

# Digestive Diagnostic Procedures



## How is a digestive disorder diagnosed?

To diagnose a digestive disorder, your healthcare provider will ask about your medical history and your symptoms. They will also do a physical exam.

You may also need certain tests to help with the diagnosis, such as:

## Lab tests

- **Fecal occult blood or fecal immunochemical test.** This test checks for microscopic amounts (occult) of blood in the stool. A very small amount of stool is placed on a test card. The stool is then tested in the healthcare provider's office or sent to a lab.
- **Stool culture.** This test checks for abnormal bacteria in the digestive tract that may cause diarrhea and other problems. A small sample of stool is collected and sent to a lab. In 2 or 3 days, the test will show if abnormal bacteria are present.
- **Other stool tests.** Stool can be checked for many things and can help diagnose inflammation, pancreatic dysfunction, and nonbacterial infections, such as viruses and parasites.
- **Breath tests.** These can help diagnose a number of digestive disorders. These include stomach bacteria (*H. pylori*), poor digestion of sugars (for example, lactose or milk sugar), bacterial overgrowth, and delayed stomach emptying (gastroparesis).

## Imaging tests

- **Colorectal transit study.** This test shows how well food moves through the colon. You swallow capsules containing small markers that can be seen on an X-ray. You then eat a high-fiber diet during the course of the test. The movement of the markers through the colon is monitored with abdominal X-rays. These are taken several times 3 to 7 days after you swallow the capsule. A newer way to do this is called a wireless motility capsule, or capsule endoscopy.
- **CT scan.** This imaging test uses X-rays and a computer to make detailed images of the body. A CT scan shows details of the bones, muscles, fat, and organs. CT scans are more detailed than general X-rays.
- **Defecography.** This test is an X-ray of the anal and rectal area. It checks how well stool leaves the body and how well the rectal muscles are working. It can also find abnormalities in the anus or rectum. During the test, your rectum is filled with a soft paste that is the same consistency as stool. You then sit on a toilet positioned inside an X-ray machine. You squeeze and relax the anus to expel the paste. The radiologist studies the X-rays to see if there are any problems.
- **Lower GI (gastrointestinal) series.** This test is also called a barium enema. It looks at the rectum, the large intestine, and the lower part of the small intestine. Barium is given into the rectum as an enema. An X-ray of the abdomen shows strictures (narrowed areas), obstructions (blockages), and other problems.
- **MRI scan.** This test uses a combination of large magnets to make detailed images of organs and structures within the body. You lie on a bed that moves into the cylindrical MRI machine. The machine takes a series of pictures of the inside of the body using a magnetic field and radio waves. The computer enhances the pictures. The test is painless. And you are not exposed to radiation. Because the MRI machine is like a tunnel, and is very loud inside, some people become claustrophobic or are unable to hold still during the test. They may be given a sedative to help them relax. You can't wear metal objects in the MRI room because the metal heats up and can burn you. More and more manufacturers are making MRI compatible pacemakers, prosthetic joints, and other internal devices.

- **Magnetic resonance cholangiopancreatography (MRCP).** This test uses MRI to view the bile ducts. The machine uses radio waves and magnets to scan internal tissues and organs.
- **Oropharyngeal motility (swallowing) study.** This is also called a barium swallow. In this test, you are given small amounts of a liquid containing barium to drink with a bottle, spoon, or cup. A series of X-rays is taken to see what happens as you swallow the liquid.
- **Radioisotope gastric-emptying scan.** During this test, you eat food containing a radioisotope. This is a slightly radioactive substance that will show up on a scan. The dose of radiation from the radioisotope is very small and not harmful. But it allows the radiologist to see the food in the stomach and how quickly it leaves the stomach, while you lie under a machine. Other, newer tests to diagnose problems with food leaving the stomach (gastroparesis) include breath testing and a wireless motility capsule.
- **Ultrasound.** This imaging test uses high-frequency sound waves and a computer to make images of blood vessels, tissues, and organs. Ultrasounds are used to view internal organs as they function. It can also assess blood flow through various vessels. Gel is put on the area of the body being studied, such as the abdomen. A wand called a transducer is then placed on the skin. The transducer sends sound waves into the body that bounce off organs and return to the ultrasound machine, making an image on the monitor.
- **Upper GI (gastrointestinal) series (also called barium swallow).** This test looks at the organs of the upper part of the digestive system. These are the esophagus, stomach, and duodenum (the first part of the small intestine). You swallow barium and then X-rays are taken to check the digestive organs.

