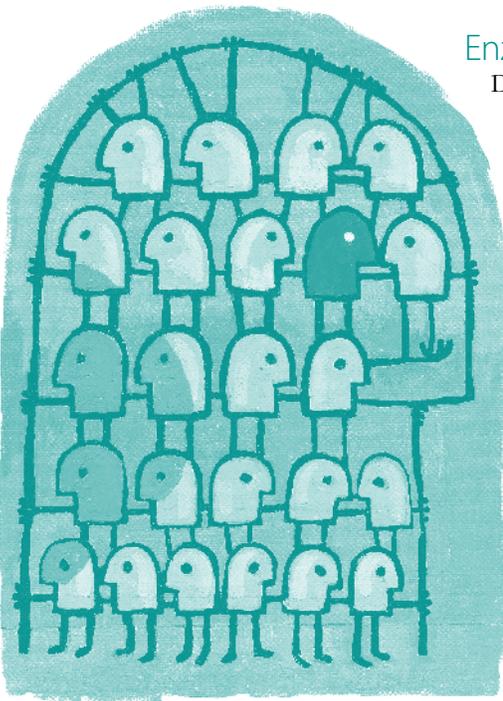


Eat for Health with Digestive Enzymes

by Margy Squires

You have an army of enzymes waiting to turn those healthy foods you're eating – lean protein, EFA fats and a variety of fruits and veggies – into necessary nutrients to nourish every living cell in your body. Still, some of you drag around, catch every virus on the planet and feel downright worn out. So what's the army doing anyway if it's not fighting on your behalf? Could be it's as worn out as you are.



Enzymes & the Digestive Process

Digestive enzymes are available on command from the five major organs in the digestive process; the hollow organs of the mouth, stomach and intestines, along with two solid organs, the liver and pancreas. These organs produce and secrete the army of enzymes that break down foods into smaller, usable nutrients for your body (see The 5-Step Process diagram). Enzymes are powerful protein-based substances that make mechanical and biochemical reactions happen everywhere in the body at very fast speeds without being used up themselves. They are very action specific. When we talk about digestive enzymes, which are biochemical, they are very specific to digestion.

The 5-Step Process

There are many digestive enzymes but the three generals (primary ones) are: amylases (convert carbohydrates to simple sugars), proteases (convert proteins to amino acids) and lipases (break down fats to fatty acids). The lining of the stomach and intestines produce and secrete these enzymes, while their muscular structure squeeze and release in a peristalsis (wavelike) motion. These muscles (prompted by the nervous system) churn the food together and propel it through Steps 2-5.

In STEP 1, the sight, smell or thought of food causes the salivary glands to secrete amylase as the first battle step. Chewing is critical since the majority of carbs must be converted here before going to STEP 2, the upper part of the stomach. Hydrochloric acid (HCl) is part of the stomach digestive juices that maintain the necessary acidic pH range. In STEP 3, the pancreas produces proteases to combine with stomach pepsin for protein breakdown. The final food mixture empties into the duodenum of the small intestines for STEP 4. Here, fats are broken apart by liver-produced bile which enters the duodenum via special ducts (excess bile is stored in the gall bladder for later use). The pH range changes to alkaline; many nutrients are extracted, as well as essential fatty acids from fat synthesis. Finally, in STEP 5, water and any remaining nutrients are extracted before any waste products are eliminated. Operation complete.

What Can Go Wrong

Under ideal conditions, you can command (manufacture) most of your enzymes and supply “order” the rest with dietary (plant and animal) sources. Like an ailing or old army, enzyme production and activity declines with age (over 40) or chronic disease. Diet-wise, enzymes are alive in raw fruits and veggies, but not green ones which ripen on the way to the market. Cooking, irradiating or nuking food destroys enzymes, which are fragile and sensitive to heat and light. Rare cooked meats are a thing of the past, given the threat of *e-coli* in beef and *salmonella* in chicken. Today's typical diet of fast, mostly processed foods coupled with few fruits and veggies equal further enzyme deficiency, slowing transit. Too little HCl and over consumption of antacids change the pH of the stomach, compromising enzyme activity. Less than optimum stomach transit results in irritating burps, belches and bloating. An inadequate ration supply of vitamin C, zinc and manganese limits bile production, affecting fat synthesis. Foods stuck in the GI tract trigger gas, diarrhea and/or constipation. Over time, mild symptoms may lead to more serious disorders: gastroesophageal



