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## **[Magnetic Resonance Imaging \(MRI\)](#) [1]**

**This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 02/2016**

Doctors use magnetic resonance imaging, also called an MRI, to find cancer. They also use it to learn more about cancer after they find it. They can use it to:

- Determine if a tumor is noncancerous or cancerous
- Learn more about the size and location of the tumor
- Help doctors plan cancer treatments, such as surgery or radiation therapy
- Monitor how well treatment is working

### **How does an MRI work?**

An MRI is an imaging test. It uses powerful magnets and radio waves to produce detailed, computer-generated pictures of organs and tissue. It looks like a large donut. The standard MRI machine has a narrow, tunnel-like opening. Some facilities have less confining or “open” MRI machines.

An MRI does not use x-rays or other forms of radiation. As a result, it is often used to look for

problems in the female and male reproductive systems. An MRI is generally safe, even for pregnant women. Other common test sites include the brain, spinal column, abdomen, and chest, including the breast. Learn more about a [breast MRI](#) [3].

## **Who does my MRI?**

An MRI is performed by a radiologist or a radiology technologist. A radiologist is a medical doctor who performs and interprets imaging tests to diagnose disease. A radiology technologist is a health care professional who is specially trained and certified to perform an MRI.

Facilities that provide MRIs include the following:

- A hospital's radiology department
- An outpatient imaging center

## **Getting ready for an MRI**

When you schedule your MRI, you will get detailed instructions. For example, you may need to avoid eating for 2 or more hours before the test.

Tell your doctor about all medications you are taking. Also mention drug allergies or other medical conditions you may have. And women should tell their doctors if there is any chance that they may be pregnant.

It is important mention any metal implants or metal fragments you have in your body. These can cause serious, and even fatal, complications when exposed to the MRI's strong magnetic pull. For example, people with pacemakers cannot have an MRI.

Additionally, check with your insurance provider in advance. Find out whether the cost of the MRI will be covered and whether you may need to pay part of it.

Also, consider asking whether you can bring music to the appointment. Some facilities allow patients to listen to music through headphones during the MRI. It may help distract you from the loud noise the MRI machine makes.

Once you arrive for your scan, you will be asked to sign a consent form. The consent form states that you understand the benefits and risks of the MRI and agree to undergo the test. Talk with your doctor about any concerns you have about the MRI.

Before the test, you will remove jewelry and other metal objects. You may also need to change into a hospital gown.

## **During the test**

Depending on the part of your body that will be scanned, you may be given a contrast medium. This is a special dye. It is given through an intravenous (IV) line or by mouth.

If the dye is given through an IV, a nurse or doctor will insert a small needle into a vein in your arm or hand. A saline solution will flow through the line until the dye is injected. Saline is a mixture of salt and water. When the caregiver injects the dye, it will travel through the bloodstream. The dye helps create a clearer picture of specific parts of your body.

Then, you will lie on a moveable exam table outside of the MRI machine. You will lie on your back with your arms at your side and your head on a headrest.

Small devices, called coils, help send and receive radio waves. These may be positioned over or around part of your body to create a clearer picture.

When you are ready, the exam table will slide through the hole in the center of the MRI machine. You will need to lie still while the machine takes a series of pictures. Each series will take up to 15 minutes. And you may need to have 2 to 6 series. This means that an MRI usually lasts up to 90 minutes. The technologist can give you a time estimate before you begin.

During the scan, the technologist will be in a nearby computer room, separated by a window. The technologist will be able to see you. And you will be able to communicate with the technologist through an intercom system.

You will know when the machine is taking pictures because you will hear loud knocking sounds. Also, the part of your body under examination may feel warm during the MRI. This is normal.

Although an MRI is not painful, you may become uncomfortable lying still. Additionally, if you receive an IV, you may feel discomfort when the needle is inserted. And the saline solution in the IV may feel cool at the injection site.

Meanwhile, some people find the machine's loud sounds unnerving. You may reduce this discomfort by wearing earplugs or listening to music.

And if you are afraid of small spaces, tell the technologist before beginning the examination. The radiologist may be able to give you a medication to help you relax. This medication is called a sedative.

Once the MRI is complete, you may be asked to stay on the exam table while a radiologist reviews the pictures to see if more are needed.

## **After the test**

After your MRI, you may return to your usual activities. This includes driving, unless you were

given a sedative.

## Questions to ask your doctor

Before having an MRI, consider asking the following questions:

- Who will perform the MRI?
- Is the radiologist certified by the American Board of Radiology?
- Is the imaging facility accredited by the [American College of Radiology](#) [4] to perform MRIs?
- What will happen during the MRI?
- How long will the procedure take?
- May a friend or family member sit in the MRI room during my examination?
- What are the risks and benefits of having an MRI?
- How accurately does an MRI find cancer?
- When will I learn the results? How will they be communicated to me?
- Who will explain the results to me?
- What other tests will I need if the MRI finds evidence of cancer?

## More Information

[Tests and Procedures](#) [5]

[Computed Tomography \(CT\) Scan](#) [6]

[Positron Emission Tomography and Computed Tomography \(PET-CT\) Scans](#) [7]

## Additional Resources

National Library of Medicine: [MRI Scans](#) [8]

RadiologyInfo.org: [Magnetic Resonance Imaging](#) [9]

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### Links

- [1] <http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/tests-and-procedures/magnetic-resonance-imagining-mri>
- [2] <http://www.cancer.net/about-us>
- [3] <http://www.cancer.net/node/24415>
- [4] <http://www.acr.org/>
- [5] <http://www.cancer.net/node/24959>
- [6] <http://www.cancer.net/node/24486>
- [7] <http://www.cancer.net/node/24565>
- [8] <https://www.nlm.nih.gov/medlineplus/mriscans.html>
- [9] <http://www.radiologyinfo.org/en/info.cfm?pg=bodymr>