




Gastroesophageal Reflux Disease (GERD)

501

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International Foundation for Gastrointestinal Disorders (www.iffgd.org)

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Gastroesophageal reflux disease, or GERD, affects an estimated 5–7% of the global population – men, women, and children. Although common, the disease is often unrecognized – its symptoms misunderstood. This is unfortunate because GERD is generally a treatable disease, though serious complications can result if it is not treated properly.

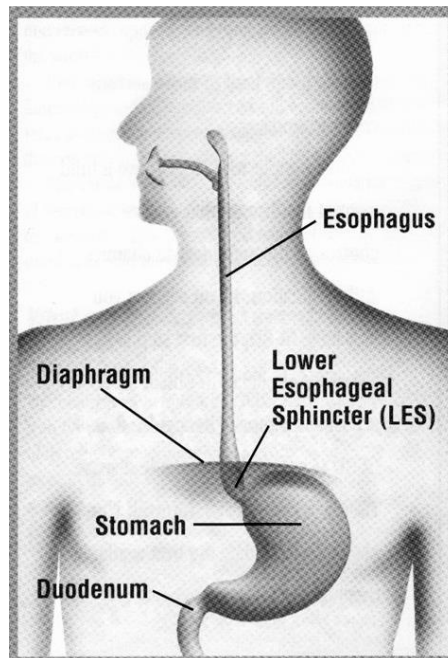
The purpose of this fact sheet is to improve understanding of the nature of GERD, how to recognize the disorder, and how to treat it. Persistent heartburn is the most frequent – but not the only – symptom of GERD. (The disease may be present even without apparent symptoms.) Heartburn is so common that it often is not associated with a serious disease like GERD. All too often, GERD is either self-treated or mistreated.

GERD is a chronic disease. Treatment usually must be maintained on a long-term basis, even after the disease has been brought under control. Issues of daily living and compliance with long-term use of medication need to be addressed as well. This can be accomplished through follow-up, support, and education.

GERD is often characterized by painful symptoms that lessen a person's quality of life. Various methods to effectively treat GERD range from lifestyle changes to the use of medication or surgery. It is essential for people who suffer from the chronic and recurrent symptoms of GERD to seek an accurate diagnosis. This can be done by working with their healthcare provider to receive the most effective treatment available.

What is GERD?

Gastroesophageal reflux disease, or GERD, is a very common disorder. Gastroesophageal refers to the stomach and the esophagus. Reflux refers to the backflow of acidic stomach contents into the esophagus. GERD is characterized by symptoms and/or tissue damage that results from repeated or prolonged exposure of the lining of the esophagus to acidic contents from the stomach. If tissue damage is present, the individual is said to have esophagitis or erosive GERD. The presence of symptoms with no evident tissue damage is referred to as non-erosive GERD. GERD is often accompanied by persistent symptoms, such as chronic heartburn and regurgitation of acid. Sometimes there are no apparent symptoms of GERD.



The presence of GERD is sometimes only revealed when complications become clear.

What causes reflux?

After swallowed food travels down the esophagus, it stimulates cells in the stomach. The stomach then produces acid and pepsin, which aid in digestion. Pepsin is an enzyme, a substance that breaks down food and nutrients. The lower esophageal sphincter (LES) is a band of muscle where the stomach and esophagus connect. The LES acts as a barrier to prevent the backflow (reflux) of stomach contents in the esophagus. The LES normally relaxes to allow swallowed food to pass into the stomach. Reflux occurs when that barrier is relaxed at inappropriate times or is otherwise compromised.

Factors like distention of the stomach, delayed emptying of the stomach, or too much acid in the stomach can also make it easier for acid reflux to occur.

What causes GERD?

There is no known single cause of GERD. Some known reflux causes are:

- GERD may occur when there are too much acidic stomach (gastric) contents that reflux into the esophagus. This can cause injury to tissue. GERD can also be present without esophageal damage. Approximately 50% of patients have this form of the disease.
- Gastroesophageal reflux also can occur when the LES barrier is somehow compromised. Occasional reflux occurs normally, and without harm other than infrequent heartburn, in people who do not have GERD. In people with GERD, reflux causes frequent symptoms or damages the esophageal tissue.
- Some, but not all, people with hiatal hernia have GERD and vice versa. A hiatal hernia may decrease the sphincter pressure necessary to maintain the anti-reflux barrier.
- Even when the LES and the diaphragm are intact and functioning normally, reflux can still occur. The LES may relax at times for no known reason. When that happens, there is not enough pressure at the LES to prevent reflux.

