TEST

Leg MRI scan

A leg MRI scan creates detailed images of bones, muscles, joints, and other soft tissues.

WHAT IT MEASURES
Detailed images of leg bones, muscles, joints, and soft tissues

SAMPLE
None; imaging only

FASTING NEEDED?
Sometimes, before sedation or when your imaging centre instructs

HOW LONG IT TAKES
Usually 30 to 60 minutes

RESULTS IN
Usually several days; varies by imaging service, not laboratory

USED FOR
Diagnosis, treatment planning, and monitoring

MAIN LIMITATION
Movement and metal can blur or hide abnormalities

Overview

A leg MRI scan uses a strong magnet, radio waves, and a computer to create detailed pictures of structures inside your leg. MRI stands for magnetic resonance imaging. It does not use X-rays or other ionising radiation.

The scan may focus on your thigh, knee, lower leg, ankle, or another specific area. A routine appointment does not always cover the entire leg. The region and scanning method are chosen according to the question your care team needs to answer.

MRI is especially useful for examining muscles, tendons, ligaments, cartilage, bone marrow, nerves, and soft-tissue lumps. It can also show some bone injuries that are difficult to see on an X-ray.

Some scans use a contrast agent containing gadolinium. This is injected into a vein to make certain tissues, blood vessels, inflammation, or abnormal growths easier to see.

Why the test is ordered

A leg MRI may be ordered to investigate persistent pain, swelling, weakness, reduced movement, or symptoms following an injury. It is often used when an examination, X-ray, or ultrasound has not fully explained the problem.

It may help assess:

MRI may also be used to plan surgery, guide a biopsy, or monitor a previously identified condition. The scan itself cannot always establish a final diagnosis. Its findings are considered alongside your symptoms, examination, and other tests.

- Muscle, tendon, or ligament injuries
- Stress injuries and hidden fractures
- Cartilage or joint damage
- Bone or soft-tissue infection
- A lump or suspected tumour
- Nerve compression or injury
- Bone marrow disorders
- Healing after treatment or surgery

Who should have the test

You may be offered a leg MRI if detailed images are likely to change your diagnosis, treatment, or follow-up. It is not usually the first test for every leg problem. X-rays are often better for an initial assessment of fractures, while ultrasound may be preferred for suspected blood clots or some tendon problems.

MRI safety screening is essential because the scanner contains a powerful magnet. Tell the imaging team if you have:

Many modern implants are safe under specific conditions. The imaging team must identify the exact device before deciding whether and how the scan can proceed.

- A pacemaker, implanted defibrillator, or other electronic implant
- A cochlear implant, medicine pump, aneurysm clip, or neurostimulator
- Metal fragments from an injury or previous metalworking
- Joint replacements, plates, screws, or surgical clips
- Kidney disease or previous dialysis

- A previous reaction to MRI contrast
- Pregnancy or possible pregnancy
- Severe claustrophobia or difficulty lying still

How to prepare

Follow the instructions from your imaging centre. For most leg MRI scans without sedation, you can eat, drink, and take your usual medicines normally.

You may need to stop eating or drinking for several hours if sedation is planned. Some centres also give specific instructions before contrast-enhanced scans. Do not change prescribed medicines unless your care team has told you to.

Wear loose clothing without metal where possible. You will usually need to remove jewellery, watches, piercings, hearing aids, removable dental items, keys, coins, and clothing with metal fasteners. Phones and payment cards must remain outside the scanner room.

Bring details of any implants and relevant previous scans. If you are anxious about enclosed spaces, contact the imaging centre before the appointment. An open or wider scanner, additional support, or prescribed sedation may be considered.

What happens during the test

You will complete a safety questionnaire and may change into a gown. A radiographer, who is trained to perform imaging scans, will position you on a padded table. A special device called a coil may be placed around the area being examined to collect the MRI signals.

The table moves into the scanner. Depending on the body area, your head may remain outside or near the scanner opening. You will hear loud knocking, tapping, and buzzing sounds. You will be given hearing protection.

You need to keep your leg as still as possible while each set of images is taken. The radiographer can see and speak with you throughout the scan, and you will usually have a call button.

If contrast is required, a small plastic tube is placed into a vein, usually in your arm or hand. Images may be taken before and after the injection.

The appointment usually takes 30 to 60 minutes. It may take longer if several areas are scanned, contrast is used, or you need extra help with positioning.

Understanding your results

A radiologist, a doctor who specialises in medical imaging, reviews the pictures and prepares a report. The report usually describes the structures examined, any relevant findings, and an overall conclusion called the impression.

MRI results are not usually expressed as one number or a universal normal range. Interpretation varies by the area scanned, laboratory or imaging service, age, sex, pregnancy status, medicines, previous treatment, and clinical context.

