

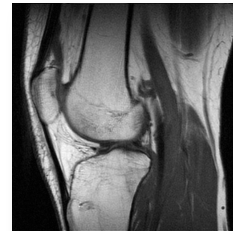
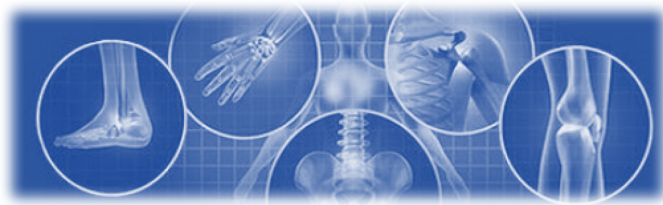
What is MRI?

MRI stands for **M**agnetic **R**esonance **I**maging. This popular diagnostic imaging method is non-invasive and painless. An MRI scan uses magnet, radio waves, and a high end computer to generate high-resolution, detailed images of the inside of your body. The magnetic field in the MRI machine reorients the hydrogen atoms in your body temporarily. Radio waves cause the atoms to create very weak signals, which are amplified and converted to cross-sectional images. This gives your doctor a good view of your body's insides from various angles. Clinicians use MRIs to obtain important information about your body's internal organs and use the images to see if there are any abnormalities or injuries.

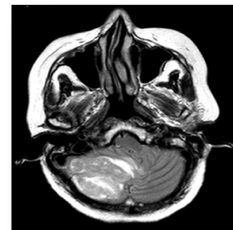
What are MRIs typically used for?

An MRI can detect and provide clinically useful information about a wide range of abnormalities. A few examples are given below:

Joint problems

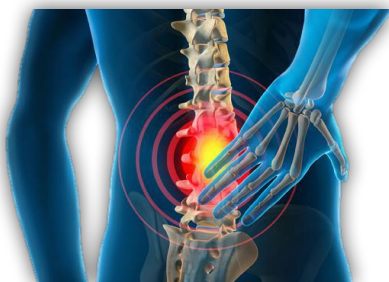


Tumours

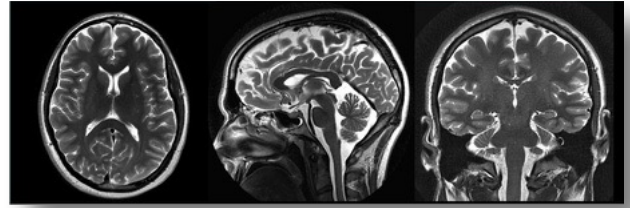
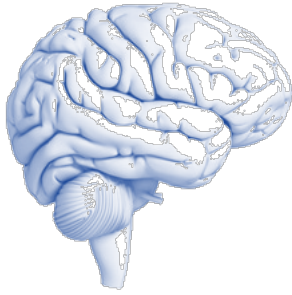


Spinal abnormalities

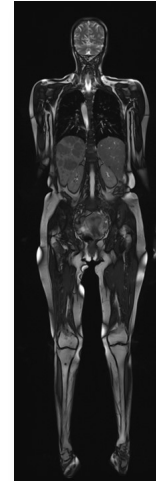
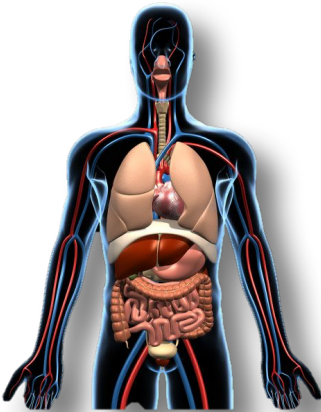
MRI is an extremely useful method for detecting spine abnormalities such as disc prolapse, infections, tumours, metastases and nerve root disorders.



Brain



Whole body



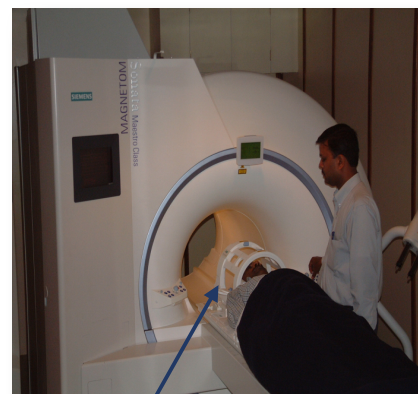
How does an MR scanner look like?

- You lie on the table, which can slide all the way in and out of the magnet.
- An RF coil will be put over the part to be examined. For example, your head will be placed inside the coil if the part to be examined is your brain.

magnet



sliding table



RF coil

What should you know before starting the MRI?

As with other medical examinations, getting an MRI done is also a medical necessity and it's normal for you to feel anxious before the scan. However, knowing what to expect during your

MRI scan, such as the sounds you will be hearing and how you have to lie still inside the magnet, can be helpful in relieving your anxiety and help you prepare for the MRI scan.

