

# Enzymes!

## Everything You Ever Wanted to Know About Digestive Enzymes

Digestive enzymes. We're betting you've heard of them, have a vague idea that they're good, and wonder if you should be taking them. But this is one area where we also see a lot of confusion. Supplementation of any sort without knowing what or why you're doing what you're doing can be just as detrimental to your health as doing nothing at all. So, let's get the complete low-down on all things digestive enzymes from today's guest expert, Dr. Tim Gerstmar of Aspire Natural Health.

### What are digestive enzymes, and why are they so important?



We eat food, but our digestive system doesn't absorb *food*, it absorbs *nutrients*. Food has to be broken down from things like steak and broccoli into its nutrient pieces: amino acids (from proteins), fatty acids and cholesterol (from fats), and simple sugars (from carbohydrates), as well as vitamins, minerals, and a variety of other plant and animal compounds. Digestive

enzymes, primarily produced\* in the pancreas and small intestine, break down our food into nutrients so that our bodies can absorb them.

*\*They're also made in saliva glands and stomach, but we're not going to focus on those here.*

If we don't have enough digestive enzymes, we can't break down our food—which means even though we're eating well, we aren't absorbing all that good nutrition.

Major Digestive Enzymes			
Enzyme	Produced In	Site of Release	pH Level
<b>Carbohydrate Digestion:</b>			
Salivary amylase	Salivary Glands	Mouth	Neutral
Pancreatic amylase	Pancreas	Small Intestine	Basic
Maltase	Small intestine	Small intestine	Basic
<b>Protein Digestion:</b>			
Pepsin	Gastric glands	Stomach	Acidic
Trypsin	Pancreas	Small intestine	Basic
Peptidases	Small Intestine	Small intestine	Basic
<b>Nucleic Acid Digestion:</b>			
Nuclease	Pancreas	Small intestine	Basic
Nucleosidases	Pancreas	Small intestine	Basic
<b>Fat Digestion:</b>			
Lipase	Pancreas	Small intestine	Basic

## What would cause digestive enzymes to stop working correctly in the body?

First, diseases may prevent proper digestive enzyme production.

- Pancreatic problems, including cystic fibrosis, pancreatic cancer, and acute or chronic pancreatitis.
- Brush border dysfunction, the most severe is long standing Celiac disease, where the brush border is flattened or destroyed. Other diseases like Crohn's can also cause severe problems.

But even in the absence of any obvious disease, things still may not be working properly.

- Low-grade inflammation in the digestive tract (such as that caused by "food allergies," intestinal permeability, dysbiosis, parasitic infection, etc.) can lead to deficiencies in digestive enzymes.
- Aging has been associated with decreased digestive function.

- Low stomach acid can play a huge roll in digestive malfunction.

Chronic stress. This is the most common reason for digestive enzyme problems. Our body has two modes: sympathetic “fight or flight” (activities that require your mental or physical alertness such as work and exercise) and parasympathetic “rest and digest” (activities that are related to more relaxing activities such as sleeping, eating and watching TV).” When we’re in “fight or flight” mode, digestive is given a very low priority, which means digestive function (including digestive enzyme output) is dialed down. Chronic stress= constant “fight of flight” mode = impaired digestive enzyme output.



## **How do we correct a digestive enzyme deficiency?**

Dietary interventions work by reducing inflammation in the body and the digestive tract, improving nutrient deficiencies, removing enzyme inhibitors by taking out things like grains and legumes, and fixing gut bacteria.

However, just because you eat Good Food doesn't *automatically* mean your digestion will be healthy. Managing chronic stress is vitally important to restoring healthy digestive function. Most of us are cramming food in our faces at our desks or while we're on the go, then we're off to do the next thing on our list. We live most of our lives in sympathetic mode - and aren't giving a high priority to properly digesting our food. When we sit down to eat food, we should switch into a parasympathetic mode, and ideally *stay* in parasympathetic mode for a while afterwards. Think long European meals, followed by a siesta.

Finally, after implementing these healthy dietary and lifestyle practices, digestive enzyme supplementation may be necessary to help your body properly break down your food.

# How do I know if I should be taking digestive enzyme supplements?

Symptoms that suggest you might have problems with digestive enzymes are:

- Gas and bloating after meals
- The sensation that you have food sitting in your stomach (a rock in your gut)
- Feeling full after eating a few bites of food
- Undigested food in your stool
- Floating stools (an occasional floating piece is fine, but if all your poop consistently floats, that might be a sign something is wrong)
- An “oil slick” in the toilet bowl (undigested fat)

The good news is that since digestive enzymes are very safe and reasonably cheap, you can always try them and see if you notice any difference in your digestion.



## What kinds of digestive enzyme should I take?

There are a variety of digestive enzymes on the market, including single enzyme and multiple enzyme. Without testing, typically a mixed enzyme to cover your bases would be recommended.

As with all supplements, you're looking for brands that meet the following criteria:

- **Quality/Price:** Buying cheap supplements is almost always a waste of money—you're almost never going to get the benefit you're looking for. When buying

enzymes, don't look for the cheapest brand on the shelf, and steer clear of conventional grocery stores and drug stores, as they carry poor quality product.

- **Reputation:** There are about a zillion companies selling supplements right now.
- **Source:** There are three major sourcing for digestive enzymes. Fruit sourced (isolated from papaya or pineapple) work well for some people, but tend to be the weakest digestive enzyme supplement, and aren't sufficient for people who need more support. Animal sourced (typically listed as pancreatin) are not for vegetarians or vegans, and can have issues with stability. They work really well for some people. "Plant" sourced (from fungus) are the most stable of all the enzymes, survive digestion well, and have a broad spectrum of action.
- **Multiple enzymes:** Most people are going to benefit from a multi-enzyme product, so you'll want to see a number of enzymes listed, including proteases (which break down proteins), lipases (which break down fats), and carbohydrases (such as amylase, which break down carbohydrates). Look at the labels of the products - there are a ton of enzymes, but your product should include at least some from these.
- **Strength/potency listed:** Enzymes are rated on various scales, so you want to see numbers beside each enzyme showing their strength. If it's just a proprietary formula without strengths listed, be cautious - it usually means a weak product.
- **Ingredients:** As with all supplements, you want to see all the ingredients listed. And you especially want to see what ingredients are *not* in the product like gluten, dairy, etc. If it doesn't say "contains no: sugar, salt, wheat, gluten, soy, milk, egg, shellfish or preservatives," you need to assume that it does.

## When should I take digestive enzyme supplements, and how much should I take?

Take your digestive enzymes with food. Some people make a big deal of timing, but my bottom line is just to get them in around the time you're eating. Most people find it easiest to pop them just before they sit down to eat, but anytime within about 30 minutes of your meal is going to be beneficial.

If you have a high quality product, most people need 1 - 2 capsules with their major meals. (Most people don't need to take any with light meals or snacks unless their digestion is very messed up.) The most I've ever had to use with a person was 4 capsules with each meal.

When you've found a dose that works well for you, your symptoms *should* go away—that gas or bloating after meals, the feeling of a stone in the guts, or your messed up poop should get better. If not, try increasing your dose slowly, by one pill per meal, giving it at least a 3 days (and up to a week) to evaluate how things are working.

For more information, call us at 770-461-8781 and schedule an appointment.