Small Bowel Follow-Through



Small bowel follow-through uses a form of real-time x-ray called fluoroscopy and a barium-based contrast material to produce images of the small intestine. It is safe, noninvasive and may be used to help accurately diagnose bowel disease, obstructions, polyps, cancer and other symptoms.

You will be instructed on how to prepare. You may be asked to use a laxative and told not to eat or drink anything for several hours before the examination. Tell your doctor if there's a possibility you are pregnant and discuss any recent illnesses, medical conditions, medications you're taking and allergies, especially to contrast materials. Leave jewelry at home and wear loose, comfortable clothing. You may be asked to wear a gown.

What is small bowel follow-through?

Small bowel follow-through is a fluoroscopic (http://www.radiologyinfo.org) procedure used to evaluate the small intestine (http://www.radiologyinfo.org) , also known as the small bowel. Prior to the procedure, the patient drinks a liquid that contains barium (http://www.radiologyinfo.org) or an iodine (http://www.radiologyinfo.org) -based contrast, a contrast material (http://www.radiologyinfo.org) that enhances x-ray images. *(See the Contrast Materials (https://www.radiologyinfo.org/en/info/safety-contrast) page for more information.)* As the contrast moves from the stomach into the small intestine, the radiologist (http://www.radiologyinfo.org) will use an x-ray machine to look for any abnormalities. Although the procedure can be performed by itself, it is often done after an Upper Gastrointestinal (GI) (https://www.radiologyinfo.org/en/info/uppergi) fluoroscopic study of the esophagus (http://www.radiologyinfo.org) , stomach and the section of the duodenum (http://www.radiologyinfo.org) just beyond the stomach. During the study, you may be asked to rotate your position on the x-ray table in order to coat all the surfaces of your bowel with the contrast.

What are some common uses of the procedure?

Small bowel follow-through is performed to assess the small intestine for abnormalities in size and shape and evaluate how waste matter moves through it. It also may be performed to diagnose conditions such as:

- Crohn's disease (https://www.radiologyinfo.org/en/info/crohns-disease)
- small bowel obstruction
- inflammatory bowel disease (http://www.radiologyinfo.org)
- abnormal masses or polyps
- cancer of the small intestine
- complications related to surgery on the abdomen or bowel

How should I prepare?

Tell your doctor about all the medications you take. List any allergies, especially to iodine contrast materials. Tell your doctor

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about recent illnesses or other medical conditions.

Women should always tell their doctor and technologist (http://www.radiologyinfo.org) if they are pregnant. Doctors will not perform many tests during pregnancy to avoid exposing the fetus (http://www.radiologyinfo.org) to radiation. If an x-ray is necessary, the doctor will take precautions to minimize radiation exposure to the baby. *See the Radiation Safety (https://www.radiologyinfo.org/en/info/safety-radiation) page for more information about pregnancy and x-rays.*

You will be given detailed instructions on what you can and cannot eat or drink the day before the test. You may be asked to take a laxative (http://www.radiologyinfo.org) to help improve imaging of the digestive tract. You should drink plenty of fluids when using the laxative. You will be asked to refrain from eating or drinking for several hours before the procedure.

You may need to remove some clothing and/or change into a gown for the exam. Remove jewelry, removable dental appliances, eyeglasses, and any metal objects or clothing that might interfere with the x-ray images.

What does the equipment look like?

This exam typically uses a radiographic table, one or two x-ray tubes, and a video monitor. Fluoroscopy converts x-rays into video images. Doctors use it to watch and guide procedures. The x-ray machine and a detector suspended over the exam table produce the video.

Additional equipment may include a compression or palpation paddle that is used to gently press down on your abdomen for improved imaging of the small intestine.

How does the procedure work?

X-rays are a form of radiation like light or radio waves. X-rays pass through most objects, including the body. The technologist carefully aims the x-ray beam at the area of interest. The machine produces a small burst of radiation that passes through your body. The radiation records an image on photographic film or a special detector.

Different parts of the body absorb the x-rays in varying degrees. Dense bone absorbs much of the radiation while soft tissue (muscle, fat, and organs) allow more of the x-rays to pass through them. As a result, bones appear white on the x-ray, soft tissue shows up in shades of gray, and air appears black.

Most x-ray images are electronically stored digital files. Your doctor can easily access these stored images to diagnose and manage your condition.

Fluoroscopy uses a continuous or pulsed x-ray beam to create images and project them onto a video monitor. Your exam may use a contrast material to clearly define the area of interest. Fluoroscopy allows your doctor to view joints or internal organs in motion. The exam also captures still images or movies and stores them electronically on a computer.