The extent of injury to the esophagus – and the degree of severity of GERD – depends on the frequency of reflux, the amount of time the refluxed material stays in the esophagus, and the quantity of acid in the esophagus.

What are the common symptoms of GERD?

Symptoms of GERD vary from person to person. The majority of people with GERD have mild symptoms, with no visible evidence of tissue damage and little risk of developing complications. Chronic heartburn is the most frequently reported symptom of GERD. Acid regurgitation (refluxed material into the mouth) is another common symptom. Other symptoms that may also occur include:

- Difficulty or pain when swallowing
- Excessive belching – loud gas passing from the stomach and out the mouth
- Dysphagia – the feeling of food sticking in the esophagus
- Chronic sore throat or irritated larynx
- Inflammation of the gums
- The erosion of tooth enamel

- Hoarseness – a change in voice that sounds raspy or strained
- A sour or bitter taste in the mouth

When to be concerned about GERD symptoms?

As noted above, numerous symptoms other than heartburn are associated with GERD. An alarming symptom needing prompt medical attention is dysphagia, the sensation of food sticking in the esophagus. Chest pain or chest pressure may indicate acid reflux. Nevertheless, this kind of pain or discomfort should prompt urgent medical attention. Possible heart conditions must always be excluded first.

What is heartburn?

Most people describe heartburn as a burning sensation in the center of the chest. It may radiate upward toward the throat. Heartburn is usually caused by acid reflux in the esophagus. The lining of the esophagus is much more sensitive to acid than the stomach, which is why the burning sensation is felt. In people with GERD, persistent heartburn can be painful, disrupt daily activities, and awaken a person at night.

Is heartburn dangerous?

Heartburn is a symptom. It is very common; it is estimated that over 20% of Americans have heartburn once a month. Nevertheless, if heartburn occurs on a regular basis, the acid that causes heartburn has the potential to injure the lining of the esophagus. It can cause ulceration, which may cause discomfort or even bleeding. Ulcers are open sores that can occur in the lining of organs. Stricture is the narrowing of the esophagus caused by acid, which leads to scar formation. This can also result from chronic and frequent heartburn. People with stricture may have difficulty swallowing food.

Occasional heartburn that occurs just after a meal or when bending over, and less than once a week, is likely a “benign” condition. Benign refers to conditions that do not cause more severe illness, this term commonly refers to conditions that may be cancerous. If satisfactory relief is obtained from periodic over-the-counter medication, it is unlikely that there is an urgent need to see a healthcare provider.

Heartburn that occurs more frequently than once a week, becomes more severe, or occurs at night and wakes a person from sleep, may be a sign of a more serious condition. If this occurs it is important to contact your healthcare provider. Even occasional heartburn – if it has occurred for an extended period or

is associated with difficulty swallowing – may signal a more serious condition. People with long-standing chronic heartburn are at a greater risk for complications. This includes stricture or a potentially pre-cancerous disease, Barrett’s esophagus. Barrett’s esophagus involves a cellular change in the lining of the esophagus.

When are over-the-counter (OTC) treatments appropriate to treat heartburn?

Multiple treatments are available without a prescription to treat occasional heartburn. These medications are useful to relieve intermittent heartburn, particularly if brought on occasionally by foods or various activities. Other GERD treatment options are now available as OTC, read about these in the treatment section below. Even OTC treatments should be discussed with your healthcare provider, especially when taken long-term. These include:

- **Antacids** which are designed to neutralize acid. Examples include sodium bicarbonate, calcium carbonate, aluminum hydroxide, and magnesium hydroxide.
- **Low-dose H2 blockers** reduce acid production. These drugs are also available in higher doses by prescription to treat GERD. Examples of this drug includes famotidine, cimetidine, ranitidine, and nizatidine.
- **Proton pump inhibitors (PPIs)** affect the glands within the stomach to reduce the amount of acid they produce. Examples of PPIs include pantoprazole, rabeprazole, and omeprazole.

Antacids give the most rapid relief. The H2 blockers give more sustained relief and are most useful if taken prior to an activity known to bring on heartburn, like eating spicy foods. Some PPIs are now available over-the-counter. It is far more powerful than the other drugs mentioned above. PPIs are not intended to be taken on an as needed basis. If the symptoms are not improved or if they recur after stopping over-the-counter drugs, one should see a healthcare provider.

