

MRI (Magnetic Resonance Imaging):

The MRI scanner uses harmless radio waves and a magnetic field to create images of tissues within the body. These images are more detailed than ultrasound and X-rays. An MRI is painless and safe, although noisy and may create a feeling of claustrophobia.

In arthritis it is used to look at the lining of joints, the amount of fluid and whether there have been changes to the bony surface of the joint (called erosions). The MRI is also used to look at other tissues including muscles, ligaments and the brain and spinal cord.

How Does MRI Work?

The *MRI* scanner is a big doughnut of a machine containing a large magnet within its ring and a long couch that passes through the hole. The patient lies on the couch and is carried into a tunnel. The noisy magnet then swings around the patient creating a magnetic field. This makes tiny particles within water molecules of the body (protons) point in one direction. Radio waves are then emitted to bounce off these protons and produce an image of the tissues being scanned.

Preparing for an MRI Scan

Young children unable to keep still or who will be frightened will need a general anaesthetic and your doctor will talk about this with you.

Patients will be asked to wear a gown. The presence of a strong magnetic field means that metal objects are not permitted within the scanning room during an *MRI Scan*. This includes:

- metal clips of clothing and all jewellery
- medical equipment placed in the body such as cardiac pacemakers, catheters with metal components, aneurysm clips and cochlear implants.

You will be asked about metal objects before a scan, so don't worry. In addition females of child bearing age will be asked about the possibility of pregnancy because little is known about the effect of MRI scans on an unborn baby.

Going to the toilet is not possible during a scan so patients are advised to limit the amount they drink for several hours before the scan and avoid coffee and tea.

The patient can be accompanied by their parents in the scanning room. Alternatively a patient can listen to their music via special headphones to distract them from the banging noises of the scan.

During an MRI

Once dressed in a medical gown, the patient is asked to lie down on a narrow table which then moves into the tunnel. An MRI lasts 30 minutes to an hour, depending on the type of scan. The patient must remain motionless, otherwise the picture is blurred and useless.

Throughout the procedure nurses, doctors and technicians are able to communicate with the patient via intercom.

Sometimes a dye may be injected via a drip into a vein. You will be told about this before the scan if this is going to happen.

Benefits of MRI

The MRI scan is painless and safe. It provides detailed views of the body that may help with diagnosis or identify the extent of inflammation and any lasting damage. Both of these help to determine treatment.

Risks of MRI

Please inform the technician or doctor if there is a risk of pregnancy or metal objects within the body. If a dye is given there is a small risk of allergic reaction.

Limitations of MRI

An MRI is a very expensive and time consuming compared to X-ray and CT scan. It does not specifically tell the difference between some disease processes.

After the MRI Scan

The radiologist, a doctor experienced in MRI and X rays, will analyse the images and write a report on interpretation of the scan. The MRI results are then passed back to the referring doctor who will explain them to you.

Specialized Types of MRI

- **Magnetic Resonance Angiography (MRA)**, to look at blood vessels. A contrast dye is injected, and helps the blood vessels to show up brighter.
- **Functional MRI**, of joints and brain

