



Cardiovascular disease is the leading cause of death for both men and women in the U.S. Doctors often prescribe aspirin for patients who have or are at risk of developing heart disease. But we now know that long-term use of aspirin comes with significant health risks of its own. Fortunately, there is a natural solution. By using systemic oral enzymes to restore balance to the body, you can safely and effectively help support the health of your heart.

ENZYMES— Heart-Health Lifesavers

Enzymes drive many of the chemical processes that occur in the body. In the cardiovascular system, they are produced and activated during injury or trauma to repair tissue damage and reduce inflammation. Enzymes are also necessary for the digestion of foods. Deficiencies of digestive fat enzymes

known as lipases can lead to a buildup of fatty plaque in the bloodstream, placing a strain on the heart and its valves.

Here is a closer look at the vital role that enzymes play in heart health.

INFLAMMATION

When a blood vessel is injured, the body releases platelets that stick together using a blood protein called fibrin. This blood-clotting process, also called coagulation, allows the blood to thicken and stop the bleeding. Without coagulation we would bleed to death from the slightest injury. But when the body's systems become unbalanced, fibrin production can be stimulated, causing blood clots to form even in the absence of an injury. Blood clots that do not dissolve naturally can then lead to inflammation, a precursor to heart disease.

In 1988, the Physician's Health Study polled 22,000 male doctors and discovered that the regular use of aspirin could help to reduce inflammation and lower heart disease risk among men. Doctors immediately began prescribing aspirin to their patients at risk for heart disease; however, the medical community soon realized that the long-term use of aspirin came with significant side effects and complications.

Aspirin is extremely irritating to the lining of the stomach. Long-term use leads to gastrointestinal bleeding and interferes with the body's metabolic processes. In clinical trials, researchers have found

that enzymes can safely support healthy inflammation levels, particularly with relation to heart health, without these unnecessary complications.

C-REACTIVE PROTEIN

Researchers now understand that inflammation in the blood is a significant risk factor for heart disease and stroke. This level of inflammation can be measured using a blood test called a C-Reactive Protein Analysis. Under normal conditions, C-reactive protein (CRP) is always present in the blood in small amounts. It is produced in response to even mild infections and tissue damage. However, CRP levels that are consistently elevated may indicate a more serious concern for cardiovascular health. In the Physician's Health Study mentioned above, researchers examined the CRP levels of almost 1,100 of the study participants and found that elevated levels throughout the body indicated a threefold greater risk for heart disease and a twofold increased risk for stroke.

Under normal circumstances, the human body produces an enzyme called plasmin that works to break down clots in the blood and reduce inflammation. But as with most things, our production of plasmin decreases with age, making the blood more prone to coagulation. On the flip side of this double-edged sword, research shows that the production of fibrinogen (the building block of fibrin) increases with age. So our blood is more prone to clotting and less capable of breaking down clots. This sets up the stage for a heart attack or stroke.

In fact, high fibrinogen levels are considered a prominent risk factor for heart attack and stroke, even more so than high cholesterol. In a Japanese study of 2,116 men, researchers found that men with high LDL (bad) cholesterol but low fibrinogen levels had only one-sixth the risk for heart attack as those with low LDL and high fibrinogen. As you will soon read, nattokinase, a systemic enzyme found

in Natto-K, can be used to break down fibrinogen and safely remove it from the body.

GROWTH FACTORS

Another function that works against us with age is our body's regulation of chemicals called "growth factors." Growth factors are secreted during cell division and regeneration as they aid in tissue repair. However, with age, the secretion of growth factors tends to become excessive, leading to blockages of the arteries, tumor formation and internal scarring. One of the key growth factors is called transforming growth factor-beta (TGF- β). Research indicates that TGF- β is the key element in almost all tissue repair, regulating many of the development and physiological processes in the body. It is a messenger protein (or cytokine) that initiates and terminates tissue repair, but in excessive amounts it can lead to sclerosis and fibrosis. In the cardiovascular system, TGF- β can lead to arteriosclerosis.

Atherosclerosis, or hardening of the arteries, occurs when the normal lining of the arteries thickens, and deposits of fat and plaque build up, causing narrowing (or even blockage) of the arteries. As you may have guessed, excess growth factor secretions cause this buildup, according to experts. According to research conducted at Tufts University School of Medicine in Boston, high levels of TGF- β are present in arterial tissues that redevelop blockages after angioplasty.

In the cardiovascular system, some experimental evidence from Japan suggests supplemental enzymes can help to modulate inflammation and break up clots in the blood. In 1986, a Japanese researcher by the name of Dr. Hiroyuki Sumi set about trying to find foods with the best ability to break down clots and reduce inflammation. After testing almost 200 foods from all over the world, Dr. Sumi tested a Japanese staple called natto, produced via the fermentation of soybeans.

Dr. Sumi found that an enzyme in natto, which he dubbed nattokinase, exhibited a strong fibrinolytic activity that had profound effect on the circulatory and cardiovascular systems. Nattokinase binds to fibrin and breaks it down. It helps to improve blood viscosity and reduce blood clots by enhancing the fibrinolytic properties of the blood.

NATTO-K, HEART AND CIRCULATORY PROTECTION

Natto-K, a product from Enzymedica, is an oral enzyme product that helps to regulate TGF- β while

reducing tissue overgrowth. Enzymes utilize the body's natural antibodies to bind to and inhibit the overproduction of growth factors. Through this mechanism, Natto-K can accelerate the elimination of TGF- β and other growth factors. In a clinical study, published in the journal *Nephrology, Dialysis, and Transplantation*, researchers showed that oral enzyme therapy could reduce arteriosclerosis of the aorta.

BREAKING DOWN FATS

The pancreas secretes a number of enzymes, such as lipase, amylase, and protease, in the digestion of food. Lipase is responsible for the breakdown of fats. But as we age, our natural digestive enzymes decrease by about 13 percent every decade. Fats that are not broken down completely may build up in the body, eventually leading to heart problems. In one study, subjects with heart disease had 10 times more fat in their stool than heart-healthy individuals. It wasn't that the patients with heart disease were eating too much fat; it's that they were not absorbing their fats. A supplemental enzyme such as Enzymedica's Lypo may protect cardiovascular health by improving fat absorption and reducing LDL (bad) cholesterol levels. Lypo contains a specially formulated supply of lipase along with other digestive enzymes, such as amylase and protease.

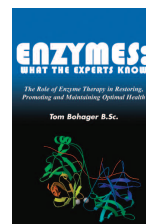
WHY ENZYMEDICA?

Natto-K and Lypo are two high-quality products from Enzymedica, the leader in supplemental enzyme products. Both products contain the highest therapeutic activity possible, without fillers. Natto-K contains nattokinase, as well as a complete system of oral enzymes that have been proven in clinical trials to support cardiovascular health. These enzymes work together to maintain a healthy inflammation response to strengthen the integrity of blood vessel walls. Lypo contains lipase, protease, and amylase combined using Enzymedica's exclusive Thera-blend processing to improve the ability of the enzymes to break down numerous bonds of protein in varying pH levels.

If you are at all concerned about the health of your heart (and who isn't?) you should be using Natto-K and Lypo, lifesavers at heart. You can find these great enzyme products at almost every health food store and natural food market. ■

—Jennifer Savedge

Resources



Purchase your copy of *Enzymes: What the Experts Know* from your local health food store, natural health retailer or online booksellers (www.amazon.com).

You can also view the book at the Enzymedica website

at <http://www.enzymedica.com/products/>.

To find a local source use their store locator service at www.enzymedica.com or call them toll free at (888) 918-1118.

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