

# WHAT IS MAGNETIC RESONANCE IMAGING?

## ALSO KNOWN AS MRI

**MAGNETIC RESONANCE IMAGING (MRI)** is a safe and painless test that uses a magnetic field and radio waves to produce detailed pictures of the organs and structures inside the body. MRI differs from CT in that it does not use radiation.

MRI images are created when the hydrogen atoms within the body are introduced into a magnetic field, and struck with precisely tuned radio waves. The reactions from these atoms are picked up by a powerful antenna and signals are sent to a computer, which converts this information into high resolution images of the body.

### WHY IS IT DONE?

MRI is used to visualize many different abnormalities within the body such as problems with the brain, spine, abdomen, and heart. It is also valuable for diagnosing problems with the eyes, ears, and nervous system. In some cases, MRI can provide information that can't be seen as well with x-ray, CT, or ultrasound.

### PREPARATION

In many cases, having an MRI requires no special preparation. Any objects containing metal, such as eyeglasses, jewelry, or belts should be left at home if possible or removed before the exam. Electronic devices are not permitted in the MRI room. Braces and dental fillings are safe, but may interfere with some scans. You will also be asked if your child has any internal metal clips from previous surgery or anything else that might cause a problem near a strong magnetic field.

Sedation medications can be given for children who may have difficulty staying still. If sedation is used, your child will be under the direct supervision of a nurse at all times. Fasting may be required if your child's exam is scheduled with sedation. A nurse will contact you 1-2 days before the procedure to provide instructions for preparing your child. If you have questions and would like to speak with a nurse regarding sedation procedures please call 801.662.1870.



### PROCEDURE

Some MRI exams require contrast to be given. Contrast is used to highlight certain areas of interest within the body such as tissue and blood vessels. Contrast solution is safe and painless, and allergic reactions are very rare in children. If your child has experienced problems during a previous MRI procedure please inform your doctor or the MRI technologist. If your child will need contrast for their exam, an IV will be started before the images are taken.

When the exam is about to begin, the technologist will help your child onto the MRI exam table. The table will slide into the circular area of the MRI scanner. The technologist will leave the room and begin to take images. To obtain the highest quality MRI images, your child will need to remain completely still. To help with this, your child will have the option to listen to music or watch a movie through our special MRI safe goggles.

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### PROCEDURE CONTINUED

During the exam your child will hear repetitive and sometimes loud sounds from the machine. These sounds are normal. If your child becomes uneasy at any time, he or she will be able to communicate with the technologist through an intercom.

When the exam is over, the technologist will help your child off of the table; if sedation was used, your child will be moved to our recovery area where he or she will be monitored by a nurse until the effects of the sedation have worn off. Discharge instructions, emergency contact information, and follow up instructions will be given to you before you leave.

### GETTING THE RESULTS

MRI images will be viewed and interpreted by a pediatric radiologist. A report will be sent to your child's doctor, who will discuss and explain the test results with you. Results are usually available within 24 hours. If the MRI scan was done on an emergency basis, the results can be made available more quickly.

### RISKS

MRI's are safe. No health risks have been associated with the magnetic field. Certain implanted medical devices such as pacemakers, shunts, implanted pumps, cochlear implants and other internal monitoring devices will need to be evaluated carefully prior to having an MRI.

### HELPING YOUR CHILD

You can help your child to prepare for an MRI by explaining the test in simple terms before coming to the hospital. Make sure you explain that the MRI machine will make knocking and buzzing noises. If your child will be awake for the test, be sure to explain the importance of lying still. You may bring a favorite DVD from home for your child to watch during the exam.



### IF YOU HAVE QUESTIONS

If you have questions about the MRI procedure, please talk with your doctor. You can also speak with a Child Life Specialist, MRI technician, or pediatric radiologist before the exam.

For more information about Primary Children's Imaging Department, please visit [www.primarychildrens.org/imaging](http://www.primarychildrens.org/imaging)



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