



When it comes to health, it's important to take every possible measure to protect your body from harm. One of the main aspects that you should be focusing on is digestion, as it determines how well our cells consume nutrients. One of the vague terms in this area is digestive enzymes. You're probably here because you're so confused by these enzymes and which to use. Do not worry, as we've done the heavy lifting for you and compiled a list of the top enzymes in this category.

So, what are they? What do they do? How do you go about choosing them? Who needs them? And which

What Are Digestive Enzymes?

Digestive Enzymes: Definition

The food we consume isn't useful to our bodies until broken down to basic nutrients. To do exactly that, our bodies secrete digestive enzymes throughout the [gastrointestinal tract](#).

Without them, nothing will happen to the food we eat. It will be no good for us, and of course, we won't be able to survive.

But some enzymes need the existence of other particular elements called coenzymes and cofactors so that they will be able to do their job. Cofactors include components such as zinc, potassium, and magnesium ions. Besides that, some compounds can slow down or speed up the enzymes which are called respectively inhibitors and activators.

Digestive Enzymes: Source

Most digestive enzymes are created in the pancreas. Some enzymes are also produced by the mouth, stomach, colon, liver, small intestines, and gallbladder. The quantity and the type of the produced enzyme are dependent on what and how much you eat. Their production can be influenced by multiple factors like diseases and growing old, but we'll talk about that later.

Food can also be a source of these enzymes. Naturally, raw food contains enzymes that break them down. The enzymes found in apples can break it down as time goes by if it's left uneaten for a long time. Another interesting fact about enzymes is that most of them can't handle heat. That's why canned and cooked food contains lower amounts of enzymes compared to raw food.

Besides food, dietary supplements containing concentrated digestive enzymes taken from plant and animal sources can be helpful for those that suffer from digestive enzyme deficiency.

What Causes Digestive Enzyme Deficiency?

A few factors can disturb the secretion of the digestive enzymes. It can lead to exocrine pancreatic insufficiency that causes the production of inadequate enzymes for breaking down food. These factors include:

Gastrointestinal disorders and surgeries:

These can include irritable bowel syndrome, Crohn's disease, and untreated celiac disease. All of which can elevate the chance of having pancreatic insufficiency. The Same goes for whoever has had full/partial removal of the stomach or bowel resection.

Pancreatic diseases:

This includes chronic or acute pancreas inflammation also known as pancreatitis, pancreatic cancer, cystic fibrosis, whoever had full or partial removal of the pancreas, and diabetes.

Gallstones:

Migrating Gallstones that move to other areas of the biliary ducts may lead to pancreatic duct obstruction, and that can stop or decrease the flux of the pancreatic enzymes and cause pancreatic inflammation.

Excessive alcohol consumption:

Abuse of alcohol is a big reason for getting chronic and intense pancreatitis that can lead to pancreatic exocrine dysfunction.

Old age:

Growing old is one of the reasons for the decline in digestive enzyme production. Some experts like Dr. Edward Howell believe that the quantity of the digestive enzymes in the body is present at birth, and the dieting choices that mainly include cooked food can cause the depletion of the digestive enzymes as time goes by.

How Do I Know I'm Not Producing Enough Digestive Enzymes?



If your pancreas doesn't create a sufficient amount of enzymes, you're going to have digestion and food absorption issues, most notably with fats. This can appear through these symptoms:

- Feeling full after only taking a few bites
- An irritating feeling of fullness and food stagnation in the belly after eating
- Having incidents of floating and/or oily stool that's foul-smelling frequently (a condition called steatorrhea)
- Feeling gassy and bloated after meals
- Being unable to excrete solid waste (it'll be loose and watery) because of irritation in the intestines due to undigested food)

If one of these symptoms persists for a prolonged period, it could cause malnutrition due to the body not getting a sufficient amount of micronutrients, fat-soluble vitamins (like vitamins A, D, E, and/or K), and/or essential fatty acids that it requires to function well.

Malnutrition symptoms include:

- Being underweight despite eating well
- Unintentional loss of weight
- Stunted growth for children
- The following pathological conditions may happen, depending on the chronically low nutrient in each case. For example, one can become more likely to have osteoporosis and fractures as time goes if the calcium and vitamin D in their body are poorly absorbed.

