhances lactase promoter activity in vitro: functional role as a cis regulatory element. Hum Mol Genet 2003 Sep 15; 12(18): 2333-40. Free text. PMID 12915462.
- Puente XS, Lopez-Otin C. A Genomic Analysis of Rat Proteases and Protease Inhibitors. Genome Biol 2004;14:609-622.
- Puente XS, Sanchez LM, Overall CM, Lopez-Otin C. Human and Mouse Proteases: a Comparative Genomic Approach. Nat Rev Genet 2003;4:544-558.
- Retrieved from " http://www.lactospore.com/intro.htm"
- Retrieved from "http://en.wikipedia.org/wiki/Lactase"
- Retrieved from "http://en.wikipedia.org/wiki/Lipase"
- Retrieved from "http://en.wikipedia.org/wiki/Sucrase"
- Ross J, Jiang H, Kanost MR, Wang Y. Serine proteases and their homologs in the Drosophila melanogaster genome: an initial analysis of sequence conservation and phylogenetic relationships. Gene 2003;304:117-31.
- Rowan AD, Buttle DJ, Barrett AJ. The cysteine proteinases of the pineapple plant. Biochem J. 1990; 266:869-875.
- Schrag, J. D., and M. Cygler. 1997. Lipases and alpha/beta hydrolase fold. Methods Enzymol 284:85-107.
- Seyis I, Aksoz N. Production of lactase by Trichoderma sp.. Food Technol Biotechnol 2004;42:121–124. Free text.
- Solomon, Eldra P.; Berg, Linda R.; & Martin, Diana W. (2002). Biology (6th ed). Thomson Learning, Inc. ISBN 0-03-033503-5
- Southan C. A genomic perspective on human proteases as drug targets. Drug Discov Today 2001;6:681-688.
- Spiegel, S., D. Foster, and R. Kolesnick. 1996. Signal transduction through lipid second messengers. Curr Opin Cell Biol 8:159-67.
- Stauder G, Ransberger K, Streichhan P, et al. The use of hydrolytic enzymes as adjuvant therapy in AIDS/ARC/LAS patients. Biomed Pharmacother. 1988; 42:31-34.
- Steffen C, Menzel J. [Enzyme breakdown of immune complexes]. [Article in German]. Z Rheumatol. 1983; 42:249-255.
- Steffen C, Smolen J, Miehlke K, et al. [Enzyme therapy in comparison with immune complex determinations in chronic polyarthritis]. [Article in German]. Z Rheumatol. 1985; 44:51-56.
- Svendsen, A. 2000. Lipase protein engineering. Biochim Biophys Acta 1543:223-238.
- The Merck Manual of Diagnosis and Therapy, Chapter 24
- Tjoelker, L. W., C. Eberhardt, J. Unger, H. L. Trong, G. A. Zimmerman, T. M. McIntyre, D. M. Stafforini, S. M. Prescott, and P. W. Gray. 1995. Plasma platelet-activating factor acetylhydrolase is a secreted phospholipase A2 with a catalytic triad. J Biol Chem 270:25481-7.
- Wald M, Olejár T, Pouková P, Zadinova M. Proteinases reduce metastatic dissemination and increase survival time in C57B16 mice with the Lewis lung carcinoma. Life Sciences. 1998; 63:PL237-243.

- Wald M, Závadová E, Pouková P, et al. Polyenzyme preparation Wobe-Mugos inhibits growth of solid tumors and development of experimental metastases in mice. Life Sciences. 1998; 62:PL43-48.
- Winkler, F. K., A. D'Arcy, and W. Hunziker. 1990. Structure of human pancreatic lipase. Nature 343:771-4.
- Withers-Martinez, C., F. Carriere, R. Verger, D. Bourgeois, and C. Cambillau. 1996. A pancreatic lipase with a phospholipase A1 activity: crystal structure of a chimeric pancreatic lipase-related protein 2 from guinea pig. Structure 4:1363-74.
- Wolf M, Ransberger K. [Effect of proteolytic enzymes on the reciprocal growth modification of normal and tumor tissues]. [Article in German]. Arch Geschwultstforsch. 1968; 31:317-331.

What Makes This nutraMetrix® Digestive Enzyme Formula with Probiotics Unique?

nutraMetrix® Digestive Enzyme Formula with Probiotics enables fast absorption and effective delivery of nutritional supplements. This supplement is in the isotonic fluid form, which speeds nutrient absorption into your body. It is usually taken on an empty stomach and when the isotonic fluid enters the body, it is quickly delivered to. Since digestive enzymes with probiotics are in an isotonic solution, it minimizes the chance of inactivation by a highly acidic pH level.

In today's world of processed and "fast" foods, our bodies need to work harder to break down the same nutritional content as it may have just a few years ago. nutraMetrix® Digestive Enzyme Formula with Probiotics helps replenish the essential enzymes **(amylase, protease, cellulose, lactase, lipase, maltase, and sucrase)** and "good" bacteria **(Lactobacillus sporogenes)** necessary for maximum absorption of nutrients from the food we eat. It acts to supplement and maximize the activity of the body's own enzymes in an easy-to-take, pleasant tasting drink.

