

Upper GI Series

National Digestive Diseases Information Clearinghouse



What is an upper gastrointestinal (GI) series?

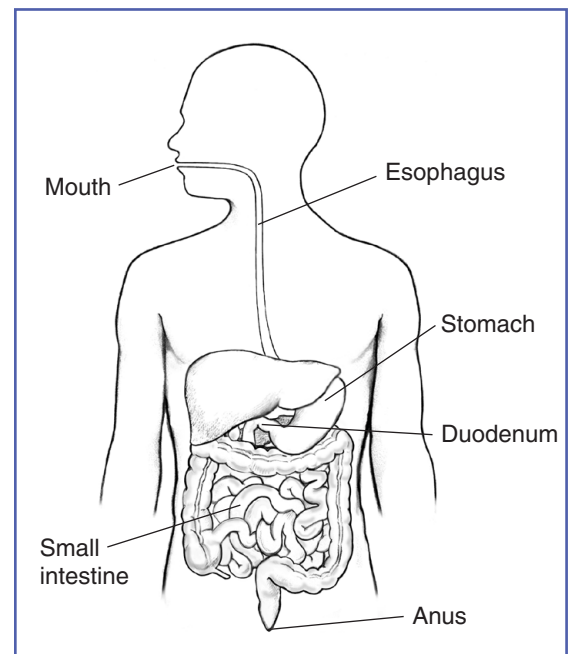
An upper GI series, also called a barium swallow, uses x rays and fluoroscopy to help diagnose problems of the upper GI tract. An x ray is a picture created by using radiation and recorded on film or on a computer. Fluoroscopy is a form of x ray that makes it possible to see the internal organs and their motion on a video monitor. To make the upper GI tract more visible on x ray, a health care provider will fill the person's upper GI tract with a chalky liquid called barium. The two types of upper GI series are

- a standard barium upper GI series, which uses only barium during the test
- a double-contrast upper GI series, which uses a combination of air and barium to create a more detailed view of the stomach lining

What is the upper gastrointestinal tract?

The upper GI tract is the first part of the GI tract, which includes a series of hollow organs joined in a long, twisting tube from the mouth to the anus—a 1-inch-long opening through which stool leaves the body. The upper GI tract includes the mouth, esophagus, stomach, duodenum, and small intestine. The duodenum is the first part of the small intestine.

The esophagus carries food and liquids from the mouth to the stomach. The muscular layers of the esophagus are normally pinched together at both the upper and lower ends



The upper GI tract

by muscles called sphincters. When a person swallows, the sphincters relax to let food or drink pass from the mouth into the stomach. The muscles then close rapidly to prevent the food or drink from leaking out of the stomach back into the esophagus. This process is automatic and people are usually not aware of it, though people sometimes feel food in their esophagus when they swallow something too large, try to eat too quickly, or drink very hot or cold liquids.

The stomach slowly pumps the food and liquids into the small intestine, which absorbs needed nutrients. The body digests food using the movement of the muscles in the GI tract, along with the release of hormones and enzymes.

Why is an upper gastrointestinal series performed?

An upper GI series can help diagnose the cause of

- abdominal pain
- nausea and vomiting
- problems swallowing
- unexplained weight loss

An upper GI series can also show

- abnormal growths.
- esophageal varices—abnormal, enlarged veins in the lower part of the esophagus.
- gastroesophageal reflux, which occurs when stomach contents flow back up into the esophagus.
- a hiatal hernia, or when the upper part of the stomach slips through the diaphragm and moves up into the chest. The diaphragm is the muscle wall that separates the stomach from the chest.
- inflammation, or swelling, of the GI tract.
- scars or strictures—abnormal narrowing of openings in the body.
- ulcers—sores on the stomach or intestinal lining.

How does a person prepare for an upper gastrointestinal series?