How is the procedure performed?

Before the imaging exam begins, you will be asked to drink two or more large cups of contrast material.

The technologist will situate you on the x-ray table and position the x-ray machine above your abdominal area. You may be asked to wear a lead shield to help protect certain parts of your body.

Once the contrast reaches your small intestine, the radiologist will observe its flow via fluoroscopy. Spot x-rays will be taken of any significant abnormalities.

You must hold very still and may need to hold your breath for a few seconds while the technologist takes the x-ray. This helps reduce the possibility of a blurred image. The technologist will walk behind a wall or into the next room to activate the x-ray

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machine.

You will continue to drink the contrast material throughout the exam to ensure that the radiologist can sufficiently examine the full length of the small intestine. You may be asked to lie on your right side between x-rays in order to encourage fluid to pass from the stomach into the small intestine. As the contrast reaches the end of the small intestine, the radiologist may need to press on the lower right portion of the abdomen with a gloved hand or a paddle to better see it.

Once the contrast has reached the colon (http://www.radiologyinfo.org) , you will be asked to use the bathroom. You will then receive a single additional x-ray in order to provide a general picture of how the contrast is distributed within the small and large intestines.

The duration of the examination depends on the amount of time it takes for the contrast to pass from the stomach to the large intestine. This procedure takes approximately one to two hours, but in some patients it may take twice as long or more.

Depending on departmental policy, a guardian may usually accompany a child into the x-ray room. The guardian will be asked to wear a lead apron to protect certain parts of his or her body. A lead shield may also be used to protect their child's reproductive organs as much as possible from radiation exposure.
Children in the hospital who cannot be brought to the x-ray room can be x-rayed at their bedside with a portable device.
The x-ray technologist will position the child, and then walk behind a wall or into the next room to activate the x-ray machine. The child must remain still to reduce the possibility of blurring the image. Older children will be asked to hold their breath and stay still for a few seconds during the x-ray, while infants may need assistance to remain still.
See the Radiation Safety for Children (https://www.radiologyinfo.org/en/info/safety-rad-children) page for more information.

What will I experience during and after the procedure?

The contrast material is ingested in the form of a thick, chalky white drink or a clear thin liquid that is usually flavored to make it more palatable. You may feel some bloating and nausea from drinking it.

You may experience some discomfort from having parts of your abdomen compressed during the examination.

It is recommended that you be near a bathroom in the hours following the procedure because of the large amount of contrast material ingested. The contrast material may cause diarrhea (http://www.radiologyinfo.org) .

You should be able to return to normal activities and diet soon after the procedure. Your stool may be a whitish color in the days after the exam, or you may experience constipation (http://www.radiologyinfo.org) . It is important to drink plenty of fluids in the days after the exam to help flush any remaining barium from your digestive system.

Who interprets the results and how do I get them?

A radiologist (https://www.radiologyinfo.org/en/info/article-your-radiologist) , a doctor trained to supervise and interpret radiology examinations, will analyze the images. The radiologist will send a signed report to your primary care or referring physician (http://www.radiologyinfo.org) who will discuss the results (https://www.radiologyinfo.org/en/info/all-about-your-radiology-report) with you.

What are the benefits vs. risks?

Benefits

- Abdominal x-ray imaging is a painless, minimally invasive procedure that rarely has complications.
- Radiology examinations can often provide enough information to avoid more invasive procedures.
- No radiation stays in your body after an x-ray exam.

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- X-rays usually have no side effects in the typical diagnostic range for this exam.

Risks

- There is always a slight chance of cancer from excessive exposure to radiation. However, given the small amount of radiation used in medical imaging, the benefit of an accurate diagnosis far outweighs the associated risk.
- Women should always tell their doctor and x-ray technologist if they are pregnant. *See the Radiation Safety (https://www.radiologyinfo.org/en/info/safety-radiation) page for more information about pregnancy and x-rays.*
- Barium may cause constipation or impacted stool if it isn't completely cleared from the body.

What are the limitations of Small Bowel Follow-Through?

Barium is usually not appropriate for someone who is in extreme abdominal pain or who has recently had a biopsy of the colon. If perforation (http://www.radiologyinfo.org) of the colon is suspected, small bowel follow-through should be performed with a water-soluble iodine based contrast solution.

The intermittent passage of contrast material through the pylorus (http://www.radiologyinfo.org) , or opening of the stomach into the small intestine, may interrupt the radiologist's view of the contrast material.

Small masses and less severe strictures, or abnormal areas of narrowing, may be difficult to see.

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