These statements have not been evaluated by the Food and Drug Administration.
This product is not intended to diagnose, treat, cure or prevent any disease.

Frequently Asked Questions:

What are Digestive Enzymes?

Digestive enzymes are special catalytic proteins that help your body break down food to utilize the complete spectrum of nutrients in the food we eat. Unfortunately, food enzymes, which are sensitive to heat, are usually inactivated when food is cooked to serve. This leaves your body with the challenge of trying to break down foods for absorption into your system with no help from the natural enzymes that would otherwise be present in many of the foods we eat. While your body can break down foods with no help, it may put additional strain on your system. nutraMetrix® Digestive Enzyme Formula with Probiotics acts to supplement and maximize the activity of the body's own enzymes and the "friendly" bacteria our bodies need in an easy-to-take, pleasant-tasting drink.

Our lifestyles and diets are constantly changing. If the last 25 years are any indication, these changes are not usually for the best. Foods that would otherwise offer us their own added enzymes to help our bodies absorb more nutrients are increasingly processed, heated for extended shelf life and stripped of vital elements. The problem is that in making increasing numbers of foods "safe" for ingestion, we are in some cases making foods less healthy for our systems. This means our bodies now need to work harder to absorb the same nutritional content as it may have just a few years ago. nutraMetrix® Digestive Enzyme Formula with Probiotics helps your body replenish all the essential enzymes and "good" bacteria necessary for maximum absorption of nutrients from the food we eat.*

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent any disease.

What Are Enzymes?

Enzymes are the workhorses of our cells. They are proteins that catalyze many thousands of biochemical reactions in the body. While most enzymes work inside our cells, digestive enzymes operate outside the cells in the gastrointestinal tract. The start of digestion begins with digestive enzymes secreted by salivary gland cells into our mouths. Cells lining the gastrointestinal tract also contribute enzymes such as pepsin in the stomach. In addition, digestive enzymes are produced in the pancreas and are emptied into the upper part of the small intestine.

These enzymes help to break apart proteins, allowing the body to optimize its effort to digest proteins from plant and animal sources as well as break down starch, lactose, fats, and nucleic acids (DNA and RNA). The result is a more complete digestive process, resulting in better nutritional absorption. nutraMetrix® Digestive Enzyme Formula with Probiotics supplies natural plant enzymes that are not inactivated by stomach acid. What this means is that the supplemental enzymes mix with and work in concert with the ingested food and begin to work with the body's own digestive enzymes to release as many of the nutrients as possible.

What Are Probiotics?

Probiotics are beneficial organisms that promote a healthy intestinal tract environment. Probiotics can help support the body in maintaining proper digestive functions and improving emotional health. Lactobacillus sporogenes bacteria reside mostly in the large intestine and help break down undigested food. These "friendly" bacteria can help the absorption of vitamins and minerals and can actually synthesize some vitamins, such as biotin and vitamin K. In addition, these beneficial bacteria contribute to the breaking down of fibers and undigested starch into simple sugars. These simple sugars then function as fuel for the cells that line the large intestine.

What Happens When We Eat?

Even before we eat our body's digestive action begins to take place. Simply smelling food activates our salivary glands ("mouth watering"). As the food enters the stomach, the stomach acid and pepsin work together to begin breaking the food down into material the small intestine (where most nutritients are absorbed) can use. Enzymes specific to each of the three nutrient groups are released at this stage, further breaking down the food and contributing to the digestive and absorption processes. These processes continue into the large intestine until the food's nutritional content is extracted by the body.

What are The Three Basic and Four Specialty Food Enzymes?

There are three basic food enzymes that help us digest our food. Each has a specific function and purpose, and each is necessary for the releasing of nutrients

into our bodies. They are: protease (which digests proteins), amylase (which digests starch) and lipase (which digests fats). The specialty enzymes are: lactase (for the sugar lactose in dairy products), maltase (for the sugar maltose in foods), sucrase (for table sugar and fruit), and cellulase (which helps us digest cellulose fibers).
Each of these enzymes plays a significant part in the body"s overall health by helping to release specific and necessary nutrients into our bodies.

What are the "Good" Bacteria?

We all know that chlorine in our water supply kills bacteria, making water safe to drink. That's good, but all bacteria are not harmful. In fact, if it weren't for "good" bacteria, we would be unable to digest food. Many people, especially women, know the importance of having "good" bacteria in their system, and many actually take supplements like Lactobacillus acidophilus to keep healthy. nutraMetrix® Digestive Enzyme Formula with Probiotics contains Probiotic bacteria called Lactobacillus sporogenes, designed to help replenish the "good" bacteria that can be harmed by things like the ingestion of chlorinated water and antibiotics. These "friendly" bacteria help to repopulate the colon, displacing harmful bacteria, and promote an appropriate pH balance.*

Please click here to order this product: www.alixlandman.nutrametrix.com and select login- register as a preferred customer and then order product at digestive health link on the left hand side of the home page.