

What Are the Keys to Optimal Digestion?

Analysis by [Dr. Joseph Mercola](#)

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STORY AT-A-GLANCE

- › 60 million to 70 million Americans suffer from gastrointestinal (GI) disease and nearly 40% were prevented from participating in routine activities due to bowel problems in the last year. Chronic constipation affects an estimated 63 million Americans, and gastroesophageal reflux disease (GERD) affects about 20% of the population
- › Proper digestion is required to break down food into nutrients your body can use for energy, growth and repair. Poor digestion can have a serious impact on your health as your metabolism and energy production become impaired
- › Chewing slowly helps break down your food faster, and saliva, which contains an enzyme called lingual lipase to help break down fats, helps when you swallow. The longer you chew, the more time those enzymes have to start breaking down your food. Eating slowly also lowers your risk for cardiometabolic conditions such as heart disease, diabetes and stroke
- › Physical activity, such as walking, helps optimize gut motility and promotes peristalsis, the rhythmic contraction of your digestive muscles that move the food through your small and large intestines. A 2022 meta-analysis found that as little as a two-minute walk within an hour to an hour-and-a-half after each meal can improve your digestion and cardiometabolic health
- › Acid reflux is typically caused by a deficiency in stomach acid, not excess. The lower esophageal sphincter is pH sensitive and only closes when there's a sufficient amount of acid in your stomach

Digestive problems are incredibly common. According to a 2022 survey¹ by the American Gastroenterological Association, some 60 million to 70 million Americans suffer from gastrointestinal (GI) disease and nearly 40% stopped routine activities due to bowel problems in the previous year.

Data² from the National Institute of Diabetes and Digestive and Kidney Diseases confirm these sad statistics. Chronic constipation, for example, affects an estimated 63 million Americans, and gastroesophageal reflux disease (GERD) affects about 20% of the population.

Proper digestion is important because it breaks down food into nutrients your body can use for energy, growth and repair. Poor digestion, therefore, can have a serious impact on your health, especially in the long term, as your metabolism and energy production become impaired. Let me review a few important fundamentals for optimizing your digestion.

Fundamentals: Chew Your Food

Research³ on gut transit times shows food will remain in your stomach anywhere from 0.4 to 15.3 hours before entering your small intestine. It typically takes 3.3 to seven hours for food to pass through the entire small intestine, and whatever is left over that your body could not absorb or use is passed down to your large intestine, where it can remain for 15.9 to 28.9 hours before being expelled into your toilet bowl.

Foods rich in fiber, protein, complex carbs and fats take longer to digest than processed foods, which are deficient in these nutrients. Several lifestyle factors can also affect gut transit time, starting with chewing.

Chewing slowly helps with the mastication-to-digestion process, starting in your mouth. Chewing more slowly helps break down your food faster, and saliva, which contains an enzyme called lingual lipase to help break down fats, helps when you swallow.

The longer you chew, the more time those enzymes have to start breaking down your food. The process makes digestion easier on your stomach and small intestine, because

digestion takes a lot of energy. Slowing down makes it easier for your intestines to absorb the nutrients.

One study⁴ demonstrated this point well: When study participants ate almonds quickly and chewed less (10 times, as opposed to 25 times or 40 times per bite), their bodies failed to take in all the nutrients almonds have to offer; the bits simply passed through largely undigested.

While I am no fan of eating almonds, the study does demonstrate that for those who chewed the most, the particles (hence the nutrition) were absorbed faster.

Chewing slowly and methodically – even thoughtfully – also helps you relax, and this too is important, as stress and anxiety slow motility and reduce blood flow to your gastrointestinal tract. Stress activates the fight-or-flight system, which suppresses digestion in the stomach and small intestine, while stimulating evacuation from the large intestine.

So, if you're frequently eating on the go, at your desk or in a rush, you may want to reconsider. Making sure you're relaxed while eating and that you're chewing your food well are foundational strategies for optimizing your digestion.

