Digestive Problems? Weight Problems? Chronic Illness?

You Probably Need Digestive Enzymes

(Just About Everyone Does)

In the natural health world, it's often said that you "are what you eat," and common sense says that proper nutrition is one of the foundations of good health. However, even the best quality food won't do your body any good if you can't digest it and many people suffer from deficiencies of enzymes or hydrochloric acid, which prevent them from breaking down the food they eat into the nutrients they need.

Here are some common symptoms of digestive insufficiency. Do you suffer from any of them?

- ✓ Belching or gas one hour after a meal
- ✓ Sour stomach about one hour after a meal
- ✓ Bad breath, bitter taste in the mouth
- ✓ Small appetite, sense of fullness from small meals
- ✓ Loss of appetite for proteins (especially meat)
- ✓ Stomach upset from taking vitamin supplements
- ✓ Feeling better when you don't eat
- ✓ Not feeling hungry for breakfast
- ✓ Feeling sleepy after meals
- ✓ Brittle fingernails
- ✓ Stomach discomfort from eating fatty foods
- ✓ Nausea and/or diarrhea

You can obtain more specific information about the symptoms of low stomach acid, pancreatic enzyme insufficiency and bile insufficiency from Signs and Symptoms Analysis from a Functional Perspective by Dicken Weatherby, ND.

If you have three or more of these symptoms you may have a deficiency of enzymes or hydrochloric acid. If you have five or more you probably have deficiencies. These deficiencies contribute to many health problems, including excess or deficient weight, immune problems and many forms of chronic illness. If these symptoms apply to you, we encourage you to learn how you can support your digestion and improve your overall health. Let's begin by learning about enzymes and why many people are deficient.

What Are Enzymes?

The life and health of every living thing depends on enzymes. You can think of enzymes as the tiny engines of life, performing thousands of essential tasks that keep you alive.

The blueprints for building enzymes are found in your DNA. Reading the DNA code your body synthesizes over 3,000 different enzymes by assembling long strings of amino acids that form three dimensional structures. These structures have the ability to combine

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SUNSHINE SHARING

Your guide to better health the natural way.

Vol. 29 No. 11

Important Notice

The information in *Sunshine Sharing* is for educational purposes only and should not be used to diagnose and treat diseases. If you have a health problem, we recommend you consult a competent health practitioner before embarking on any course of treatment.

Sunshine Sharing is an independent educational publication and receives no financial support from any herb or health product manufacturer. Your comments, questions and personal experiences are welcome. Send them to *Sunshine Sharing*, P.O. Box 911239, St. George, UT 84791-1239 or comments@treelite.com.

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You Probably Need Digestive Enzymes

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substances or take them apart. They make the substances the body needs and break down what the body doesn't need.

Plant Enzymes

All living things contain enzymes and those found in plants may have nutritional and health benefits. Raw food contains live enzymes, which are destroyed when food is cooked. Once you heat a food in water past 118 degrees or past 150 degrees using dry heat, the enzymes are no longer active.

Enzyme-rich foods tend to be easier to digest, so eating more fresh, raw fruits and vegetables will often help your digestion. Foods that are particularly enzyme-rich include raw pineapple, papaya, mango, grapes, figs, dates and unprocessed honey. Naturally-fermented foods are rich in both enzymes and probiotics, which are also needed for digestive health. (See *Soaking and Fermenting Foods* on page four.)

Digestive Enzymes

When you eat, your mouth, stomach, pancreas and intestines secrete enzymes and other substances to break down the food as shown in the table below. Digestion begins in the mouth as we chew food thoroughly to moisten it with saliva and break it into smaller pieces. Saliva also contains a starch-digesting enzyme called ptyalin, which acts in the alkaline environment of the saliva to break down starches into simple sugars.

The stomach secretes hydrochloric acid (HCl) and pepsin to begin the process of breaking down proteins into smaller protein fragments like peptides. HCl shifts the pH from alkaline to acid. Pepsin works in an acid environment.

In addition to initiating protein digestion, HCl prepares minerals like zinc, calcium and iron for absorption. Without adequate stomach acid you can't absorb these minerals. It also knocks down harmful bacteria to prevent their growth in the small intestines, so it acts as part of your immune system. Low stomach acid (hydrochlorhydria) is a common problem and is discussed in detail on the next page.

When food enters the small intestine, pancreatic enzymes and bile salts are secreted. This changes the pH back to an alkaline environment. Bile makes fats in food water soluble so they can be digested and absorbed. Insufficient bile production can result in nausea, light colored stools and indigestion from eating fatty foods.

Enzymes from the pancreas finish the process of protein digestion, converting the protein fragments into amino acids. Pancreatic enzymes also break fats down into fatty acids and glycerine. They also break down starches not broken down by the saliva into complex sugars (disaccharides).

