

GERD

More Than Just Heartburn



written by Harvard Medical School



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Patient Education Center

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Doctors call it *gastroesophageal reflux disease*, or GERD. Millions of Americans call it heartburn. Many more also have coughing, wheezing, or hoarseness without realizing GERD is to blame. By any name, GERD is common, bothersome, and sometimes serious. But once you know you have GERD, you can control it and prevent complications.

For more information about GERD from Harvard Health Publications, go to www.patientedu.org/gerd.

Normal Swallowing

A complex set of 29 muscles in your mouth and tongue get the swallowing process started. They close off your windpipe (*trachea*) to protect your lungs, and then move food into your *esophagus*, or food pipe. The esophagus is a narrow 9-inch long tube leading from your mouth to your stomach. But food doesn't just slide down the esophagus. Instead, muscles that encircle the food pipe contract in an orderly, wave-like fashion to propel food into the stomach.

In health, swallowing is a one-way affair. To prevent food from returning to the esophagus, the ring-like muscles of the lower esophagus pinch the tube closed. Doctors call these muscles the *lower esophageal sphincter*, or LES.



What is GERD?

Every time you swallow, the LES relaxes so food can enter your stomach. When your stomach is full, a tiny amount of food can sneak back into the esophagus while you're swallowing. That's normal—but GERD is not. With GERD, substantial amounts of stomach acid and digestive juices get into the esophagus. The stomach has a tough lining that resists acid, but the food pipe does not. Its sensitive tissues are injured by acid, and if the acid makes it all the way to the mouth, other structures can be damaged.

Causes

Poor function of the LES is responsible for most cases of GERD. A variety of chemicals can make the LES relax when it shouldn't, and others can irritate the esophagus, making the problem worse. Other conditions may just put too much pressure on the LES. Here are some of the chief culprits: ►



Table 1 Causes of GERD

Foods	Garlic and onions
	Coffee and tea
	Alcohol
	Chocolate
	Fried and fatty foods
	Carbonated beverages
	Peppermint and spearmint
Tomatoes and citrus fruits	
Medications	Alpha-blockers <i>(used for the prostate)</i>
	Nitrates <i>(used for angina)</i>
	Calcium-channel blockers <i>(used for angina and high blood pressure)</i>
	Tricyclics <i>(used for depression)</i>
	Theophylline <i>(used for asthma)</i>
	Biphosphonates <i>(used for osteoporosis)</i>
Other causes	Anti-inflammatories <i>(used for arthritis, pain, and fever)</i>
	Smoking
	Obesity
	Pregnancy
	Overeating
	Tight clothing around the waist
	Hiatus hernia <i>(part of the esophagus bulges through the diaphragm muscle into the lower chest)</i>

GERD can sometimes cause chest pain that's severe enough to mimic a heart attack.

Symptoms

Heartburn and "acid indigestion" are the most common complaints. A burning pain is typical; if it's accompanied by burping or bloating, GERD is the likely cause of the pain. But GERD can sometimes cause chest pain that's severe enough to mimic a heart attack, or belly pain that mimics an ulcer.

If the acid makes it all the way to the throat and mouth, it can cause other problems. And since these symptoms can occur in the absence of heartburn, they are often misdiagnosed. Here are some of the stealthy signs of GERD:

- A sour or bitter taste in the mouth
- Regurgitation of food or fluids
- Hoarseness or laryngitis, especially in the morning
- Sore throat or the need to clear the throat
- Dental erosions
- Feeling that there is a "lump in the throat"
- Persistent coughing without apparent cause
- Wheezing or asthma

Complications

About 20 million Americans have GERD. Most have heartburn, some also experience throat or lung symptoms, and a few go on to develop complications. The most common complication is *esophagitis*, inflammation of the food pipe. It produces a steady burning pain that can make swallowing and eating difficult. Left untreated, the inflammation can cause ulcers of the tube's lining and/or bleeding. Repeated cycles of esophagitis and healing can lead to scarring and narrowing of the tube (a *stricture*).

Severe esophagitis only strikes about 2% of people with GERD. A minority of those develop *Barrett's esophagus*, a condition in which severe inflammation and acid team up to produce pre-malignant changes in the cells that line the esophagus. Some 2% to 5% of people with Barrett's esophagus go on to develop cancer. To prevent that, people with severe esophagitis should have lifelong acid-suppression therapy (see pages 11-12). In addition, patients with Barrett's esophagus require regular endoscopies (see page 8) to detect any progression towards cancer.





giving you sedatives and numbing your throat, the doctor will pass a fiber optic tube through your mouth into your esophagus and stomach. *Endoscopy* allows the physician to inspect and photograph your tissues and to perform biopsies on any suspicious areas.

Endoscopy is an important test, but it's not for everyone. Here are some warning symptoms that may call for endoscopy:

- Longstanding or severe GERD
- GERD that does not respond to therapy
- GERD that begins after age 50
- GERD that is accompanied by loss of appetite or weight, vomiting, bleeding or anemia, or difficulty swallowing

Diagnosis

Most people with GERD don't need any tests at all. If your symptoms are typical and mild, you may even be able to treat yourself. Similarly, if doctors suspect you have ordinary GERD, they may recommend a trial of therapy as the next step; if you respond promptly, you probably won't be asked to have additional tests.