Over-the-counter treatments provide only temporary symptom relief. They do not prevent recurrence of symptoms or allow an injured esophagus to heal. They should not be taken regularly as a substitute for prescription medicines – they may be hiding a more serious condition. If needed regularly or for more than two weeks, consult a healthcare provider for a diagnosis and appropriate treatment.

How is GERD diagnosed?

A diagnosis of GERD should be made by a healthcare provider. The disease can usually be diagnosed based on the presentation of symptoms alone. GERD can occur, however, with no apparent symptoms. Diagnostic tests may be used to confirm or exclude a diagnosis or to look for complications such as inflammation, stricture, or Barrett’s esophagus.

What tests are used to diagnose GERD?

Diagnostic tests are used to confirm or exclude a suspected diagnosis. These can also be used as part of a pre-surgical evaluation. One method is a trial with a PPI to see if this suggests that GERD may be the source. Relief of symptoms after a two-week trial therapy with a PPI is a common indication that GERD is the cause. This can also be confirmed with pH monitoring, which measures the level of acid refluxing into the esophagus and as high as the larynx. Other tests include endoscopy, esophageal manometry, and esophageal pH monitoring.

Endoscopy is used to identify complications such as inflammation (esophagitis), stricture, or Barrett’s esophagus. Endoscopy is an extremely safe procedure. A thin tube is used to examine the esophagus, stomach, and upper small intestine. The individual is sedated or “put to sleep” so that the procedure can be performed comfortably. This tube has a camera and light on the end allowing the healthcare provider to see inside the esophagus. They can determine if there is damage to the lining of the esophagus and examine the LES. Biopsies may be taken to further evaluate the esophagus and determine if Barrett’s esophagus is present.

Esophageal manometry measures pressure throughout the esophagus and in the area of the LES. A thin tube is inserted through the nose and into the esophagus. The test helps a healthcare provider determine whether the esophagus and LES are functioning properly.

Esophageal pH monitoring measures the amount of acid in the esophagus over a 24-48 hour period. This usually involves passing a thin tube through the nose and into the esophagus. However, a new technique allows the attachment of a pH sensor to the esophagus. Normal activities may be conducted while monitoring acid levels. Measurements can tell whether reflux is causing symptoms, how often reflux occurs, and how much acid is refluxed.

Is GERD associated with cancer of the esophagus?

In a small subset of patients with GERD, a complication has been identified as a potentially pre-cancerous condition. The condition is called Barrett's esophagus. It occurs when a transformation takes place in the normal tissue lining of the esophagus and may be a risk factor for development of esophageal cancer. The number of people who develop Barrett's esophagus is relatively small; approximately 5-8% of patients who have GERD symptoms will develop the condition, and only about 1% of those (or 0.1% of all patients with GERD) will develop esophageal cancer. Barrett's esophagus is most common in people who have had heartburn for many years (more than 5–10 years), are over the age of 50, and are Caucasian males. If Barrett's esophagus is present, regular endoscopic screening (every 2–3 years) is advised.

Not everyone with frequent or severe heartburn will develop Barrett's esophagus. For some reason, some people have heartburn and no esophageal damage, while other people have esophageal damage and no heartburn. Nevertheless, for those with chronic GERD or frequent symptoms, it is important to see a healthcare provider for evaluation. This provides the opportunity for an endoscopy to determine if Barrett's esophagus or other conditions are present.

In the absence of Barrett's esophagus, there is not strong evidence that GERD is a risk factor for developing cancer. It is wise, however, to work with a healthcare provider and be evaluated periodically to determine if the current course of treatment is optimal.

Is there a relationship between GERD and a gastric infection as there is for ulcers?

Infection with helicobacter pylori bacteria (*H. pylori*) is associated with peptic ulcer (an ulcer in the duodenum or the stomach, refer to picture on page 1). There is no strong evidence that *H. pylori* can cause GERD.

Is GERD caused by diet and wrong foods?

Diet does not cause GERD. Nevertheless, gastroesophageal reflux and its most frequent symptom of heartburn can be aggravated by foods. The foods that most often bother people are chocolate, fried foods, fatty foods, peppermint, alcohol, caffeinated beverages, and acidic foods.