Fast Eaters Are at Higher Risk for Metabolic Syndrome

People who wolf down their food in a rush are also at increased risk for cardiometabolic conditions such as heart disease, diabetes and stroke, as evidenced in a Japanese study.⁵

The study involved 1,083 healthy male and female participants, mean age 51.2 years, who were followed for five years. The participants were divided into three groups, categorized as slow, normal or fast eaters. Over the five years, fast eaters were nearly two times more likely to develop metabolic syndrome compared to their slow-eating cohorts. As reported by the authors:⁶

"The incidence rates of metabolic syndrome among slow, normal and fast-eating participants were 2.3, 6.5 and 11.6%, respectively. The multivariate-adjusted hazard ratio for incidence of metabolic syndrome in the fast-eating group compared to the normal and slow group was 1.89 ...

Eating speed was significantly correlated with weight gain, triglyceride (TG) and high-density lipoprotein cholesterol (HDL-C) components of metabolic risk factors ...

Conclusions: Eating speed was associated with obesity and future prevalence of metabolic syndrome. Eating slowly may therefore indicated to be a crucial lifestyle factor for preventing metabolic syndrome ..."

The Impact of Physical Activity

Exercise is another foundational lifestyle aspect that can impact your digestion. Physical activity, such as walking, helps optimize gut motility and promote peristalsis, the rhythmic contraction of your digestive muscles that move the food through your small and large intestines. Frequent inactivity slows everything down and contributes to constipation.

“ As little as a two-minute walk within an hour to an hour-and-a-half after each meal can improve your digestion and cardiometabolic health. ”

According to a 2022 meta-analysis and systematic review,⁷ even as little as a two-minute walk within an hour to an hour-and-a-half after each meal can improve your digestion and cardiometabolic health.

Similarly, a 2015 meta-analysis⁸ found that low-intensity exercise such as walking after meals was associated with faster gastric emptying. High-intensity exercise, meanwhile, was associated with slower gastric emptying, so more is not better in this case.

2020 research^{9,10} also found that walking more in general (not necessarily after meals) helped improve IBS symptoms, such as bloating, and reduced their severity.

Digestive Enzymes to the Rescue

For proper digestion, nutrient absorption and elimination, you also need **digestive enzymes**. When you don't have enough of these enzymes, or your body doesn't release them appropriately, you won't be able to break down certain foods (depending on the enzyme lacking).

When you swallow food, it first enters the upper portion of your stomach. Here, any enzymes inherent in the food itself start to activate, helping to break the food down. As you might expect, the more the food can be broken down here, in the first stage of your gastrointestinal tract, the less labor intensive the digestive process will be later on.

The pH in this upper stomach portion typically ranges from 4 to 6, i.e., slightly acidic. As food enters your stomach, proton pumps lining the lower pyloric part of your stomach starts pumping in hydrochloric acid, and it does this in proportion to the amount of food that you eat. The more food you put in, the more hydrochloric acid is being pumped in to help break down and liquefy that food.

Importantly, hydrochloric acid does not actually help you digest your food. Rather, it activates an enzyme called pepsin, a proteolytic enzyme that helps digest protein. In this lower section of your stomach, the pH ranges from 2 to 4.

As the food is liquefied, it starts dripping into the duodenum, the upper part of your small intestine, triggering your pancreas to secrete alkaline bicarbonates, thereby neutralizing the acidity. The pH of your small intestine typically ranges from 8 to 9.

Pancreatic enzymes are also released, which continue the process of breaking the food down into even smaller constituent parts. In summary, digestion can occur in three areas – your upper stomach, lower stomach and small intestine – and your food choices can significantly influence where and how well digestion occurs in these areas.

Enzyme supplements can influence digestion in each of these areas, and help optimize assimilation and elimination of the foods you eat. There are five primary digestive enzymes, each designed to help break down different types of food:

- Protease, which breaks down protein
- Amylase, which breaks down carbohydrates, sugars and starches
- Lipase, which breaks down fats
- Lactase, which breaks down milk sugar (lactose) in dairy products
- Sucrase, which breaks down sucrose sugars

Often, taking a blend of enzymes is beneficial, as no single enzyme can perform all the necessary functions throughout your digestive tract. That said, if you have irritable bowel syndrome (IBS), cystic fibrosis, celiac disease, no gallbladder or gallbladder dysfunction, and/or obesity, you may benefit from higher levels of lipase in particular. Also, avoid fluoridated water, as fluoride inhibits production of lipase and protease¹¹ — enzymes that break down fats and protein.