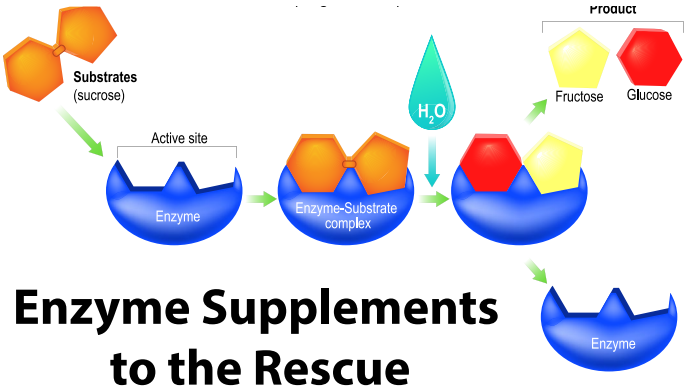
Enzymes are also secreted by the small intestines. This includes the enzymes that break disaccharides like sucrose (from table sugar or honey), into the monosaccharides glucose and fructose. The illustration at the top of the next page shows how this enzymatic process takes place.

Metabolic Enzymes

In addition to your digestive enzymes, your body also produces thousands of metabolic enzymes. Metabolic enzymes take sugars, fatty acids and amino acids and reassemble them into hormones, neurotransmitters, cell membranes and other components the body needs.

Digestive Enzymes and Secretions

Organ	Enzyme/Secretion	Function
Mouth	Saliva	Moistens food
	Ptyalin enzyme	Breaks starches down into sugars (maltose)
Stomach	Hydrochloric Acid	Begins protein digestion, prepares minerals for assimilation
	Pepsin enzyme	Begins protein digestion
	Rennin enzyme	Digests milk proteins
Pancreas	Trypsin enzyme	Finishes protein digestion, breaks proteins down into amino acids
	Amylase enzymes	Converts starches to sugars
	Lipase enzymes	Breaks down fats into fatty acids and glycerol
Gallbladder	Bile	Emulsifies fats to make them water soluble
Small Intestine	Peptidase enzymes	Finishes protein digestion, breaks proteins down into amino acids
	Sucrase, maltase, and isomaltase enzymes	Break complex sugars (disaccharides) into simple sugars (monosaccharides)
	Lactase enzyme	Converts lactase (milk sugar) into simple sugars
	Lipase enzyme	Breaks down fats into fatty acids and glycerol



Enzyme Supplements to the Rescue

Now that you know the importance of enzymes and digestion, let's help you find the appropriate enzyme supplements for your needs.

Plant Enzyme Supplement

If you are under 40 and in reasonably good health, but eat a lot of cooked and processed foods, it would be wise to take a ***Plant Enzyme Supplement***. Basically, it's providing you with the enzymes you'd get from a diet with more raw or naturally fermented foods.

A *Plant Enzyme Supplement* contains plant source enzymes—protease and peptidase for breaking down proteins, amylase and glucoamylase for digesting starches, and lipase for digesting fats. It also contain the sugar digesting enzymes invertase, malt diastase, alpha galactosidase and beta gluconase, which inhibit bacterial fermentation in the small intestines and reduce sugar cravings.

A good *Plant Enzyme Supplement* will also contain cellulase and hemicellulose, which break down plant fibers, This also inhibits fermentation and gas. Another important ingredient is phytase, which breaks down this enzyme inhibitor found in grains and other seed foods, making them easier to digest (see page 4).

Try taking one or two capsules at the beginning of every meal. They will help food digest more quickly and efficiently and take stress off of your digestive system. You can also take 2-4 capsules if you eat too much and feel bloated or stuffed.

Digestive Aid Formula

For more serious digestive problems, a more complete ***Digestive Aid Formula*** will be a better choice. This formula supplements the enzymes and secretions your body produces to break down food. It is particularly helpful for people over

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Additional Help and Information

For more information about using enzymes and digestive aid supplements contact the person who gave you this newsletter. You can also consult the following resources:

Enzyme Nutrition by Edward Howell
Enzymes and Enzyme Therapy by Anthony J. Cichoke
Signs and Symptoms Analysis from a Functional Perspective by Dicken Weatherby, ND.
The Healing Power of Enzymes by DicQie Fuller

Low Stomach Acid

Millions of Americans are probably suffering from low stomach acid, which becomes increasingly common the older you get. It's likely that half of all people over 50 don't produce enough stomach acid to properly digest their food. People with Blood Type A are particularly prone to low stomach acid.

This low stomach acid allows for the overgrowth of bacteria in the small intestines. These bacteria produce acid and gas, which gives people a bloated feeling and a sour stomach about one hour after eating. Ironically, most people take antacids to correct this acid indigestion, which further neutralize what little stomach acid they produce and makes the problem even worse.

Low stomach acid makes it difficult to digest proteins and to absorb minerals, which weakens the entire body. This is why antacid use is associated with increased risk for osteoporosis, arthritis, dental issues and other structural problems.

If you suspect you have low stomach acid, try the betaine hydrochloric acid (HCl) challenge test. (Note: don't do this if you have an active ulcer or a history of ulcers.)