A person prepares for an upper GI series by

- talking with a health care provider
- clearing the upper GI tract

Talking with a health care provider. A person should talk with his or her health care provider about

- medical conditions he or she has
- all prescribed and over-the-counter medications, vitamins, and supplements he or she takes

Women should let their health care provider know if they may be pregnant to avoid potential risks to the developing baby. The health care provider will take special precautions to minimize the exposure to radiation, or he or she may suggest a different procedure.

Clearing the upper GI tract. This procedure uses x-ray images to examine the upper GI tract during the procedure. The x ray can't show the lining of the organs clearly if food or drink is inside the upper GI tract. To ensure the upper GI tract is clear, health care providers usually advise people not to eat, drink, smoke, or chew gum during the 8 hours before the procedure.

How is an upper gastrointestinal series performed?

An x-ray technician and a radiologist—a doctor who specializes in medical imaging—perform an upper GI series at a hospital or an outpatient center. A person does not need anesthesia. The procedure usually takes about 2 hours to complete. However, if the barium moves slowly through the small intestine, the test may take up to 5 hours to complete.

For the test,

- the person stands or sits in front of an x-ray machine and drinks barium, which coats the lining of the upper GI tract
- the person lies on the x-ray table and the radiologist watches the barium move through the GI tract on the x rays and fluoroscopy
- the technician may press on the abdomen—the area between the chest and hips—or ask the person to change positions to fully coat the upper GI tract with the barium

If a person has a double-contrast study, he or she will swallow gas-forming crystals, which activate when they mix with the barium. The gas expands the barium-coated stomach, filling it with air and exposing finer details of the upper GI tract lining. The technician will take additional x rays.

What can a person expect after an upper gastrointestinal series?

After an upper GI series, a person can expect the following:

- bloating or nausea for a short time after the procedure
- to resume most normal activities after leaving the hospital or outpatient center
- barium in the GI tract that causes stools to be white or light colored for several days after the procedure

A person should carefully read and follow the discharge instructions, which will explain how to flush the remaining barium from the GI tract. The radiologist will interpret the images and send a report of the findings to the person's health care provider.

What are the risks of an upper gastrointestinal series?

The risks of an upper GI series include

- constipation from the barium—the most common complication of an upper GI series.
- an allergic reaction to the barium or flavoring in the barium.
- bowel obstruction—partial or complete blockage of the small or large intestine. Although rare, bowel obstruction can be a life-threatening condition that requires emergency medical treatment.

Radiation exposure can cause cancer, although the level of radiation exposure that leads to cancer is unknown. Health care providers estimate the risk of cancer from this type of test to be small.

Seek Immediate Care

People who have any of the following symptoms after an upper GI series should seek immediate medical attention:

- failure to have a bowel movement within 2 days of the procedure
- fever
- inability to pass gas
- severe abdominal pain
- severe constipation

Points to Remember

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Hope through Research

The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) conducts and supports basic and clinical research into many digestive disorders.

Clinical trials are research studies involving people. Clinical trials look at safe and effective new ways to prevent, detect, or treat disease. Researchers also use clinical trials to look at other aspects of care, such as improving the quality of life for people with chronic illnesses. To learn more about trials, why they matter, and how to participate, visit the NIH Clinical Research Trials and You website at www.nih.gov/health/clinicaltrials. For information about current studies, visit www.ClinicalTrials.gov.

For More Information

Read more about other diagnostic tests in these publications at www.digestive.niddk.nih.gov:

- *Colonoscopy*
- *ERCP (Endoscopic Retrograde Cholangiopancreatography)*
- *Flexible Sigmoidoscopy*
- *Liver Biopsy*
- *Lower GI Series*
- *Upper GI Endoscopy*
- *Virtual Colonoscopy*

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You may also find additional information about this topic by visiting MedlinePlus at www.medlineplus.gov.

This publication may contain information about medications and, when taken as prescribed, the conditions they treat. When prepared, this publication included the most current information available. For updates or for questions about any medications, contact the U.S. Food and Drug Administration toll-free at 1-888-INFO-FDA (1-888-463-6332) or visit www.fda.gov. Consult your health care provider for more information.

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