Skip the Antacids

If you suffer from digestive reflux, don't rely on over-the-counter (OTC) antacids (acid neutralizers) or prescription proton pump inhibitors (PPIs). Inhibiting acid production is the last thing you want to do in this situation.¹²

Acid reflux occurs when contents from your stomach back up into your esophagus, causing stomach acid to irritate the lining of your esophagus. Other common names for this condition include acid indigestion, acid regurgitation, heartburn, and gastroesophageal reflux disease (GERD).

Because stomach acid is involved, and the word "acid" connotes the idea of "burning," it's commonly believed that excess stomach acid is the problem. Indeed, the entire antacid industry is built around this idea. Unfortunately, that's completely backward.

Acid reflux is typically caused by a deficiency in stomach acid, not excess. This makes perfect sense once you realize that the lower esophageal sphincter is pH sensitive and only closes when there's a sufficient amount of acid in your stomach.¹³ When low acid is not the cause of heartburn, the culprit can be any of the following:

A hiatal hernia – The hernia basically forces the LES open, allowing gastric juices to back up into your throat¹⁴

Helicobacter pylori infection¹⁵ – One 2012 study found 82.5% of GERD patients tested positive for H. pylori infection¹⁶

Obesity¹⁷

Smoking, by interfering with the LES function¹⁸

Certain medications can relax the LES, including bronchodilators, calcium channel blockers (blood pressure meds), valium, nitroglycerine and opioids¹⁹

Foods, including fats, chocolate, caffeinated beverages, peppermint and spearmint, sugar, onions, and alcohol can also weaken the LES²⁰

Foods that irritate your stomach can trigger reflux – Common irritants include citrus fruits, tomato, spicy foods, carbonated beverages, coffee, and high-lectin foods²¹

In all these cases, the solution is to address the underlying problem, which would be to fix the hernia, treat the H. pylori infection, lose weight, quit smoking, minimize use of the offending drug (be sure to discuss alternatives with your doctor) and not eating the foods that are causing your LES to relax or that irritate your stomach.

OTC antacids and PPIs are entirely the wrong approach, regardless of the underlying cause, because none of the underlying causes of acid reflux have anything to do with excess stomach acid.

Natural Remedies for Treating Occasional Reflux Problems

Again, stomach acid serves several important functions, such as breaking down proteins, killing ingested pathogens, ensuring optimal nutrient absorption, and regulating the rest of the digestion process. If you use acid-blockers, you're compromising your entire digestive system.

So, if you suffer from occasional heartburn, indigestion, and other minor reflux symptoms, forgo the PPIs and OTC antacid medications and try one or more of the following nondrug alternatives instead:^{22,23,24,25,26}

Aloe juice — The juice of the aloe plant naturally helps reduce inflammation, which may ease symptoms of acid reflux. Drink about one-half cup of aloe juice before meals. To avoid its laxative effect, look for a brand in which the laxative component has been removed.

Apple cider vinegar (raw, unfiltered) — Take 1 tablespoon of raw unfiltered apple cider vinegar in a large glass of water before or directly after meals.

Astaxanthin — When compared to a placebo, this potent antioxidant was found to reduce symptoms of acid reflux, especially for individuals with pronounced H. pylori infection.²⁷ The researchers concluded a daily dose of 40 mg of **astaxanthin** was effective for reflux reduction.

Baking soda — One-half to 1 teaspoon of baking soda (sodium bicarbonate) in an 8-ounce glass of water, or orange juice, will help neutralize your stomach acid and ease the burn of acid reflux. While I do not advise this as an ongoing remedy, it is effective on an "emergency" basis when you are in excruciating pain.

