

Functional MRI

What is a Functional MRI (fMRI)?

MRI stands for Magnetic Resonance Imaging. The MRI machine uses a large magnet to take pictures of the inside of your child's body. MRI does NOT use radiation.

A functional MRI is an exam that takes pictures of the brain during specific activities. These activities range from physical motion (such as finger tapping or foot tapping) to language tasks.

Why is this exam performed?

This exam is performed to look at where in the brain certain critical functions happen.

What to expect

Because MRI uses a powerful magnet to create images, we must follow a strict safety process. To make sure your child is safe, we will ask you to answer a list of safety questions and will use a hand-held metal detector. If your child does not require medication to sleep for the exam, one parent or guardian may be with your child in the MRI suite. You will be asked to complete the same screening process as your child. It may be helpful to make plans for other siblings. For safety reasons, you will not be permitted to accompany your child if you are pregnant.

Preparing your child is key to the success of this study. To help prepare your child, our Child Life Specialists will help ease your child's fear and anxiety. Please let a staff member know if you are interested in a Child Life consultation at no additional cost.

Success for an MRI exam is dependent on a child's ability to lie still inside the MRI tunnel. The machine makes different types of noises as it takes pictures. The MRI preparation video found on this page may be helpful in preparing your child: <https://www.texaschildrens.org/departments/mri-magnetic-resonance-imaging>

Examples of tasks that your child may be asked to do include:

- Tapping fingers of the right and left hand
- Thinking of words that begin with a specific letter
- Thinking of action words (verbs) that match with objects (nouns) displayed on the screen
- If your child speaks another language (in addition to English) in the home, we may ask that the verbal activities be completed in that language as well

For the study to be successful your child **must** be able to follow directions. If your child cannot, please discuss this with the physician who ordered the MRI.

For those children requiring medication to sleep (sedation) for the test, we will follow the same safety processes outlined above and you will be able to stay with your child until he or she is off to sleep. Any child receiving sedation for the exam can:

- Eat food up to 8 hours before to your arrival time.
- Drink milk, formula, and food thickener up to 6 hours before your arrival time.
- Be given breast milk up to 4 hours before your arrival time.
- Only drink clear liquids up to 1 hour before your arrival time (water, Pedialyte, Sprite, 7-up, or apple juice). Orange juice is not a clear liquid.
- Take prescribed medications with a small sip of water (if needed) prior to arrival time unless otherwise specified.

If these instructions are not followed, the exam may be rescheduled or cancelled due to the risk posed to your child.

You will meet with a Nurse Practitioner and/or the doctor who will be providing the sedation medication. You will have the opportunity to ask questions, discuss risks, and will be asked to sign your consent.

Your child will be asked to change into a gown for the exam. A technologist will take your child and the accompanying adult to the procedure room where he or she will ask why the study is being done and will explain the exam to your child.

For this 120 minute exam:

- An intravenous line, also known as an IV, is required to give contrast or sedation medications. An IV is a tiny tube that is inserted into a vein. Your child might feel a pinch or poke when it goes in the vein, however we have ways to manage the pain associated with it.
- Your child will be asked to lie on his or her back on the table at the entrance to the camera “tunnel.” The technologist will place a “coil,” which is part of the camera, on the area to be imaged. The table will then be moved into the “tunnel.”
- Some children will have small stickers placed around the hairline on the front of the head.
- A technologist will use a booklet to explain the exam to your child to show examples of what the task screens look like. Your child will be asked to watch the video screen to perform the tasks while the MRI machine is taking pictures.
If your child will be sedated for the study, a technologist will perform the task for your child.
- For an fMRI alone with or without sedation, you should expect to be in the department 2 ½ hours. If additional studies are being performed with the fMRI, this will increase the time in the department.
- When the procedure is over, you will be given discharge instructions.

If your child received anesthesia

Your child may be sleepy and unsteady from the anesthetic for several hours. Your child may have a red face or be slightly swollen around the face and eyes. This should improve within 24 hours. Your child may wake up feeling hungry. When he or she is wide awake, the recovery nurse will give clear liquids such as Pedialyte, apple juice, Sprite or water. If your child does not throw up during the next 30 minutes, he or she can eat normally.

To prevent accidents, closely watch your child for the next 24-48 hours. Walk with your child, holding hands even if he or she seems to walk without trouble. It is also important to help your child in the bathroom.

The sedative and the test may disrupt your child’s routine. You may notice a change in behavior for the rest of the day. Some children may become cranky. Some children sleep for hours. Others need to stay up late because they slept for the test. Be patient. Things will be back to normal the next day.

When to seek help

Call 911 if your child has difficulty breathing and looks very pale or has blue lips or nails or a very high fever (greater than 103°F).

Call your child’s doctor if your child has any of the following:

- Red blood in the urine, pain
- Throws up more than three times
- Seems confused or dizzy the next day, is harder to wake up than usual
- Has a sore throat that gets worse or does not go away in two days
- Has a fever of over 101°F for more than 24 hours
- Develops any allergies such as hives, itching or a rash

Receiving your Functional MRI results

Call your doctor for a follow up appointment as instructed. You can also call the doctor who ordered the MRI for the results 24 to 48 hours after the test. If you have any additional questions or concerns, please don’t hesitate to call Radiology Nursing at 832-826-5371.

If you would like a CD of your child’s study, please call the film library at 832-822-1202. The Radiologist’s report will also be included on the CD.