Take a capsule of a ***Betaine HCl Supplement*** containing about 400 mg. of betaine HCl with a meal. If you notice no burning sensation, you increase to two capsules the next meal. Proceed until you notice a mild burning sensation in the stomach. Reduce the dose to the maximum number of capsules you took that didn't produce this sensation. Most people find a comfortable dose between 400 and 1600 mg. per meal (2-4 capsules).

If one or two capsules causes burning, you either don't have low stomach acid or you have acid reflux that is so severe you won't be able to take HCl until you get it under control. Also, remember that the more protein you eat at a meal, the greater the need for HCl, so you can vary the dose with the size and content of your meals. If you have severe digestive problems, you may also wish to take a ***Digestive Aid Formula*** along with the ***Betaine HCl Supplement***.

Within 3-6 months most people feel a warm burning sensation in their stomach with the dose they have been taking. When this happens it is time to decrease your dose and start weaning off of the ***Betaine HCl Supplement***.

You can also use a ***Digestive Bitters Formula*** to stimulate digestive secretions. Bitters not only stimulate HCl secretion, they also stimulate pancreatic enzymes and bile from the gallbladder. They tend to be mildly antibacterial as well. Bitters should be taken 15-20 minutes prior to meals with one to two large glasses of water. A small pinch of a natural salt can also be taken at the same time, as this also helps stimulate HCl production by providing the chloride (Cl) in the HCl.

HCl production requires **zinc**, a trace mineral that many people are deficient in. To see if you need zinc, put a zinc tablet in your mouth for a few minutes. If you get a bitter, metallic taste you probably don't need zinc. Otherwise, try supplementing with one 25 mg. tablet of zinc daily for a couple of months, too.

This issue of Sunshine Sharing is provided by:

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50 whose digestive systems often produce less digestive fluids and enzymes. It is also beneficial for people who are suffering from chronic illness and struggling with muscle loss and weakness.

A *Digestive Aid Formula* contains hydrochloric acid and pepsin (secreted by the stomach to break down proteins), bile salts (secreted by the gall bladder to emulsify fats) and pancreatic enzymes (which break down fats, proteins and carbohydrates). The blend also contains bromelain, an enzyme from pineapples, and papain, an enzyme from papayas, both of which help to break down proteins.

Generally one or two capsules are taken before, during or right after a meal. You can use a *Digestive Aid Formula* with a *Betaine HCl Supplement* as described on page three. This is helpful if you have problems digesting proteins or have severe gas or bloating.

Therapeutic Use of Enzymes

There are also specific enzyme supplements for specific digestive needs. Lactase is an enzyme that breaks down the sugars in milk. People who are lactose intolerant experience gas and bloating from dairy foods and taking a ***Lactase Enzyme Formula*** relieves this.

Protease enzymes, which break down protein, are found in ***Protease Enzyme Supplements.*** They have many uses. When taken between meals along with ***Antimicrobial Supplements*** containing ingredients like **berberine, pau d'arco** and cinnamon, they help to break down bacterial or fungal biofilm. This can improve GI tract health and get rid of chronic infections.

Protease Enzyme Supplements can also be used in between meals with ***Antiparasitic Formulas*** containing herbs like artemisia, **black walnut** and garlic and pumpkin seeds to help get rid of parasites. Taking them between meals can also calm allergic reactions and reduce inflammation.

Both ***Protease Enzyme Supplements*** and ***Digestive Aid Formulas*** have also been taken between meals as part of a natural anti-cancer program. It is believed that enzymes help make cancer cells more visible to the immune system.

Soaking and Fermenting Foods

All seeds contain enzyme inhibitors to keep the seed in a dormant state. This is why legumes, nuts and grains can remain alive for many years. When the enzyme inhibitors are deactivated, the seed's enzymes activate and the seed starts to sprout and grow.

In traditional cultures around the world, grains, beans and other seed-based foods were always fermented, soaked or sprouted before being eaten. Bread was originally fermented as sourdough which made the bread easier to digest. Native Americans soaked corn in water with wood ashes, which made the nutrients bioavailable. When Europeans started eating corn without this soaking process they developed vitamin B deficiencies. In the Orient soybeans underwent similar processes before being consumed. They considered unprocessed soy to be unhealthy.

A large portion of modern diets contain soybeans, wheat and corn with active enzyme inhibitors because they have not been prepared in traditional ways. In addition, many preservatives also act as enzyme inhibitors. This is why a ***Plant Enzyme Supplement*** is important for people eating modern cooked and processed foods.

In addition, cultures which consumed a large quantity of cooked foods supplemented their diets with naturally fermented foods. These foods include pickled vegetables (like sauerkraut), fermented soy, naturally fermented beers (ginger, root beer) and cultured diary (yogurt, kefir, cheese). Fermented foods are rich in enzymes and probiotics, both of which aid digestion.

Modern fermented foods are often cooked to prolong shelf life, which destroys the beneficial enzymes and probiotics. Fortunately, most health food stores and many grocery stores now carry naturally fermented foods and foods made from sprouted or soaked nuts and seeds. Including these foods in your diet can be helpful for improving digestion and GI tract health.