Here is a quick list:

- (i) Your radiologist / technologist will provide you with all instructions
- (ii) You should inform your radiologist / technologist if you have any metallic implants
- (iii) The part of your body that is going to be examined will be placed inside the RF coil as you lie on the table which will slide into the magnet.
- (iv) Only that part of your body to be examined will be inside the machine. The rest of your body remains outside the machine. For example, you might not have to put your head or entire body in the machine, if your foot is being scanned.
- (v) If your radiologist has asked for your MRI with contrast, you will be fitted with a cannula for an IV line to administer the contrast agent.
- (vi) If you are anxious about your first MRI, you can ask your doctor beforehand if sedation, anti-anxiety medication or anaesthesia is a possibility.
- (vii) If you desire, your accompanying attendant / relative can be allowed to stay inside the MR scan room during the scan, after proper screening. This will add to your level of mental comfort.
- (viii) In addition, our experienced technologists and other healthcare personnel will be there during the whole procedure and do their best to make you feel comfortable and at ease during the scan. You can talk to the technologist through the speaker during the scan if you have any questions or want to stop the scan for some reason.
- (ix) You will have access to an emergency button which you can press if you are feeling uncomfortable during the scan and would like to halt the scan.

What to expect during the MRI?

Sounds: During scanning, you will hear some loud knocking and tapping sounds coming from the machine. You need not get frightened since these noises are completely normal.

Remaining still: When you go in for your MRI scan, you will have to lie down on the table, which will be slide inside the magnet to the correct position to obtain good images. You will then need to stay still. In particular, the part that is being examined have to be held still. For example, if your brain is being examined, you should not move your head till the examination is over.

Holding your breath: If your abdomen or cardiac region is being examined, the technologist may instruct you to hold your breath for a few seconds at specified intervals. This should not be difficult.

Administering contrast agent: If the radiologist wants a contrast MRI, you will be administered gadolinium injection during your MRI through an IV in your arm. During the scan, the contrast agent lights up the signals, helping doctors get a better look at the region being studied. It will help them diagnose clinical conditions better. *You should bring the lab report of urea and creatine levels for contrast MR scans.*

How safe is the contrast?

When the contrast is injected, some of you might feel some effects such as:

- A feeling of coldness or flushing sensation
- A metallic or salty taste in your mouth
- A brief headache
- Some itching
- Nausea and vomiting

Typically, these effects last for only for a few seconds. According to the American College of Radiology (ACR), millions of MRIs are performed using contrast each year with no problems. However, ACR also go onto say that allergic reactions or severe, life-threatening reactions can occur in less than one percent of patients. However, doctors and nursing staff will be available to manage the allergic reactions, if they occur.

How long does an MRI take?

The entire scan might take anywhere from 30 minutes to two hours, depending on the complexity of the examination. Relax and close your eyes while the scan is done, as you need to be still as the machine takes the images.

How to prepare for your MRI?

- You can take your daily medicines as you usually would, unless instructed otherwise
- Submit the MR requisition form and the payment receipt at the MRI reception counter
- Be seated comfortably in the waiting hall till you are called
- If you have worn cotton dress (without metal buttons), change of dress may not be required. If not, you will be asked to change into a hospital gown before getting into the MR room
- You will receive a locker where you can store your belongings during your MRI exam
- You will be screened for metallic items before you enter the MR scan room
- You will be asked to sign a patient consent form
- Bring with you lab report of urea and creatine levels for contrast MR scans
- You should have light meal at least 2 hours before the scan, if you require a contrast MRI
- Some scans (eg. abdomen) may require overnight fasting
- If there are any other dietary restrictions for your MRI, you will be notified
- You might need special MRI preparations or considerations if you have certain medical conditions or items within or on your body.

Inform about your medical conditions

Because the MRI uses a strong magnetic field during the exam, certain conditions might prevent doing the MRI for you. When you schedule your appointment, let the radiologist / technologist know if you have any of the following conditions:

- (i) *History of kidney problems:* If you have a history of kidney (or even liver problems), or you are on dialysis, you will have to inform before you receive the contrast.
- (ii) *Pregnancy:* Though it is safe to get MRI done, it is better to inform prior.

Inform about items that can interfere with an MRI

Some items can pose a risk during an MRI. These include:

- (i) *Cardiac pacemaker*
- (ii) *Skin Tattoos:* Tattoos contain ferromagnetic compounds, particularly iron oxide. These could generate an electric current that could lead to an increase in local skin temperature and can cause a cutaneous burn.
- (iii) *Makeup:* Metals in some cosmetics may interact with the magnetic field of the MRI magnet. Therefore, do not put any makeup, nail polish, sunscreens and antiperspirants on the day of your MRI scan. All these may contain metals which can interact with the magnetic field of the MR magnet.
- (iv) *Jewellery and dresses with zari & sequins*
- (v) *Implanted Drug Infusion Devices (eg. Insulin Pump):* There are reports of severe adverse episodes linked with using implantable infusion pumps in an MR scanner.
- (vi) *Cochlear Implants:* If you have cochlear implant, then you may feel discomfort and pain during MRI. You may experience issues with the internal magnet of the implants when inside the MR magnet.
- (vii) *Metallic Prosthesis and Implants:* Metallic implants, if any in your body, can cause a possible risk by changing their position due to the magnetic field of the MR magnet and potentially causing an injury. Furthermore, metallic implants inside the body could distort the MR images or cause signal loss.

It is important that you inform your doctor in advance if you have any conditions or objects as mentioned above, since these may interfere with the MRI or pose a risk.

Since there are also some cardiac pacemakers, medicine pumps, implants and neurostimulation systems that are compatible with MRI, your doctor and technologist must know the exact make and type, so they can implement special procedures and measures to ensure your safety.

Patients under General Anaesthesia (GA)

The radiologist will decide if any of the patients (adults and children) require GA during MRI. Such patients require Pre-Anesthetic Clearance (PAC) from the concerned anaesthesia department

Room No. 5054 - Radio Diagnosis

Neuro and cardiac anesthesia - CN centre