



Mega-Zyme

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Nutritional Information for the Pancreas

The pancreas is part of our glandular system. It is about six inches long and located just behind the stomach. It functions as both an endocrine and exocrine gland, secreting hormones directly into the bloodstream as well as excreting digestive enzymes into the small intestine. The pancreas has three major functions in the body: 1) the digestion of food; 2) the secretion of insulin for the maintenance of proper blood sugar levels; 3) activating enzyme processes in the body.

The pancreas produces enzymes which are crucial to the digestion of all types of food, and in one day produces more than a quart of its enzyme-filled, highly alkaline digestive juices. (The alkalinity serves to neutralize the acid treated foods from the stomach.) Unfortunately, there is an increasingly common problem of insufficient pancreas activity resulting in insufficient enzyme production. The following formula is designed to improve digestion by reinforcing pancreatic activity. Because of the effects of pancreas function in the body and because of these special nutrients, this formula is also useful for heart problems and hypoglycemia as well as for reducing inflammation and swelling.

Raw Pancreas (Freeze Dried)	250mg.
Pancreatin 4 X N.F.	150 mg.
Pancrelipase N.F.	125 mg.
Bromelain	100 mg.
Duodenum (Freeze Dried)	65 mg.
Beef Bile Salts	30 mg.
L-Cysteine	25 mg.

Along with the digestive secretions of the liver, those of the pancreas complete the breakdown of food energy for the transformation into body energy. The pancreas stimulates the manufacture of hydrochloric acid in the stomach as well as producing a number of enzymes

specifically for the digestion of proteins, fats and starches. As a whole these enzymes are called the pancreatin enzyme group although each has its own name and function. The pancreas is called into action by hormones that are released from the intestinal wall just as the semi-digested highly acid material called chyme (Kime) is released from the stomach into the small intestine.

The formula contains all of the pancreatic enzymes. Raw pancreas, pancreatin and pancrelipase are all general names for enzymes in the pancreatin group. They support and enhance the production pancreatic digestive enzymes within the body.

In protein digestion, certain of these enzymes complete the release of free amino acids and nitrogen bases. This includes the breakdown of damaged and abnormal cells. Because of this pancreatic enzymes have figured in some cancer therapies. Since excessive pro-tein depresses the pancreas in general, a diet high in protein has been linked

with depleting the body of pancreatic enzymes. It also interferes with insulin production. Insulin is necessary in the prevention of diabetes. Dr. William D. Kelley, quoted by nutritionist Linda Clark in Let's Live, believes that everyone who eats protein should take pancreatic enzymes.

Pancrelipase furthers the digestion of fats, changing them to fatty acids and a clear, syrupy liquid calico glycerol. (This is chemically the same as the glycerin sold in drug-stores.) Lipases are fat enzymes. Pancrelipase works with other lipases reducing fats and oils to free fatty acids which are then burned in the cells for heat and energy. Another aspect of fat digestion is to emulsify fat soluble vitamins, such as vitamin A, so that they can be absorbed through the intestinal walls.

Another of the pancreases is amylase, also a part of the formula. This enzyme splits starch molecules into absorbable sugars. Starches and sugars are both forms of carbohydrate, the third food source. Dr. Kelley also believes that parasites, "so common and yet so ignored by the majority of people," are eliminated from the body by pancreatic enzymes.



All carbohydrates eventually breakdown into sugar. Within the pancreas is a group of cells known as the Isles of Langerhans. Among other functions, they secrete insulin. Insulin is best known for its capacity to maintain stable blood sugar levels (although it also regulates fat and protein metabolism). Processed carbohydrates are one of the treacherous aspects of the Basic American Diet (BAD). These highly processed foodstuffs (emphasis on stuff) breakdown almost immediately releasing sugars directly and rapidly into the bloodstream. This causes the glucoreceptors and the pituitary in the brain to signal the pancreas to secrete insulin. A rapid rise in the blood sugar level causes an overreaction by the pancreas. In the body's endeavor to restore normalcy so much insulin is released into the bloodstream that the blood sugar level is over-compensated. Low blood sugar is the result.

When a person becomes enmeshed in the syndrome of using sugary or starchy foods to keep the blood sugar up, the body constantly compensates by overproducing insulin. This causes rapid mood swings and emotionality (among other undesirable symptoms) and is known as hypoglycemia. (See Reference File No. BRP-235.010 "Sugar Blues" for more information on hypoglycemia). This unbalanced carbohydrate nutrition is one of the major causes of the ultimate dysfunction of the insulin producing mechanism of the pancreas. When the Isles of Langerhans no longer produce sufficient insulin, the result is diabetes mellitus (mellitus means sweet and comes from the Latin for honey).

The raw duodenum in the formula is included to enhance the function of the duodenum, the upper most section of the small intestine where digested food is initially emptied when it comes from the stomach as chyme. This is the part of the digestive system which can be damaged when the chyme from the stomach is not sufficiently neutralized by pancreatic juices. Accord-

ing to Dr. William Borrmann, D.C., Comprehensive Guide to Nutrition, the nutrients of the duodenum assist the stomach to store chlorides and supply buffer components to naturally avoid hyperacidity. This also reduces the need to supplement HCL because the body will regain its own ability to produce it.

The liver secretes bile for the digestion of fats. The use of supplementary bile salt stimulated bile production.

Bile makes it possible for the pancrelipase to assist in the conversion of fat molecules into fatty acids and glycerol. (Bile itself is composed of water, solids, bile salts, mucous, pigments, cholesterol and other lipids (fats) and inorganic salts.) Without bile we simply cannot digest fats.

You may recall that bromelain is a protein digesting enzyme isolated from the stem of the pineapple plant. Knill-Jones found that fat absorption could be significantly improved by the addition of bromelain to pancreatic extract. It was also found that bromelain given alone did not improve fat absorption in patients with pancreatic insufficiency. (British Medical Journal) Bromelain also tends to break up congestion found in the walls of the blood vessels. This ability helps to allay swelling, inflammation and bruising.

Although no activating substances are needed to initiate bromelain activity, its activity can be emphasized by the presence of cysteine. Ultimately cysteine is also important in the production of both chymotrypsin (another one of the pancreatic enzymes) and insulin.

The educational information offered here regarding the use of nutritional formulas is in no way intended to replace proper medical care. These formulas were designed to provide nutritional support and aid of the body while improving the nutritional content of the diet. You may consider using nutritional formulas to give nutri-

tional support as well as the prescribed medical recommendation of your doctor.