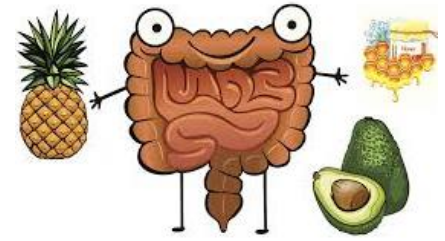


Digestive Enzymes: Help or Hype?

Uh-oh...better get Beano? | By Tamara Duker Freuman | Contributor April 23, 2013, at 4:15 p.m.



As interest in [food intolerance](#) grows, supplemental digestive enzymes are gaining traction with consumers. Increasingly, when patients show me their multivitamin labels, there are a handful of digestive enzymes listed among the vitamin and mineral ingredients. I've also read online testimonials from folks who swear that enzymes marketed as providing "digestive support" for gluten work as promised—and enable them to eat bread and pasta, bloat-free.

What are these enzymes, exactly? Should you be taking them?

Enzymes are proteins that facilitate specific chemical reactions. Digestive enzymes facilitate the chemical breakdown of food into smaller, absorbable components. Enzymes called amylases break down starches into sugar molecules; proteases break down proteins into amino acids; and lipases break down fat into its component parts.

Humans naturally produce multiple different enzymes in these families that encounter food at different places in the digestive process: first in the mouth, then in the stomach, and finally, within the small intestine. Humans also possess disaccharidases, or enzymes that break the bonds between double sugar molecules like sucrose (table sugar) and lactose (milk sugar) into two individual sugar molecules for absorption.

Unlike members of other biological kingdoms, humans (as mammals) lack digestive enzymes that break down compounds from plant cell walls like cellulose, pectins and resistant starches. These dietary compounds are collectively called "fiber." By definition, fiber is a nondigestible substance whose health benefits derive from its inability to be absorbed. Since it survives the digestive process intact and unabsorbed, it can travel along to the colon where it feeds our resident bacteria and contributes to fecal bulk.

In considering whether taking supplemental digestive enzymes may be beneficial, one should recognize that the term "digestive enzymes" is a catchall that includes a variety of compounds with different purposes—similar to "vitamins" or "probiotics." Just as we can't draw sweeping generalizations about whether taking vitamins is beneficial (it would depend on which vitamin in which individual), so too with digestive enzymes: It depends on which enzyme and in what population.

There are a handful of circumstances in which supplemental digestive enzymes offer a very clear benefit, so let's start there.

- **Pancreatic insufficiency (PI):** This condition, in which the pancreas is unable to produce or excrete normal amounts of digestive enzymes into the intestine, is treated with enzymes taken orally with meals so that food can be absorbed.

Unlike over-the-counter enzymes, these prescription enzymes are specially coated to resist being digested by stomach acid before they can do their work in the intestines. Signs and symptoms of PI include light-colored, foul smelling, loose stools—often that float as the result of malabsorbed fat.

For example, many people with cystic fibrosis require supplementation with enzymes since pancreatic insufficiency is a hallmark characteristic of the disease. People with chronic pancreatitis or who have had pancreatic surgery may require supplemental enzymes as well.

- **Lactose intolerance:** The lactase enzyme is required to break down and absorb milk sugar. In many people, the body ramps down its production of lactase in their teens and twenties. With low levels of lactase available, large quantities of milk or other dairy products cannot be comfortably digested.

For dairy-loving folks with lactose intolerance, lactase enzyme supplements are widely available and effective—if taken at a sufficient dose along with dairy foods. (Alas, it may require some trial and error to titrate the right dose based on the product you're using and the portion of dairy you're eating.)

- **High-fiber diets.** People following high-fiber diets, and often vegetarians and vegans, who rely heavily on beans and large portions of veggies as a cornerstone of their diets, sometimes find that a little bit of enzymatic help from a friend in the fungi kingdom can make a huge difference in their diet tolerance.

Enter Beano—a popular digestive enzyme product that contains alpha-galactosidase, a mold-derived enzyme that's required to break down the type of fiber found in beans and gassy veggies like cabbage, broccoli and cauliflower. Taking multiple Beano tablets with a plant-based meal that's high on the flatulence meter can help minimize the gas that follows.

Beyond these circumstances, the benefits of supplemental digestive enzymes become murkier.

The notion that large swaths of the population suffer from "enzyme deficiencies" is advanced by some in the health arena—and particularly so by profit-oriented marketers of digestive enzyme supplements. In fact, apart from lactase, overt

digestive enzyme deficiencies are rare, and they generally occur in malnourished, ill individuals—not in gassy but otherwise well people.

It's also worth noting that many labs performing stool analyses of pancreatic enzyme levels use a different reference range than that which is conventionally accepted as normal. These alternative standards tend to result in findings of "pancreatic insufficiency" at a much lower threshold. Lastly, some degree of intestinal gas is perfectly normal; its presence does not necessarily imply that something is amiss.

Most gastroenterologists dismiss over-the-counter digestive enzymes as a placebo, at best. "You'll digest them well before they'll be able to help you digest anything," says my colleague, New York-based gastroenterologist Eric Goldstein, regarding plant-based enzyme products that lack enteric coating, which enables intestinal absorption. He notes that these products are substantially different from FDA-regulated, prescription enzymes. His advice? Once all medical reasons for your symptoms have been ruled out, try chewing your food better, get breath-tested for suspected food intolerances, take Beano if it helps and avoid foods that bother you.

Still, some practitioners contend that over-the-counter digestive enzymes have benefited their patients with digestive woes, even in the absence of an overt enzyme deficiency. Integrative nutritionist Liz Lipski and author of the book, "Digestive Wellness," is one such clinician. She acknowledges that scientific evidence supporting the benefits of digestive enzymes is lacking but recommends these products based on her practical experience that they work in certain cases.

"If someone tells me they consistently feel bloated or gassy two to four hours after eating, or that food feels like it just 'sits there' hours after a meal, I've found that support from digestive enzymes in these cases can make a real difference." Lipski, who is based in Laurel, Md., is careful to note that she never uses enzymes as a first-line treatment for such digestive symptoms, as it's important to first rule out causes that would require conventional dietary or medical treatment—like celiac disease or Small Intestinal Bacterial Overgrowth (SIBO).

The bottom line: There are easily two dozen reasons why one may feel abnormally bloated or gassy—they range from serious medical conditions to completely benign side effects of a healthy, plant-based diet.

If your food tolerance is cause for concern, don't turn to Dr. Google for a diagnosis and to supplement marketers for a prescription. Talk to a credentialed professional—ideally one who's not out to sell you something—for help in making sense of the sounds, smells and sensations that your GI tract is producing.

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Text-Reflection Questions:

Number the paragraphs (¶). Refer to these paragraph numbers when answering the questions. Use complete sentences.

- 1. What is the purpose of enzymes? Give 1-2 specific examples.
- 2. Describe the process of digestion, including the location and enzymes involved.
- 3. When are supplemental digestive enzymes beneficial? Explain on this chart.

Condition	Description	How do enzymes help?
Pancreatic insufficiency		
Lactose intolerance		
High-fiber diets		

- 4. **Write on a separate paper and staple:** Based on what you've read, do you think enzymes are hype or help? Include 3 quotes from this article (with paragraph citations) to support your position.

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