Spicy foods and citrus foods can worsen heartburn. Large fatty meals, because they slow the emptying of the stomach, and eating late at night can contribute to nighttime heartburn. Alcohol can weaken the LES and make reflux worse. Diets high in fat have been seen as a

risk factor for Barrett's esophagus. Diets rich in fruits and vegetables can help protect the esophagus. A Mediterranean diet has been linked to a decreased risk of GERD. Mediterranean diets consist of a high intake of vegetables, legumes, fruits, whole grains, and fish with a low intake of red/processed meats. Portion control may be helpful as large meals can increase stomach distention and lead to reflux after meals.

Can stress make reflux worse?

About 25% of patients have said that stress makes their heartburn worse. Studies using 24-hour pH monitoring show that the presence or absence of stress does not affect the total amount of actual reflux. However, the perception of frequency and severity of symptoms is amplified during stressful events. Stress management in these individuals appears to be beneficial.

What is the treatment for GERD?

GERD is a recurrent and chronic disease for which long-term medical therapy is generally effective. It is important to recognize that chronic reflux does not resolve itself. There is not yet a cure for GERD. Long-term and appropriate treatment is necessary.

The treatment of GERD is generally initiated by an individual when symptoms develop or when an individual with no apparent symptoms develops complications of GERD. The goals of treatment are to bring the symptoms under control so that the individual feels better; heal the esophagus of inflammation or injury; manage or prevent complications such as Barrett's esophagus or stricture; and maintain the symptoms of GERD in remission so that daily life is unaffected or minimally affected by reflux. Treatment options include lifestyle modifications, medications, surgery, or a combination of methods.

Lifestyle modifications: Avoid factors that may aggravate symptoms. Drinking alcohol and carbonated beverages have been shown to increase acid secretion by the stomach, stomach distention, and acid reflux. If symptoms often occur with specific foods, limiting them may help with GERD symptoms. Discuss diet changes with your healthcare provider or a dietitian to ensure your diet is not too limiting. Alcohol intake and smoking adversely affect LES pressure and acid secretion. Do not lie down within 3–4 hours after eating because stomach distention can cause the LES to relax. Elevating the head of the bed 6" may help to more rapidly clear refluxed acid from the esophagus at night. Sleeping on your left side may help reduce the amount of reflux.

Weight loss can be an important lifestyle change for those who are overweight, especially those with excess weight in their abdominal area. Body mass index (BMI) correlates with GERD symptoms. Even a small amount of weight gain among people who are considered “healthy weight” may cause or worsen reflux symptoms. People with an increased BMI have more severe and frequent reflux symptoms. They also have higher acid reflux as shown by pH testing and the endoscopy is more likely to show breaks in the esophageal lining. Weight gain is linked to an increased risk of developing reflux symptoms while a 10% weight loss has been shown to lessen these symptoms.

Disclose the use of any medications to your healthcare provider. This includes any supplements and over-the-counter medications. Certain medications can worsen symptoms. Nonsteroidal anti-inflammatory drugs are used commonly to treat arthritis and general inflammation and can cause direct esophageal injury. Sedatives and calcium channel blockers can relax the LES. These drugs are used primarily to treat high blood pressure and angina. An osteoporosis drug, alendronate sodium, may damage the esophagus or increase reflux unless taken exactly as directed and with lots of water.

Medications: As mentioned above, the classes of drugs prescribed to treat GERD are promotility agents, H2 blockers, and proton pump inhibitors.

Promotility agents, such as metoclopramide speed up stomach emptying. This helps improve LES pressure which improves the clearance of acid from the esophagus. They can be helpful in some people with non-erosive GERD or mild esophagitis. Use of this drug, and any, should be decided after careful screening for known risk factors. There are many reported adverse effects with this medication. The FDA recently released a warning discouraging the long-term use of metoclopramide.

H2 blockers (famotidine, cimetidine, ranitidine, nizatidine) reduce the amount of acid produced in the stomach. In prescription doses, they eliminate symptoms and allow esophageal healing in about 50% of patients. However, remission is maintained in only about 25% of people using H2 blockers.

Proton pump inhibitors (PPIs) limit acid secretion in the stomach. They allow rapid relief of symptoms and healing of the esophagus in 80–90% of patients. The drug is also useful in managing stricture, one of the more serious complications of GERD.

The Food and Drug Administration (FDA) is one of the U.S. government's regulatory agencies. This agency oversees a broad range of topics that pertain to food, drugs and other products used on a daily basis.

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Products approved by the FDA have been deemed safe, with benefits that are worth the possible risks. This is done after reviewing studies and tests that have been done on a product.

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