If you think that you might be having pancreatic exocrine dysfunction, the best way to make sure is by asking your physician for a test. The test can include collecting samples of stool to look for excreted enzymes and fats to understand the pancreatic function.

How to Correct Digestive Enzyme Deficiency?



A mix of lifestyle, dietary and nutritional supplementation interventions can be helpful in effectively breaking down food and lessening the pressure being put on the pancreas:

Adding to your diet more raw food:

Raw food comes with enzymes that, by chewing properly can be activated. But they are destroyed by the processing and cooking, which we usually rely on to prepare our meals. That being said, it doesn't mean that you should eat all your foods raw or that you can easily digest all raw foods.

For example, beans and grains must not be ever eaten raw. Also, fresh meats represent a hazard if eaten raw because of all the pathogens that they can carry. Fermented foods like sauerkraut, lettuces, organic cucumber, and sprouted nuts (not un-sprouted nuts because they have anti-nutrients and enzyme inhibitors), as well as fruits, are some of the safe foods to take into consideration, as long as you're not allergic to one of them.

Quitting smoking and alcohol:

Smoking and alcohol abuse are tied to inflammation in the pancreas, pancreatic exocrine insufficiency, and pancreatic calcification.

Using digestive enzyme supplements:

When the enzyme supplements are predigesting the food you eat, the pancreas will have to make less effort. This decreases the pressure on the pancreas and gives it time to heal and rest. When you use it correctly, digestive supplements have been found to end the majority of gastrointestinal symptoms related to exocrine pancreatic insufficiency. More will be discussed on how to choose the right digestive supplement in the next section.

Note: You must not use digestive supplements if you suffer from peptic ulcers

Get rid of gallstones:

If you've been diagnosed with gallstones, consider having gallbladder and liver flushes to get rid of them. It's about drinking, for five days, significant amounts of organic apple juice to soften the stones firstly. On the sixth day, you'll have to drink a dissolved Epsom salt solution.

Follow that with a mix of extra virgin olive oil and organic grapefruit juice before bed. If the stones you have are large, you might want to do some herbal preparation like Gold Coin Grass or Chanca Piedra for some time to make the rocks into small pieces before going through the flush. If you want to learn more about the gallbladder and liver flush, you might want to check out Andreas Moritz's [book](#) for more information

Manage your level of stress:

When you're undergoing stress, your mind and body are constantly on high alert. And that can put digestion on the back burner. This affects not only metabolism but also can lead to chronic inflammation and high blood pressure in the long term. So trying to decrease stress is not only necessary for digestion but your overall well-being also.

How to Choose the Right Digestive Enzyme Supplement?



Because of the unique nature of the enzymes, there are some things to take into consideration when you're choosing a digestive enzyme supplement:

pH-versatile:

Enzymes are affected by pH levels. Animal-derived pancreatic enzymes are active mostly in pH levels ranging from neutral to alkaline, and they are not stable in acidic pH levels like the ones that characterize the stomach.

Some pancreatic enzymes work around the problem due to being protected by a layer of enteric coating and only getting disintegrated in the small intestine, classified as an alkaline environment. This works when the small intestine concentrates a sufficient amount of

bicarbonate, creating an alkaline surrounding that can release the enteric coating. But those who suffer from pancreatic insufficiency can also have an imbalance of the gastrointestinal pH, which would prevent enteric-coated pills from being adequately dissolved.

In comparison, fungi-derived enzymes are more active and stable in both alkaline and acid pH environments. They do not need acid-suppressing drugs or the enteric coating to work efficiently, making them suitable for those with pH imbalances in the intestines. Because of their larger pH range, they start food digestion in the stomach and continue the work as they go down the gastrointestinal tract.

Potency:

An enzyme's potency is a measure of its activity and not its weight. As the activity level grows higher, so does the potency, and the quicker it will be able to digest food. Going with a high potency enzyme supplement means having to pop fewer pills. The weight of the enzymes indicated on the labels isn't enough. You also need to know how active they are. This is usually designated at the back label on the container right in front of the enzyme type, denoting various FCC units such as DU, HUT, PU, AGU, etc.

Broad Spectrum:

Enzymes are specific. For example, those that break down fat cannot break down carbohydrates. Because of that, you need to find a supplement that comes with a big range of enzymes that, together, can break down the various nutrients in the food you take: Starch, proteins, fats, sugar, and fibers. The cynical part of going with a broad range and high potency enzyme supplements at the same time is that it can be a bit expensive. But I did find, however, a supplement that won't cost you that much: [The Source Naturals Essential Enzymes Ultra](#).