## Endoscopic procedures

- **Colonoscopy.** This procedure allows the healthcare provider to view the whole length of the large intestine (colon). It can often help find abnormal growths, inflamed tissue, ulcers, and bleeding. Colonoscopy is one of the more common options for colorectal cancer screening. Precancerous colon polyps can be removed during the screening exam before they have time to grow into a cancer. A colonoscope is put into the rectum and moved up into the colon. A colonoscope is a long, flexible tube with a light on it. A virtual colonoscopy is now available. It uses CT imaging to look at your colon. The colon prep for both types of colonoscopies is the same, however, abnormalities seen during a virtual colonoscopy, often lead to follow-up with a regular colonoscopy for treatment.
- **Endoscopic retrograde cholangiopancreatography (ERCP).** This procedure allows the healthcare provider to diagnose and treat problems in the liver, gallbladder, bile ducts, and pancreas. It combines X-ray and the use of an endoscope. This is a long, flexible, lighted tube. The scope is guided through your mouth and throat and then through the esophagus, stomach, and duodenum (the first part of the small intestine). The healthcare provider can look at the inside of these organs and see any problems. A tube is then passed through the scope. A dye is injected that allows the internal organs to appear on an X-ray.
- **Esophagogastroduodenoscopy (EGD or upper endoscopy).** An EGD allows the healthcare provider to directly visualize the inside of the esophagus, stomach, and duodenum with an endoscope. This scope is guided into the mouth and throat and then into the esophagus, stomach, and duodenum. With the endoscope, the healthcare provider can view the inside of this part of the body. They can also insert instruments through the scope to remove a sample of tissue (a biopsy), if needed. When an ultrasound probe is attached to a scope, an internal ultrasound can be done. This is called a EUS. When the test is extended into the deeper small intestine, it's called an enteroscopy.
- **Sigmoidoscopy.** This procedure allows the healthcare provider to check the inside of a part of the large intestine. It is helpful in finding the causes of diarrhea, abdominal pain, constipation, abnormal growths, and bleeding. A sigmoidoscope is put into the intestine through the rectum. This short, flexible, lighted tube blows air into the intestine to inflate it. This makes viewing the inside easier.

## Other procedures

- **Anorectal manometry.** This test helps gauge the strength of the muscles in the rectum and anus. These muscles normally tighten to hold in a bowel movement and relax when a bowel movement is passed. Anorectal manometry is helpful in checking for anorectal malformations and Hirschsprung disease, among other problems. A small tube is placed into the rectum. It measures the pressures exerted by the sphincter muscles that ring the canal.

- **Esophageal manometry.** This test helps gauge the strength of the muscles in the esophagus. It is useful in assessing gastroesophageal reflux and swallowing problems. A small tube is guided into the nostril. It's then passed into the throat and finally into the esophagus. It measures the pressure the esophageal muscles make at rest.
- **Esophageal pH monitoring.** An esophageal pH monitor measures the acidity inside of the esophagus. It is helpful in evaluating gastroesophageal reflux disease (GERD). A thin, plastic tube is placed into a nostril. It's guided down the throat and into the esophagus. The tube stops just above the lower esophageal sphincter. This is at the connection between the esophagus and the stomach. At the end of the tube inside the esophagus is a sensor that measures pH, or acidity. The other end of the tube outside the body is connected to a monitor. It records the pH levels for a 24- to 48-hour period. Normal activity is encouraged during the study. You keep a diary of your symptoms, such as gagging or coughing. You also record when you eat, what types of food, and how much. The pH readings are evaluated and compared to your activity for that time period. Sometimes esophageal pH monitoring is done during an upper endoscopy by clipping a pH probe onto the esophagus. It measures pH without having a tube remain in your nose or mouth.
- **Capsule endoscopy.** This test helps healthcare providers look at the small intestine. It's used because traditional procedures, such as an upper endoscopy or colonoscopy, can't reach this part of the bowel. This procedure is helpful in finding causes of bleeding, polyps, inflammatory bowel disease, ulcers, and tumors of the small intestine. A sensor device is placed on your abdomen. You then swallow a small capsule. The capsule has a video camera in it. The capsule passes naturally through the digestive tract while sending video images to a data recorder. The data recorder is secured to your waist by a belt for 8 hours. Images of the small bowel are downloaded onto a computer from the data recorder. The images are reviewed on a computer screen by a healthcare provider. The capsule passes through the colon and exits your body in your stool in about 24 hours.
- **Gastric manometry.** This test measures electrical and muscular activity in the stomach. The healthcare provider passes a thin tube down your throat into your stomach. This tube contains a wire that takes measurements of the electrical and muscular activity of the stomach as it digests foods and liquids. This test helps show how the stomach is working. It can see if there is any delay in digestion. This test can be extended into the small intestine and is called antroduodenal manometry. The duodenum is the first part of the small intestine.

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