

## Enzyme FAQ

Q. What are enzymes?

A. Enzymes are energized protein molecules (long chains of amino acids) and are one of the most important elements of the human body because they are responsible for all living functions. Enzymes are catalysts to hundreds of thousands of biochemical reactions in the body that direct all of the body's functioning processes. They are categorized as being either digestive or metabolic in function. Enzymes are responsible for everything from breaking down and digesting food to repairing cell damage caused by free radicals. Enzymes are made by the body and are also found in raw food sources.

Q. How do enzymes work?

A. Each type of enzyme has a specific job to perform in the body. Enzymes are catalysts, which means that they accelerate and precipitate biochemical reactions in the body. They work with coenzymes like vitamins and minerals to perform their functions.

Q. How many different types of enzymes are there?

A. There are thousands of different types of enzymes in the human body and within each cell. There are around 3,000 known enzymes that have been identified, each with a unique roll that it plays in the body's chemical processes.

Q. What are coenzymes?

A. Coenzymes are organic molecules that interact chemically with enzymes. They are referred to as substrates. Coenzymes are often vitamins and minerals which cannot be activated until they are joined with enzymes.

Q. What is the difference between digestive and metabolic enzymes?

A. There are two main types of enzymes: digestive and metabolic. Digestive enzymes are secreted by the body to break down the food we eat. There are three categories of digestive enzymes which include amylases, which break down carbohydrates, proteases, which break down proteins, and lipases, which break down fats. Digestive enzymes are also found in animal food sources and used by the body to break down those food sources. Metabolic enzymes run all of the body's systems and are responsible for all organ, tissue, and cell activity.

Q. Are enzymes better from plants or from animals?

A. There are some important differences between enzymes extracted from plants and those extracted from animals. Plant enzymes come from nutrient-rich fruits and vegetables and are generally safer and easier to digest than animal-based enzymes. Animal enzymes are extracted from the pancreas or the stomach of a slaughter house animal. The downside to animal enzymes is that they are usually less abundant when the meat is cooked, requiring the body to use its own stores. The condition of the source animal and its organs is an important bit of information you will never be able to track down.

Q. Why take an enzyme supplement?

A. We are born with a certain amount of enzymes, our bodies continue to produce enzymes, and we get enzymes from raw fruits, vegetables, and animal products. But there are situations where this is not a guarantee that you are getting enough enzymes for your body to run optimally, keeping your

immune system strong so you can combat disease. There are two reasons why you should consider taking an enzyme supplement. First, our body's ability to produce its own sufficient enzyme stores diminishes with age. Second, cooking food kills the enzymes supplied by that food and our body must use more of its own enzyme stores to break that food down. These are two challenges that every person faces, no matter what the state of their health. Supplementing with enzymes guarantees that you are getting more of the enzymes you need to live and be healthy.

Q. What are important enzymes to take every day?

A. There are so many enzymes that exist that it is impossible to name them all. Some of the more common enzymes that you want to include in a daily regimen should involve a blend of both digestive and metabolic enzymes such as amylase, protease, lipase, cellulase, lactase, sucrase, and maltase. These enzymes will cover the bases in helping you to digest all of the elements of a balanced diet: carbohydrates, proteins, fats, fiber, milk products, sugars, and grains.

Q. Are there any side effects associated with enzyme supplements?

A. There are no known side effects associated with enzyme supplementation. Enzymes are food. They are not drugs and cannot be created synthetically in a lab. One positive result from taking enzyme supplements or enzyme therapy might be an increase in bowel movements, up to one or two per day, which is normal and healthy. When starting an enzyme program it could be possible to experience mild heartburn, nausea, vomiting, diarrhea, bloating, gas, or acne which usually subsides quickly as your body adjusts. Plant enzymes are considered safe for everyone, including pregnant women, although it is always a good idea to check with a doctor before using enzymes, especially animal enzymes, and to discuss an individual supplement and dosage plan.

Q. How many enzymes can I take and what doses are recommended?

A. There is no rule of thumb when it comes to what type and what amount of enzymes you should consider taking. It really depends on an individual's specific health situation and has nothing to do with age. The correct dosages can be followed on a product label as a guideline and can be adjusted to your needs. The best gauge is how you feel both before and after you take an enzyme supplement.

Q. Can athletes take enzymes?

A. Yes. Athletes should definitely consider supplementing with enzymes to combat injury and injury-related inflammation. An athlete pushes their body to the limits of endurance and strength, which stresses the body and depletes enzyme stores faster than the average person. A raise in body temperature alone due to exercise will require more enzymes. It is very important for athletes to take enzymes. Even with a balanced diet, they may not be getting enough enzymes to support the rigors of their demanding training schedule.

Q. How do I know if I need enzymes?

A. Everyone can benefit from enzymes. Enzymes are food and without them life as we know it wouldn't be possible. If you are an athlete or someone who has one or more health issues, you can definitely benefit from enzyme supplements or enzyme therapy. There are many health issues that could be signaling an enzyme deficiency, so listen to your body. One of the more obvious signs you should note would be any concerns around digestive issues. Even if you are in perfect health, you can benefit from enzymes. Whatever your situation, it's a good idea to talk with a doctor about your concerns, if any, before starting on an enzyme supplement or therapy program.

Q. How long do I have to take enzymes?

A. Enzymes can be taken for life and your body's need for them will never diminish. An enzyme deficiency can occur at any time for any number of reasons. It is a good idea to cover all bases with a good multi-enzyme supplement. The benefits are well worth it.

Q. What is an enzyme inhibitor?

A. Enzyme inhibitors are molecules which bind to enzymes and block their activity. An inhibitor slows down the reactions of enzymes and keeps them from operating normally. Drugs and poisons are examples of enzyme inhibitors. There are different types of enzyme inhibitors, including competitive, uncompetitive, non-competitive, specific, nonspecific, irreversible, reversible, and mixed.

Q. Should children take enzymes?

A. Children, just like adults, are increasingly at risk for digestive ailments and face the same health issues stemming from enzyme deficiencies. It is never too early to start taking enzymes. Many diseases, like obesity, depression, and diabetes, are tied to poor diet and digestion and can be prevented and treated. Enzyme supplements support this effort.

Q. Can pregnant women take enzymes?

A. During pregnancy, it is a good idea to be careful with supplements in general. Enzymes are basically food and are good for everyone. Plant enzymes in general are safer than animal-based enzymes. Many women claim that taking enzymes helps in preventing heartburn. There has not been a lot of research conducted specifically on enzymes and their benefits during pregnancy. As with everything, it is always a good idea to discuss supplement with a doctor and nutritionist.

Q. Will enzymes negatively interact with the prescription medicines I'm taking?

A. Enzymes are food and are safe for anyone take. There are no known side affects to be forewarned about. If you are taking prescription medication, it is always a good idea to check with your doctor before starting an enzyme supplement. Sometimes doctors will prescribe a pharmaceutical strength enzyme supplement or enzyme therapy depending on your health situation. Keep a record of how your feel and what you are taking each day. If you experience any discomfort you will have a history to refer to.