

### Definition

Stomach ulcers are sores that form in the lining of the stomach (see figure). They vary in size from a small sore to a deep cavity one to two inches wide, surrounded by an inflamed area, and are sometimes called *ulcer craters*.

Stomach ulcers and ulcers that form in the esophagus and in the lining of the duodenum (the upper part of the small intestine) are called peptic ulcers because they need acid and the enzyme *pepsin* to form.

Duodenal ulcers are the most common type, tend to be smaller than stomach ulcers, and heal more quickly. Much of what can be said about the cause, diagnosis, treatment and future outlook for duodenal ulcers is also true for stomach ulcers. However, since stomach ulcers present both doctors and patients with unique problems, this fact sheet focuses on ulcers that develop in the stomach lining, also called gastric ulcers.

### Who is at Risk of Stomach Ulcers?

Twenty percent of four million Americans with ulcers have stomach ulcers. People most at risk are those who smoke, middle-aged and older men, and chronic users of alcohol, anti-inflammatory drugs including aspirin, and non-steroidal anti-inflammatory drugs such as ibuprofen.

### What is the Stomach's Role in Digestion?

The stomach is, essentially, a bag of muscle and other tissue located near the center of the abdomen just below the ribcage. When food is swallowed, it travels into the stomach through the esophagus, the long tube that passes from the mouth to the stomach.

While in the stomach, food is crushed and mixed by the forceful contractions of the stomach muscle. The food is mixed with, and partially digested by, acid and pepsin. The presence of acid and pepsin in the stomach is normal, and in most people they do not cause problems. In some people, however, these powerful substances are responsible for forming ulcers.

### What Causes Stomach Ulcers?

Most people who develop duodenal ulcers produce more than the usual amount of stomach acid. Unlike duodenal ulcers, however, most stomach ulcers are not caused by the production of too much acid, although the presence of some acids is necessary for the ulcer to form.

Scientists suspect that the resistance of the stomach lining to acid and pepsin is lowered in those people who develop stomach ulcers and that even normal, or less than normal, amounts of these two substances can lead to the formation of an ulcer.

It is thought that the lower resistance of the stomach lining allows the acid and pepsin to break down the stomach lining in much of the same way that these juices digest food.

### What Causes the Stomach Lining to Break Down?

How or why the resistance of the stomach lining is lowered is still not known. However, it is likely that a combination of environmental and genetic factors is responsible.

Researchers believe that certain drugs (including alcohol), chemicals, smoking and food ingredients can damage the stomach lining. This damage, in turn, lowers the resistance of the stomach lining to acid and pepsin.

Substances that are normally present in the intestine, and sometimes flow back into the stomach in large amounts, also can damage the stomach lining, as well as harmful bacteria, which are normally killed by the acid content of the stomach.

Also, the regular use of aspirin and other related drugs used to treat arthritis, such as the non-steroidal anti-inflammatory drugs, has been shown to be an important factor in stomach ulcer development.

Because aspirin is an ingredient in many over-the-counter drugs, you may wish to purchase a pain reliever or other preparation that does not contain aspirin. Check with your doctor or pharmacist for the names of suitable products.

There is mounting evidence that an S-shaped bacterium, *Helicobacter pylori*, (previously called *Campylobacter pylori*) may be a factor in the development of stomach ulcers. *H. pylori* live in the mucous lining of the stomach near the surface cells and may go undetected for years.

Some researchers believe that irritation to the stomach caused by the bacteria may weaken the lining, making it more susceptible to damage by acid and resulting in the formation of ulcers.

However, the findings are still inconclusive that *H. pylori* is a cause of stomach ulcers, which seem to be caused by multiple factors under study by researchers.

### Do Stomach Ulcers Run in Families?

Heredity plays a role in the development of some ulcers, although the majority of people with stomach ulcers do not have a family history of this type of ulcer.

However, if a member of a family develops a stomach ulcer, it is more likely that another close family member also will develop one. The same is true of duodenal ulcers.

#### What are Stomach Ulcers Symptoms?

Stomach ulcers may or may not cause any symptom. Some stomach ulcers are found by chance during an upper gastrointestinal x-ray examination performed for some other reason.

However, when symptoms do occur, the most common one is pain in the upper abdomen, which may occur after eating or during the middle of the night, and may be partially or completely relieved by eating food or by taking antacids.

Other less common symptoms include nausea and vomiting and/or loss of appetite and weight.

Some people have hidden or slow bleeding with black, tarry stools or bloody vomit.

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Some people have hidden or slow bleeding with weakness as the only symptom. Other people have sudden, brisk bleeding with black, tarry stools or bloody vomit.

### How is a Stomach Ulcer Diagnosed?

Because the pain of stomach ulcers is similar to that caused by other conditions, the doctor usually orders an x-ray of the esophagus, stomach and duodenum to help make a specific diagnosis.

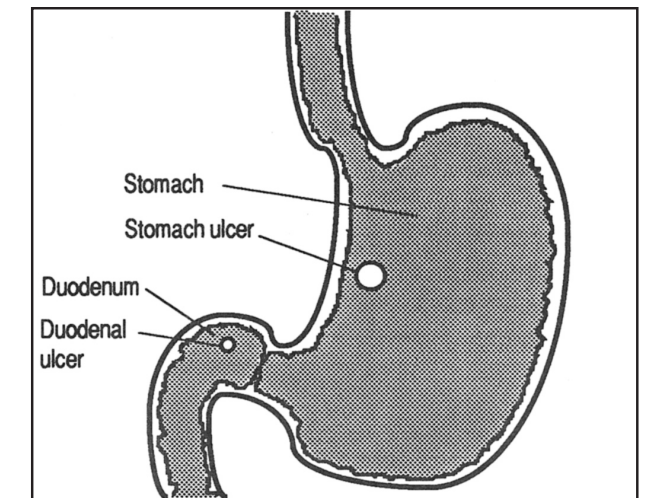
During the x-ray examination, the patient is asked to swallow a chalky liquid (containing barium) to help make the ulcer visible to the x-ray. If pain is present and the x-ray is negative, the doctor may order a gastroscopy (an examination of the stomach) as well.