It has most of the following enzymes:



- Maltase: It breaks down malt sugar in legumes and cereals.
- Papain: It can break down a wide variety of proteins. It has broad tolerance to heat but not to pH. Those with latex or papaya allergies should avoid it.
- Peptidase: Enzymes that hydrolyze protein. Also called proteolytic enzymes. They favor separating amino acids from the peptide chain.
- Pectinase: Breaks down pectin in fruits and vegetables
- Phytase: Hydrolyzes phytic acid which found in nuts, grains, and seeds.
- Protease: A broad group of enzymes that hydrolyze proteins.
- Xylanase: Breaks down xylan into xylose.

- Alpha-galactosidase: Breaks down complex carbohydrates found in different vegetables
- Amylase: Breaks Down starch into sugar. Amylase can be categorized to alpha-amylase, beta-amylase, and glucoamylase, with alpha-amylase usually referred to as just amylase.

- Beta-glucanase: Breaks down carbohydrates, most notably beta-glucan in cereals and grains
- Bromelain: Breaks down protein. It's not suitable for those allergic to pineapple
- Cellulase: Breaks down cellulose and makes the nutrients in plant-derived foods easier to absorb
- Glucoamylase: It's an amylolytic enzyme that breaks down carbohydrates.
- Hemicellulase: Hydrolyzes hemicellulose
- Invertase: Hydrolyzes sucrose into glucose and fructose
- Lactase: Hydrolyzes lactose, found in milk, reduces diarrhea and gas.
- Lipase: Breaks down oils, fats, and triglycerides.

What makes it our best recommendation is because of its broad range spectrum with various enzymes and potency. In addition to its spectrum and potency, it is soy-free, dairy-free, gluten-free, yeast-free, and wheat-free. It contains no sugar, salt, preservatives, or flavor.

Click [here](#) to check it out on Amazon

Digestive enzymes with Ox bile/betaine HCL?

Some enzyme supplements contain ox bile to increase fat digestion and its absorption. Others also have betaine hydrochloride in them to increase the amount of stomach acid. Low stomach acid or the presence of gallstones isn't uncommon when it comes to the pancreatic exocrine insufficiency

Why you need bile:

It's necessary for digesting fats because lipase isn't enough. Bile salts are required for emulsifying fats first before lipase can act on them, breaking them down into monoglycerides and free fatty acids. In the absence of bile, most of the fats would just be excreted undigested.

Who necessitates ox bile?

If you have gallbladder or liver problems that can disturb bile production like a frequent gallstone attack or if you have removed your gallbladder surgically, then adding ox bile can be helpful

Who necessitates betaine HCL?

Those diagnosed with low stomach acid will find betaine HCL to be very useful.

How to utilize them with enzymes?

It can be hard finding a broad range of digestive enzymes that also include ox bile and/or HCL. You can get hold of them separately and use them with a broad range of enzyme supplements if that's your case. Make sure to purchase the lowest strength of betaine HCL and ox bile that you can find, especially if you're going to use them together. A too high dose can cause discomfort in the stomach.

One we can recommend is [Dr. Berg's Gallbladder Formula](#) which has both Ox bile salt and Betaine HCL in somewhat perfect proportion.

When and How Much Should I Take?



The enzymes need to come in contact with food to do their job, and as such, it is recommended you take them just before, right after a meal, or even during a meal. I find out that taking them in the middle works best for me. So, try it out however you want to see what works for you.

You can also open enzyme capsules and mix them with water or food to increase their effectiveness. But don't breathe in the powder and make sure to clear it out from your mouth and throat because it can irritate those areas. Also, don't mix it with any hot meals because that would render it inactive.

You must also give great importance to the dosage. Consider these factors when deciding how often and how much supplements you need to take:

- How much residual pancreatic function you've got: You'll need more digestive aids if you've got a weak pancreas, even if you're just taking an afternoon snack.
- How much food you consume: A big meal containing high fat can require more enzymes than a small meal
- The enzyme's potency: If the potency is high, lower the dose.

If the gastrointestinal discomfort that you feel with each meal goes away, then you know that you've hit the right dose. Your excretions will also become normal after a few days. If that doesn't happen, try gradually increasing the dose.