GERD can be puzzling, so if the diagnosis is uncertain, tests may be in order. The old standby is the barium swallow or upper GI series. You'll be asked to swallow barium, a paste-like solution, while a technician takes x-rays to look for ulcers, strictures, a hiatus hernia, abnormal contractions of the esophagus, or reflux of barium from the stomach into the food pipe.

Esophageal monitoring is another way to diagnose GERD. *PH monitoring* measures the level of acid in the esophagus over a 24-hour period. *Manometry* measures the pressure in the esophagus during swallowing to see if the muscles are contracting normally.

Endoscopy is the best way to detect the complications of GERD, including inflammation, ulcers, scarring, and abnormal or malignant cells. After





Therapy: Lifestyle

You can control many symptoms of GERD with simple lifestyle modifications—and even if you need some of the medications discussed on pages 11 to 12, you should continue doing the simple things that help. Here are some tips:

- Avoid foods that trigger GERD; see page 5.
- Don't smoke. It's the first rule of preventive medicine, and it's as important for GERD as it is for heart and lung disease.
- If you are taking medications that can contribute to GERD, ask your doctor about alternatives, but don't stop treatment on your own.
- Avoid large meals, and don't lie down for 2 hours after you eat, even if it means giving up that bedtime snack.
- Use gravity to keep the acid down in your stomach at night. Try placing 4- to 6-inch blocks under the legs at the head of your bed. Another very effective,

approach is to sleep on a large wedge-shaped pillow. Your bedding store may not carry one, but many maternity shops will, since GERD is also common during pregnancy.



- Lose weight.
- Avoid tight belts and waistbands.

Treatment: Medication

If you doubt that GERD is a big problem in the U.S., just check out your local drug store. You'll see a vast array of products for GERD, and that doesn't include the prescription products behind the pharmacist's counter. Here's a look at the five types of medication that can help:

Proton Pump Inhibitors (PPIs). PPIs are the most effective medications for GERD. That's because they are the best at shutting down the stomach's acid production. They act rapidly, but it may take 6 to 12 weeks to calm an irritated food pipe. Because GERD tends to recur, patients may need prolonged therapy, and those with severe esophagitis or Barrett's esophagus may need high-dose, lifelong treatment. Fortunately, side effects are uncommon, with diarrhea, rash, or headache in fewer than 3% of patients. One PPI, *omeprazole*, is available over-the-counter or by prescription. The others, *lansoprazole*, *rabeprazole*, *pantoprazole*, and *esomeprazole*, are prescription medications.

H2 Blockers. These popular drugs were the first to reduce the production of stomach acid. They are widely available over-the-counter in low doses and



by prescription in full doses. H2 blockers can provide temporary relief for mild GERD, but are less effective than PPIs. Examples include *cimetidine*, *ranitidine*, *famotidine*, and *nizatidine*.

Antacids. Antacids do not reduce the amount of acid produced by the stomach, but they do neutralize some of the acid. Many brands are available over-the-counter. They reduce acid faster than acid-suppressing medications, but provide only temporary relief for mild heartburn. In general, liquid antacids work faster than chewable tablets. Antacids that contain magnesium can produce loose stools; those with calcium can be used as dietary supplements to build stronger bones (see the PEC brochure ‘Osteoporosis’ at www.patientedu.org/osteoporosis).



Coating Agent. *Sucralfate* is a prescription drug that protects the esophagus and stomach by forming a protective film on the surface. It is very safe, but long-term benefits are unclear.

Motility Agent. *Metoclopramide* promotes normal contractions of the esophagus and tightens the LES. Side effects such as drowsiness, agitation, and tremors limit its usefulness, but it can help some patients with GERD.



Treatment: Surgery

Lifestyle modifications and medications—particularly the PPIs—have produced such good results that surgery for GERD is not recommended as often as it used to be. But surgery can help patients who don’t respond fully to medical therapy, those with severe GERD, and, perhaps, young people who are leery of lifelong medication.

The major advantage is *laparoscopic* surgery. While the patient is under general anesthesia, the surgeon makes several small incisions that are used to insert a fiber optic viewing tube and tiny surgical instruments. The most popular GERD operation is the *Nissen fundoplication*, in which the upper portion of the stomach is wrapped around the lower esophagus to prevent reflux. New approaches include using radiofrequency energy to tighten the LES (the *Stretta procedure*), tightening the LES with sutures (the *Bard system*), or injecting inert material into the lower esophagus.

Surgery can help patients who don't respond to medical therapy or those with severe GERD.



Getting the Better of GERD

GERD is a problem of modern life. Smoking, poor eating habits, obesity, alcohol abuse, and stress all fuel the fire of heartburn. A little heartburn from time to time is no big deal—but persistent GERD can lead to serious complications. Fortunately, this modern problem can be solved with old-fashioned lifestyle changes, modern drug therapy with PPIs or other agents, and with new surgical options, if necessary. A combined approach is the very best way to get relief.

For more information about GERD, visit these websites:



**National Institute of
Diabetes and Digestive
and Kidney Diseases**

<http://digestive.niddk.nih.gov>
1.800.891.5389



**American College
of Gastroenterology**

www.acg.gi.org
301.263.9000



**American Gastroenterological
Association**

www.gastro.org
301.654.2055



**International Foundation for
Functional Gastrointestinal
Disorders**

www.aboutgerd.org
1.888.964.2001

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