During the gastroscopy, the doctor uses an endoscope, a long, flexible tube, to see the ulcer and to obtain small pieces of tissue for examination under the microscope. Some doctors may choose to perform a gastroscopy as the first diagnostic test instead of an x-ray.

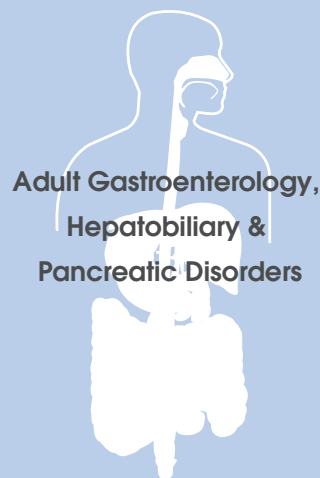
### Do Stomach Ulcers Lead to Cancer?

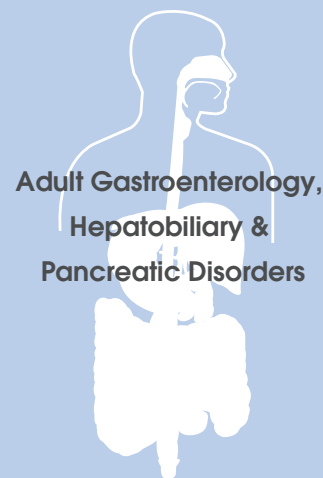
Stomach ulcers rarely lead to cancer. However, it is sometimes hard for the doctor to tell the difference between an ulcer crater and a tumor by looking at an x-ray - another reason the doctor may order a gastroscopy.

Because there is a slight chance that a cancerous growth could be missed, the doctor may order another x-ray or gastroscopy (six to eight weeks after treatment of the ulcer begins) to make sure the ulcer is healed.



Patient Education  
**Stomach Ulcers**





### How are Stomach Ulcers Treated?

Even though the causes of ulcers are not yet known, treatments that aid in the healing of most ulcers are known. For stomach ulcers, doctors rely on drugs that work to neutralize the acid (antacids) or to reduce the amount of acid produced (*cimetidine* and *ranitidine* are two such drugs).

Each of these medications works best if the doctor's directions are followed carefully. It is important that all medications are taken in the amounts prescribed and at the times indicated on the prescription.

Persons with ulcers should continue to take their medication until the doctor tells them to stop because stomach ulcers symptoms go away before the ulcer heals.

Remember, the medications discussed in this section, like all medications, may have side effects. Be sure to discuss this possibility with the doctor.

### Is There a Diet for Ulcer Patients?

For a long time, having an ulcer meant that the patient had to eat a bland diet. However, it is now known that such a diet is not necessary for most patients.

Also researchers have learned that while milk coats the stomach and may provide temporary relief, it also stimulates the production of acid.

Except for restricting the intake of alcohol and caffeine, there is little indication that any particular diet is helpful for most stomach ulcer patients.

There is no evidence that fatty, acidic, or spicy foods are harmful to ulcer patients. Although some people with stomach ulcers may find that acidic or extremely spicy foods are bothersome, each person should find out which foods, *if any*, cause distress.

### Are there Complications of Stomach Ulcers?

Complications such as bleeding and perforation (hole) through the stomach wall are infrequent.

Signs of slow or hidden bleeding from an ulcer may be present and would include dizziness, weakness and paleness.

If the bleeding is brisk, there may be vomiting of blood or passing of dark, foul-smelling stools.

Perforation, which allows stomach juices to enter the abdominal cavity, causes sudden severe pain and requires emergency treatment.

Obstruction (blockage) of the stomach outlet is another possible, although uncommon, complication of stomach ulcers. Prolonged nausea and vomiting may indicate obstruction, and food eaten many hours or even days before may be vomited.

The pain may spread to the back if penetration through the wall of the stomach allows juices to come into contact with another organ such as the pancreas. See your doctor right away if you have *any* of these symptoms.

### When is Surgery Necessary?

Stomach ulcers tend to recur, although this is less likely if the right kind of drug treatment is continued. If ulcers return often, if they do not respond to medication, or if complications develop, surgery may become necessary.

The failure of the ulcer to heal or to stay healed is one of the most important reasons for surgery. ( In some cases, the failure to heal may indicate an ulcerating cancer.)

Surgery has some risks and may have unpleasant after effects. For this reason, the doctor will help to determine whether surgery is necessary.

### Points to Remember

- A stomach ulcer is a sore in the stomach lining. Scientist do not know what causes ulcers, but they suspect it is some combination of environmental and genetic factor

- The regular use of aspirin and aother related drugs often used to treat arthritis is an important factor leading to the formation of stomach ulcers

- Stomach ulcers do not always cause symptoms. When they do, the most comon symptom is pain in the upper abdomen. Some people have nausea, vomiting, and loss of appetite and weight.

- If an ulcer is present, stools should be checked regularly for changes in color or/in odor.

If you have any of these symptoms, see your doctor immediately:

- Dizziness, weakness and paleness
- Vomiting blood
- Passing black, foul-smelling stools
- Severe pain in your abdomen or back
- Prolonged nausea or repeated vomiting
- Bringing up food eaten hours or days before