

## Video Fluoroscopic Swallowing Exam (VFSE)

A video fluoroscopic swallowing exam (VFSE) looks at your ability to swallow safely and effectively. This noninvasive exam uses fluoroscopy to help identify the thicknesses of liquid and food that you can most safely eat.

Tell your doctor if you are pregnant. List any recent illnesses, medical conditions, medications you're taking and allergies, especially to contrast materials. This procedure requires little to no special preparation. Your doctor may tell you not to smoke, chew gum, eat or drink several hours prior to your exam. Leave jewelry at home and wear loose, comfortable clothing. You may need to wear a gown.



### What is a Video Fluoroscopic Swallowing Exam (VFSE)?

A VFSE (modified barium swallow) exam looks at how you swallow different liquids and foods. It uses a special real-time form of x-ray called fluoroscopy. The doctor watches as the patient swallows items with different thicknesses and textures. These items may range from thin barium to barium-coated cookies. A VFSE allows the doctor to test your ability to swallow safely and effectively. A speech-language pathologist also often attends the exam.

An x-ray (radiograph) is a noninvasive medical test that helps physicians diagnose and treat medical conditions. Imaging with x-rays involves exposing a part of the body to a small dose of ionizing radiation to produce pictures of the inside of the body. X-rays are the oldest and most frequently used form of medical imaging.

Fluoroscopy allows your doctor to look at how your tissues and organs look and operate in real time.

Your doctor may use a VFSE just to look at how your muscles move when you swallow. Or, your doctor may perform a VFSE with an esophagram (barium swallow exam). An esophagram looks at how the esophagus looks and operates to the level of the stomach. These two exams have similar names. This can sometimes cause confusion when tests are ordered. Therefore, you should always clarify which exam your doctor wants to order.

### What are some common uses of the procedure?

VFSE is performed on patients with dysphagia, the technical term for difficulty swallowing. The exam is used primarily for looking at how you swallow and any evidence of aspiration. Aspiration occurs when liquid or food goes into the airway (the trachea and bronchi) instead of staying in the pharynx (throat) and esophagus.

A speech-language pathologist may suggest ways to help improve how you swallow. These methods may include tucking or tilting the chin or turning the head while swallowing. The pathologist may also suggest thickening liquids to help prevent aspiration. Your doctor can also use VFSE to see how effective these methods are.

Your doctor may use VFSE because you have a known or suspected problem with swallowing. Or, because you a condition that is

strongly associated with swallowing problems, such as:

- coughing and/or choking while eating or drinking
- coughing, choking, or drooling with swallowing
- wet-sounding voice
- changes in breathing when eating or drinking
- frequent respiratory infections
- known or suspected aspiration pneumonia
- masses on the tongue, throat, or larynx
- muscle weakness (myopathy) involving the throat
- neurologic disorders likely to affect swallowing.

## How should I prepare?

You should inform your physician of any medications being taken and if there are any allergies, especially to iodinated contrast materials. Also inform your doctor about recent illnesses or other medical conditions.

Other than medications, your doctor may tell you to not eat or drink anything for several hours before your procedure.

Your doctor may also tell you not to smoke or chew gum prior to the exam.

You will be asked to remove some of your clothes and to wear a gown during the exam. You may also be asked to remove jewelry, removable dental appliances, eye-glasses and any metal objects or clothing that might interfere with the x-ray images.

Women should always inform their physician and x-ray technologist if there is any possibility that they are pregnant. Many imaging tests are not performed during pregnancy so as not to expose the fetus to radiation. If an x-ray is necessary, precautions will be taken to minimize radiation exposure to the baby. *See the Safety page (<http://www.radiologyinfo.org/en/info/safety-radiation>) for more information about pregnancy and x-rays.*

Doctors often use VFSE for infants and children. Your doctor will tell you how to prepare your child. You may need to bring small amounts of the foods and liquids your child can eat and drink as well as those they have difficulty swallowing. You may also need to bring the things your child normally uses to eat or drink. These may include the bottles and nipples you use at home, sipper ("sippy") cups, and/or eating utensils.

The food you bring will be mixed with barium to show up on the x-ray. Explain to your child that barium may change the way the food looks and tastes.

## What does the equipment look like?

The equipment typically used for this examination consists of a radiographic table, one or two x-ray tubes and a television-like monitor that is located in the examining room. Fluoroscopy, which converts x-rays into video images, is used to watch and guide progress of the procedure. The video is produced by the x-ray machine and a detector that is suspended over a table on which the patient lies.