Ginger root — **Ginger** has a gastroprotective effect by suppressing H. pylori. It also accelerates gastric emptying which, when impaired, contributes to heartburn. Add two or three slices of fresh ginger root to 2 cups of hot water and let it steep for several minutes. Drink it about 20 minutes prior to your meal.

Sauerkraut — Consuming sauerkraut or cabbage juice will stimulate your body to

produce stomach acid.

Glutamine – The amino acid glutamine has been shown to address gastrointestinal damage caused by *H. pylori*. Glutamine is found in many foods, including beef, chicken, dairy products, eggs, fish and selected fruits and vegetables. L-glutamine is widely available as a supplement.

Ripe papaya or a papain supplement – Papaya contains papain, an enzyme useful for breaking down both protein and carbohydrates.

Fresh pineapple or bromelain supplement – Bromelain is a proteolytic enzyme found in pineapple that helps digest proteins.

Pepsin supplement – Like bromelain, pepsin is a proteolytic enzyme involved in protein digestion.²⁸

Betaine HCl supplement – Betaine HCl is the hydrochloride salt of betaine, not to be confused with betaine or trimethylglycine (TMG). As noted in a 2020 review paper:²⁹ "... the most common recommendation for the use of betaine HCl supplements is usually implemented using an empirical test for low stomach acid whereby increasing doses of betaine HCl are given during sequential meals until such time as an uncomfortable sensation is noticed by the patient.

Along with improvements in symptoms of dyspepsia (or laboratory analysis of improved protein digestion), the lack of side-effects acts as an empirical confirmation that low gastric acid production was contributing to poor digestion and/or dyspeptic symptoms."

Bitters – Bitters have a long history of use in herbal medicinal traditions to promote digestion and/or to relieve digestive complaints.³⁰

Slippery elm – Slippery elm coats and soothes your mouth, throat, stomach and intestines, and contains antioxidants that may help address inflammatory bowel conditions. Because it stimulates nerve endings in your gastrointestinal tract, it is

useful for increasing mucus secretion, which has a protective effect against ulcers and excess acidity.

Vitamin D – **Vitamin D** is important for your gut health. Once your vitamin D levels are optimized, you will benefit from your body's production of about 200 antimicrobial peptides that will help eradicate gut infections.

Zinc – Your stomach needs zinc to produce stomach acid, so make sure your body has the necessary raw ingredients. The recommended daily amount for adults is 8 to 11 mg. Zinc rich foods include oysters, lobster, beef, cashew nuts, beans and raw yogurt.³¹

Talk to Your Doctor About Getting Off PPIs

If you're currently on a PPI, I strongly recommend working with your doctor to wean off it, as inhibiting stomach acid can raise your risk of other, far more serious health conditions, including:³²

Asthma

Depression

Gallbladder disease

Migraines

Macular degeneration

Osteoporosis

Autoimmune conditions, including but not limited to Celiac disease, Type 1 juvenile diabetes, Grave's disease (hyperthyroid), lupus, multiple sclerosis (MS), rheumatoid arthritis and ulcerative colitis

The best and safest way to do that is to work with your doctor to lower the dose you're taking while simultaneously implementing the following lifestyle modifications:

- Avoid reflux triggers and/or any food that irritates your stomach
- Avoid processed foods and sugar
- Eat a Mediterranean diet, focused on fruits, healthy fats, lean meats, nuts and vegetables. Research published in the Journal of the American Medical Association Otolaryngology – Head & Neck Surgery found a [Mediterranean diet was as effective as PPIs in treating acid reflux symptoms](#)³³
- Reseed your gut with beneficial bacteria from traditionally fermented foods or a high-quality probiotic supplement
- Thoroughly chew each bite of food

Once you get down to the lowest dose of the PPI, you can start substituting with an over-the-counter H2 blocker like Pepcid (famotidine) which appears to be the safest of all the options out there. Then, gradually wean off the H2 blocker over the next several weeks.

Other medications are also notorious for slowing down digestion and causing constipation. Opiates and anticholinergic drugs, for example, suppress involuntary muscle movements, thereby inhibiting peristalsis, so if your digestion is impaired and you're on either of these drugs, you may want to discuss alternatives to these drugs with your doctor as well.

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