



X-Plain *Magnetic Resonance Imaging* *(MRI) Scan*

Reference Summary

Introduction

An MRI scan, or magnetic resonance imaging scan, is a test that provides very clear pictures of structures inside the body. Doctors may recommend an MRI to help diagnose various diseases such as brain tumors or torn ligaments.

If your doctor recommends an MRI, the decision whether or not to have the scan is also yours. This reference summary will review the benefits and risks of this procedure.

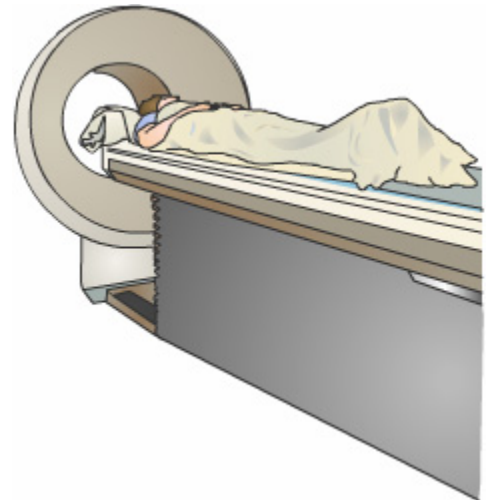
Test

A Magnetic Resonance Imaging scan, known as an MRI scan or just MRI, does NOT use x-rays.

Before the test, you will be asked to change into a gown and keep your belongings out of the MRI room. This will protect your watch, beepers, credit cards, and other magnet-sensitive devices from the effects of the MRI machine.

You will be placed inside a magnet. Some of the magnets used for MRIs are like narrow tunnels and others are more open. While inside the magnet, you will hear loud noises. The combination of the magnetic field and different radio frequencies allow a specialized computer to generate excellent pictures of the inside of the body.

The test takes a long time, sometimes as long as one to one and a half hours. Although it takes so long, it is very important to lie very still during the test to get clear pictures.



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MRI technologists are sitting in the next room and are able to see you through a glass. They are able to hear you at all times, as well as talk to you. If you have any questions, be sure to ask them. They will be more than glad to help you.

In case you are claustrophobic or afraid of small spaces, the radiologist may be able to give you some medication to help you tolerate the small space. Make sure to tell the technologist if you have this problem before the test.

Some patients need a dye given through the vein to help visualize structures better inside the body. This dye is relatively safe. It may however cause a potentially fatal kidney disease known as nephrogenic systemic fibrosis (NSF) in patients who already have kidney problems. This is why it is important to check the patient's kidney function before administering the dye. This is usually done with a blood test.

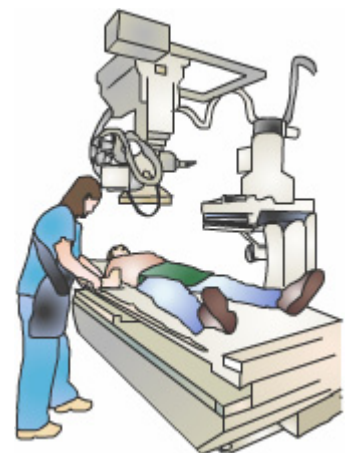
Risks and Complications

MRI scans are very safe.

Because MRI technology is relatively recent, the very long-term effects are not known. There are no reasons to suspect any harmful effect but, again, these long-term effects are NOT known. Because of the possible long-term effects, pregnant women should avoid MRIs and the dye except when the benefits clearly outweigh the potential risk to the unborn child.

Allergic reactions to the dye used are possible but not at all likely. It is therefore very important to inform your doctor about any allergies that you may have.

Because of the large magnet, patients with cardiac pacemakers or artificial cardiac valves are NOT allowed near the machine. Patients with cerebral aneurysm clips should NOT have an MRI unless the patient has proof that the aneurysm clip is compatible with magnets. Patients with metallic fragments in or near the eyes or blood vessels should NOT have an MRI. If you suspect you may have metallic fragments anywhere in your body, let the technologists know. They can take x-rays of these areas to determine if it is possible to proceed with the MRI. The patients at highest risk for metal fragments are welders and people injured by shrapnel or bullets.



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Patients with epidural electrodes and with cochlear implants should NOT undergo MRI. Patients who have had a stent placed within 6 weeks of the MRI should check with their doctor before having an MRI. Other implanted metallic material, such as a hip replacement or a knee replacement, may not be a problem. It is your responsibility to tell your doctor, your radiologist, and your technologists about any possible implants or metallic fragments. It is VERY important. This information can help avoid potentially deadly complications.

Because medical technology is continuously improving, biomedical companies are manufacturing more MRI compatible implants. It is therefore very important to ask the physician who is implanting ANY medical device in your body, whether the implant is MRI safe and compatible. Moreover, it would be very beneficial to have a document from the implant company that explicitly states whether or not the implant is MRI safe and compatible.

Summary

A magnetic resonance imaging scan can be helpful in detecting many kinds of problems in the body. To get the clearest picture, you should lie very still.

Because an MRI uses a large magnet instead of x-rays, it is safer than other technologies for looking inside the body. However, because of the magnet, people who have metal of any kind implanted in their bodies should inform their doctors before a scan.

An MRI is very safe for selected patients. Risks and complications are very rare. Knowing about them will help you detect them early if they happen.



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