



## Food Enzymes

Stock #1836-9 (120 capsules)

Food Enzymes is a broad-spectrum digestive enzyme supplement formulated to aid digestion of carbohydrates, fats and proteins and ease digestive problems. Food Enzymes can also improve the absorption of vitamins and minerals, help maintain normal pH levels, detoxify the colon, and stimulate the growth of healthy intestinal bacteria. Each Food Enzymes capsule will digest a minimum of 30 grams of protein, 30 grams of carbohydrates and 20 grams of fats.

Enzymes are essential nutrients that initiate virtually all of the chemical reactions occurring within the body—life cannot be sustained without them. In addition, enzymes aid in the elimination of toxins, including potentially harmful allergens and environmental pollutants, via the colon, kidneys, lungs and skin. Unless obtained in the diet (from raw fruits and vegetables or dietary supplements), the constant demands placed on the body to manufacture enzymes can result in enzyme deficiency, which is a common problem that can

lead to digestive dysfunction, cardiovascular disease, obesity, cancer and other illnesses.<sup>1-3</sup>

Research has shown that as we age, the body's production of hydrochloric acid and pancreatic enzymes begins to decline, causing problems with enzymatic food digestion. For this reason, middle-age and older individuals often experience more difficulty digesting heavier meals than younger people. Needless to say, enzyme supplementation should be considered, especially if one consumes animal protein. In addition, since cooking destroys enzymes occurring naturally in raw foods, individuals of any age can benefit from taking digestive enzymes when eating cooked foods.<sup>1,4</sup>

Each 2 capsules of Food Enzymes provide:

- Betaine HCl* - 324mg (digests proteins)
- Bile Salt* - 80mg (digests fats)
- Bromelain* - 100mg (digests proteins)
- Lipase* - 30 LU (digests fats)
- Alpha amylase* (mycozyme) - 180mg (digests carbohydrates, particularly starches)
- Pancreatin* (8x USP) - 45mg (digest carbohydrates, fats and proteins)
- Papain* - 90mg - (digests protein)
- Pepsin* (1:10,000) - 120mg (digests proteins)

**Betaine HCl (Hydrochloric acid)** is secreted by the stomach's parietal cells. Efficient protein digestion can only occur if there are sufficient levels of HCl to produce a low pH (acidic) environment. HCl then combines with pepsinogen, secreted by the stomach's chief cells, to create pepsin, the principal enzyme responsible for actually breaking down proteins. HCl not only aids digestion by denaturing protein, it also kills any ingested bacteria and parasites and makes some minerals (including calcium and iron) more absorbable. Insufficient HCl can lead to anemia and osteoporosis, in spite of iron- and calcium-rich dietary intake. Therefore, supplemental hydrochloric acid not only improves digestion, but also enhances calcium absorption.<sup>1,5-8</sup>

**Bile salt** emulsifies dietary fats to allow for their absorption by way of the intestinal mucosa into the lymphatic vessels for transportation through the body. Supplemental bile salts increase the output of bile and also help promote a mild laxative effect.<sup>1,4,7,8</sup>

**Bromelain**, derived from pineapples, is a protein-digesting enzyme that also assists in the removal of toxins and waste products from the body. This latter action makes bromelain a popular component in weight-loss diets. Bromelain is also used as an anti-inflammatory agent and adjunctive treatment for inflammation and swelling resulting from injury or surgery. Bromelain blocks inflammation by stimulating production of plasmin, which in turn, breaks down fibrinogen (the substance involved in localized swelling). Thus, bromelain reduces swelling and alleviates painful pressure on the nerves, without the gastrointestinal distress typical of NSAIDs (nonsteroidal anti-inflammatory drugs). Furthermore, because of its effect on fibrinogen (which is needed for the proper clotting of blood), bromelain may help prevent blood clots in individuals with high levels of fibrinogen, such as smokers.<sup>1,5-7,9</sup>

**Lipase**, a lipolytic enzyme produced by the pancreas, assists the digestion of dietary fats and oils in the small intestine by splitting fats into glycerol and fatty acids. The effectiveness of lipase is increased when fats are first emulsified by bile salts from the gallbladder. Lipase deficiency can result in the malabsorption of both dietary fats and fat-soluble vitamins.<sup>1,5,6,10,11</sup>

**Alpha amylase** breaks down glycogen, starches and the majority of other carbohydrates into smaller carbohydrate molecules such as dextrans and sugars. Alpha amylase is secreted by both the pancreas and the parotid gland (one of the largest pair of salivary glands).<sup>1,5,10,11</sup>

**Pancreatin** is produced by the pancreas to digest proteins, carbohydrates and fats in alkaline environments. Derived from bovine pancreatic enzymes, pancreatin is commonly used to treat pancreatic insufficiency and associated impaired digestion, malabsorption, nutrient deficiencies, flatulence and abdominal discomfort. Pancreatin also helps cystic fibrosis and inflammatory and autoimmune conditions, including athletic injuries, rheumatoid arthritis, scleroderma and tendonitis.<sup>1,5,11</sup>

**Papain** is a protein-digesting enzyme obtained from unripe papaya and papaya leaves. Also referred to as vegetable pepsin, papain is a powerful proteolytic enzyme that is able to break down 35 times its volume in animal proteins. Papain is also capable of reducing swelling by breaking down protein molecules in the tissues and removing them—this lessens swelling and alleviates the painful pressure on the nerves. In addition, papain is used to help treat immune complex illnesses, injuries, swelling and chronic inflammation.<sup>5</sup>

**Pepsin** is an enzyme that assists the digestion of proteins in the acidic environment (optimal pH 1.8 to 3.5) of the stomach—pepsin converts proteins into short chains of amino acids. Pepsin is also used to remedy a lack of appetite. Incidentally, pepsin is secreted by the gastric and pyloric glands initially in the form of pepsinogen, which has no digestive activity. Upon contact with hydrochloric acid, pepsinogen is immediately activated, forming pepsin.<sup>1,5,8</sup>

#### References:

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