During VFSE, the patient usually sits or stands upright in front or to the side of the x-ray camera.

## 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. Once it is carefully aimed at the part of the body being examined, an x-ray machine produces a small burst of radiation that passes through the body,

recording an image on photographic film or a special detector.

Fluoroscopy uses a continuous or pulsed x-ray beam to create a sequence of images that are projected onto a fluorescent screen, or television-like monitor. When used with a contrast material, which clearly defines the area being examined by making it appear dark (or by electronically reversing the image contrast to white), this special x-ray technique makes it possible for the physician to view joints or internal organs in motion. Still images or movies are also captured and stored electronically on a computer.

Your doctor may record your exam to review the images later.

Most x-ray images are digital files that are stored electronically. These stored images are easily accessible for diagnosis and disease management.

## How is the procedure performed?

Your doctor and/or speech-language pathologist will take your medical history, including any complaints of problems with swallowing.

The radiologist or technologist and pathologist will guide you through the exam.

You will sit upright on a chair or stool or stand on a platform. If necessary, you may remain in a wheelchair. Infants and children sit in secure seats.

You will eat and drink controlled amounts of foods and liquids in different thicknesses that have been mixed with barium contrast material. The pathologist may try to help you swallow better by changing cups, utensils, or your body position.

As you eat and drink, the doctor will move the x-ray camera near your throat. The pathologist and radiologist will watch you swallow in real time using a fluoroscope. The images are usually digitally recorded so your doctor can review them later.

The imaging part of this procedure usually takes about 15 minutes.

## What will I experience during and after the procedure?

You may find the taste and consistency of the barium unpleasant.

After the exam, resume your usual diet and take oral medications unless told otherwise by your doctor. You may also resume your normal activities.

The barium may make your bowel movements look white for a day or two after your exam. This is normal. Sometimes the barium can cause temporary constipation. You can treat this with an over-the-counter laxative.

Drinking more fluids for several days after the test can also help. Call your doctor if you are unable to have a bowel movement, or if your bowel habits change significantly after the exam.

## Who interprets the results and how do I get them?

Speech-language pathologists and radiologists will review your exam. A report of the results will also be sent to the doctor who ordered the test. The pathologist may meet with you later to discuss your results.

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

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Follow-up exams may be needed. If so, your doctor will explain why. Sometimes a follow-up exam is done because a potential

abnormality needs further evaluation with additional views or a special imaging technique. A follow-up exam may also be done to see if there has been any change in an abnormality over time. Follow-up exams are sometimes the best way to see if treatment is working or if an abnormality is stable or has changed.

## What are the benefits vs. risks?

### Benefits

- VFSE is noninvasive.
- Allergic reactions to barium are extremely rare.
- VFSE can help determine the consistencies of food that you can most safely eat. This can limit your risk of liquid and/or food entering the airway and lungs (aspiration).
- No radiation remains in a patient's body after an x-ray examination.
- 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, the benefit of an accurate diagnosis far outweighs the risk.
- The radiation dose for this procedure varies. *See the Radiation Dose in X-Ray and CT Exams page (<http://www.radiologyinfo.org/en/info/safety-xray>) for more information.*
- Sometimes, patients are allergic to a flavoring added to the barium. Tell your doctor and the technologist before the procedure if you are allergic to chocolate, certain berries, or citrus fruit.
- You may accidentally aspirate the barium into your lungs during the exam. This does not cause any permanent damage. However, barium might be seen on future images.
- There is a small chance that barium could stay in the gastrointestinal tract. This may lead to a blockage. Patients who have a known blockage should not have this exam.
- Women should always inform their physician or x-ray technologist if there is any possibility that they are pregnant. *See the Safety in X-ray, Interventional Radiology and Nuclear Medicine Procedures (<http://www.radiologyinfo.org/en/info/safety-radiation>) page for more information about pregnancy and x-rays.*

## A Word About Minimizing Radiation Exposure

Special care is taken during x-ray examinations to use the lowest radiation dose possible while producing the best images for evaluation. National and international radiology protection organizations continually review and update the technique standards used by radiology professionals.

Modern x-ray systems have very controlled x-ray beams and dose control methods to minimize stray (scatter) radiation. This ensures that those parts of a patient's body not being imaged receive minimal radiation exposure.

## What are the limitations of VFSE?

A VFSE only evaluates the area from the back of the mouth through the throat to the top of the chest. Sometimes, your symptoms are due to problems in the esophagus, which is lower in the chest. If so, your doctor may perform an esophagram (barium swallow exam).

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