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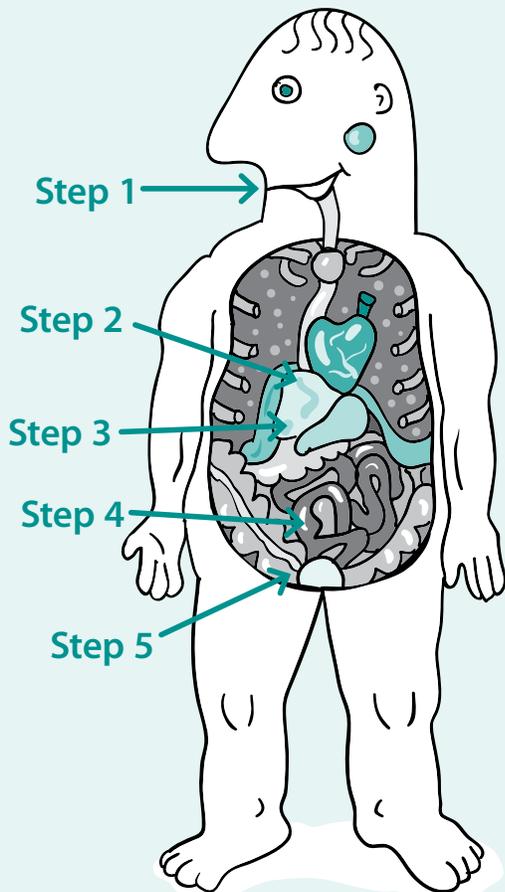
acid reflux (GERD), irritable bowel, Crohn's, colitis and even cancer. You may suffer allergies (skin and food), low immunity, fatigue and mental confusion, symptoms you may not be aware are related to poor digestion.

Given the number of factors involved, anything could and does go wrong. More than 70 million Americans suffer from digestive woes and it's the number one reason for hospitalizations. Health care costs, lost time and death costs total more than \$141 billion a year. Antacids and laxatives compound an already epidemic problem. Wiping out your army leads to defeat on all battle fronts.

The Answer: Supplement

The good news is you don't have to resort to a raw food diet to get active enzymes or to fortify your digestive army. Supplements like Digesta-Care 8™ and Digesta-Care ES™ that have the three major digestive enzymes – amylase, protease and lipase – easily add back in what today's diet is leaving out. Fruit enzymes papain from papaya and bromelain from pineapple are often added as well. In fact plant enzymes are believed more effective as they have a wider pH range to cover more of the digestive process than animal based enzymes.

The 5-Step Process



A recent supplement with BioCore®DPP IV is specific to the digestive arsenal for people with celiac or gluten intolerance. Although Gluten Digest does not mean you can eat gluten containing foods, it is helpful in situations where cross-contamination might happen in restaurants or social situations. In celiacs, damage to intestinal villi caused by gluten can seriously affect nutrient transport and status.

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Could everyone benefit from digestive enzymes? It appears so. Coupled with a good diet, digestive enzymes are fundamentally necessary for efficient digestion. Don't forget about the rest of the GI front, though. Take a daily multiple for bile cofactors A, C, zinc. Olive Leaf Extract or Olive Leaf ESE™ will make sure GI enemies like yeast don't overrun the camp. Restore gut flora troops with pre- and probiotics (Acidophilus ES™, scFOS). Fortify stomach mucosa with mastic gum, slippery elm, marshmallow. Address temporary stomach woes with ginger, irritable bowel with enteric-coated peppermint oil. Listen to your digestive command center. If your stomach and bowels are “talking” to you, the code may be a request for digestive enzymes!

Caution: Stomach pain and/or persistent constipation may signal a serious problem. Please consult your health professional and do not self treat. People with active inflammatory conditions (GERD, Crohn's, etc), also should consult their physician for personal counsel.

More GI Health Resources

1. <http://digestive.niddk.nih.gov/ddiseases>
2. *Enzymes & Enzyme Therapy* by Anthony Cichoke (Keats, 1994)
3. *Stomach Lining Protection Done Naturally* by NOW Foods

TyH Online Library

- ◆ *Acacia Fiber the Organic Way*
- ◆ *Acidophilus, the Good Guys for GI Health*
- ◆ *Clear & Replenish: Healing the Gut*
- ◆ *Digestion 101: Q&A*
- ◆ *Pre & Probiotics; the Power of Harmony*
- ◆ *Your Gut, Highway to Health*

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