Shoulder MRI



Magnetic resonance imaging (MRI) of the shoulder uses a powerful magnetic field, radio waves and a computer to produce detailed pictures of the bones, tendons, muscles and blood vessels within the shoulder joint. It is primarily used to assess injuries.

Tell your doctor about any health problems, recent surgeries or allergies and whether there's a possibility you are pregnant. The magnetic field is not harmful, but it may cause some medical devices to malfunction. Most orthopedic implants pose no risk, but you should always tell the technologist if you have any devices or metal in your body. Guidelines about eating and drinking before your exam vary between facilities. Unless you are told otherwise, take your regular medications as usual. Leave jewelry at home and wear loose, comfortable clothing. You may be asked to wear a gown. If you have claustrophobia or anxiety, you may want to ask your doctor for a mild sedative prior to the exam.

What is MRI of the shoulder?

MRI of the shoulder provides detailed images of structures within the shoulder joint, including bones, tendons, muscles and vessels, from any angle.

Magnetic resonance imaging (MRI) is a noninvasive test doctors use to diagnose medical conditions.

MRI uses a powerful magnetic field, radiofrequency pulses, and a computer to produce detailed pictures of internal body structures. MRI does not use radiation (x-rays).

Detailed MR images allow doctors to examine the body and detect disease.

What are some common uses of the MRI procedure?

MRI is an excellent choice for examining the shoulder joint. MRI gives clear views of rotator cuff (http://www.radiologyinfo.org) tears, injuries to the biceps tendon and damage to the glenoid labrum (http://www.radiologyinfo.org) , the soft fibrous tissue rim that helps stabilize the joint.

MR imaging of the shoulder is typically performed to diagnose or evaluate:

- degenerative joint disorders such as arthritis (http://www.radiologyinfo.org) and labral tears
- fractures (in selected patients)
- rotator cuff disorders, including tears and impingement (http://www.radiologyinfo.org) , which are the major cause of shoulder pain in patients older than 40 years
- joint abnormalities due to trauma, such as tears of ligaments and tendons
- sports-related injuries and work-related disorders caused by repeated strain, forceful impact or vibration from using certain hand-held tools
- infections (such as osteomyelitis (http://www.radiologyinfo.org))

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- tumors (primary tumors and metastases (http://www.radiologyinfo.org)) involving bones and joints
- pain, swelling or bleeding in the tissues in and around the joint
- unexplained shoulder pain that does not get better with treatment
- decreased motion of the shoulder joint
- progress after shoulder surgery

A special form of MRI called magnetic resonance arthrography involves the injection of a contrast material into the joint so that the radiologist can get a better look at structures within the shoulder.

Who interprets the results and how do I get them?

A radiologist, a doctor trained to supervise and interpret radiology exams, will analyze the images. The radiologist will send a signed report to your primary care or referring physician, who will share the results with you.

What are the benefits vs. risks?

- MRI is a noninvasive imaging technique that does not involve exposure to radiation.
- MRI has proven valuable in diagnosing a broad range of conditions, including muscle and bone abnormalities.
- MRI can help determine which patients with shoulder injuries require surgery.
- MRI may help diagnose a bone fracture when results from x-rays and other tests are not clear.
- MRI can detect abnormalities that might be obscured by bone with other imaging methods.
- The MRI gadolinium contrast material is less likely to cause an allergic reaction than the iodine-based contrast materials used for x-rays and CT scanning.
- MRI may provide a noninvasive (http://www.radiologyinfo.org) alternative to x-ray, angiography (http://www.radiologyinfo.org) and CT for diagnosing problems of the blood vessels.

Risks

- The MRI exam poses almost no risk to the average patient when appropriate safety guidelines are followed.
- If sedation is used, there is a risk of using too much. However, your vital signs will be monitored to minimize this risk.
- The strong magnetic field is not harmful to you. However, it may cause implanted medical devices to malfunction or distort the images.
- Nephrogenic systemic fibrosis is a recognized complication related to injection of gadolinium (http://www.radiologyinfo.org) contrast. It is exceptionally rare with the use of newer gadolinium contrast agents. It usually occurs in patients with serious kidney disease. Your doctor will carefully assess your kidney function before considering a contrast injection.
- There is a very slight risk of an allergic reaction if your exam uses contrast material. Such reactions are usually mild and controlled by medication. If you have an allergic reaction, a doctor will be available for immediate assistance.
- Although there are no known health effects, evidence has shown that very small amounts of gadolinium can remain in the body, particularly the brain, after multiple MRI exams. This is most likely to occur in patients receiving multiple MRI exams over their lifetime for monitoring chronic or high-risk health conditions. The contrast agent is mostly eliminated from the body through the kidneys. If you are a patient in this category, consult with your doctor about the possibility of gadolinium retention, as this effect varies from patient to patient.
- IV contrast manufacturers indicate mothers should not breastfeed their babies for 24-48 hours after contrast material is given. However, the most recent American College of Radiology (ACR) Manual on Contrast Media reports that studies show the amount of contrast absorbed by the infant during breastfeeding is extremely low. *For further information please consult the ACR Manual on Contrast Media (https://www.acr.org/Clinical-Resources/Contrast-Manual) and its references.*

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What are the limitations of a shoulder MRI?

High-quality images depend on your ability to remain perfectly still and follow breath-holding instructions while the images are being recorded. If you are anxious, confused or in severe pain, you may find it difficult to lie still during imaging.

A person who is very large may not fit into certain types of MRI machines. There are weight limits on the scanners.

Implants and other metallic objects can make it difficult to obtain clear images. Patient movement can have the same effect.

A very irregular heartbeat may affect the quality of images. This is because some techniques time the imaging based on the electrical activity of the heart.

Present data show no convincing evidence that non contrast MRI harms the fetus of a pregnant woman. However, if the need for the exam is not time sensitive your doctor may delay the exam until after delivery. MRI gadolinium contrast agents are generally avoided during pregnancy except in very specific circumstances. Your doctor will discuss the benefits and risks of any MRI procedure with you. Doctors may perform MRI after the first trimester to assess the fetus for findings that are not fully evaluated by ultrasound.

An MRI exam typically costs more and may take more time than other imaging exams. Talk to your insurance provider if you have concerns about the cost of MRI.

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