Some findings may clearly explain your symptoms. Others may be uncertain or unrelated changes discovered by chance. For example, mild wear in a joint may appear on a scan without causing pain.

The report should be interpreted alongside why the scan was requested. Previous images can help show whether a finding is new, stable, improving, or worsening.

What affects the results

Movement is one of the main reasons MRI images become unclear. Pain, muscle spasms, coughing, or anxiety can make it difficult to stay still. The radiographer may repeat part of the scan if movement has blurred the pictures.

Metal plates, screws, joint replacements, or fragments can distort the magnetic field. This creates an artefact, meaning an image change caused by the scanning process rather than by your tissues. It may hide nearby structures even when the implant itself is MRI-safe.

Other factors include:

Medicines do not usually alter a routine leg MRI directly. Kidney function matters if gadolinium contrast is being considered because the body clears most MRI contrast through the kidneys. Pregnancy may affect whether contrast is used, although it does not make the non-contrast images inaccurate.

- Scanning the wrong area for where your symptoms arise
- Using a protocol not designed for the suspected problem
- Recent surgery, injections, injury, or radiotherapy
- Strenuous recent exercise causing temporary changes within muscles
- Swelling or scar tissue that resembles another condition
- Differences in scanner strength, equipment, and image quality

Accuracy and limitations

MRI provides excellent detail of muscles, tendons, ligaments, bone marrow, and many soft tissues. However, no scan finds every abnormality.

Small injuries may be missed if they fall outside the scanned area, are obscured by movement or metal, or are too subtle for the chosen technique. An early or mild condition may not yet produce clear MRI changes.

MRI can also show an abnormal-looking area when there is no harmful condition. Normal variation, healing tissue, inflammation, and age-related changes can resemble disease. This can lead to follow-up imaging or other tests that later prove reassuring.

A different test may be better for a particular question. X-rays or CT scans may show some fractures and bone detail more clearly. Ultrasound is commonly used for suspected deep vein thrombosis and can examine a tendon while it moves. Blood-vessel imaging may be needed for circulation problems. A biopsy may be required to identify the exact nature of a lump because MRI appearances can overlap.

Risks and complications

MRI does not expose you to ionising radiation. The main safety risk comes from metal or electronic devices interacting with the strong magnetic field, which is why careful screening is required.

You may feel uncomfortable from lying still, scanner noise, warmth, or claustrophobia. Tell the radiographer if you feel unwell or need the scan paused.

A contrast injection may cause brief discomfort, bruising, or leakage around the injection site. Allergic-like reactions can occur but serious reactions are uncommon. Gadolinium requires extra consideration in people with severely reduced kidney function.

Sedation has separate risks and may affect your ability to drive or make decisions afterward. If sedation is planned, you will receive specific instructions about fasting, travel, and supervision.

What happens next

You can usually return to normal activities immediately after a scan without sedation. Follow the imaging centre's instructions if you received sedation or contrast.

The radiologist sends a report to the healthcare professional who requested the scan. Routine

results are commonly discussed at a follow-up appointment, by telephone, or through a patient portal. A report recommending another scan, an X-ray, blood tests, or a biopsy does not by itself mean that a serious condition has been found.

Seek urgent medical advice rather than waiting for routine MRI results if you develop rapidly increasing leg swelling, redness, severe pain, fever with worsening local symptoms, or new difficulty using the leg.

Call emergency services for sudden shortness of breath, chest pain, collapse, a badly injured or deformed leg, or a foot that becomes cold, pale, blue, or newly numb.

Common questions

Can I drink coffee before a leg MRI?

Usually, yes, if you are not having sedation and have not been told to fast. Coffee may not be allowed during a fasting period, especially if it contains milk or sugar.

Does the time of day matter?

Usually not. Choose a time when you can arrive without rushing and can lie still comfortably. Some symptoms or swelling may change during the day, so mention any clear pattern to the imaging team.

Can I exercise beforehand?

Normal daily activity is usually fine. Avoid unusually strenuous exercise shortly before the scan unless instructed otherwise, because it can temporarily change the appearance of muscles and may worsen pain.

Will my whole leg go inside the scanner?

It depends on the area being examined and the scanner design. For some lower-leg or ankle scans, your head may remain outside the tunnel.

What if I am claustrophobic?

Contact the imaging centre in advance. They may offer preparation strategies, a wider scanner, a support person where permitted, or sedation arranged by your care team.

Will I need contrast?

Not always. Many injuries can be assessed without it. Contrast may be useful when looking for infection, inflammation, blood-vessel changes, a tumour, or changes after surgery.

Sources

- American College of Radiology. ACR Manual on MR Safety . 2024
- American College of Radiology. ACR Manual on Contrast Media . 2024
- Radiological Society of North America and American College of Radiology. Musculoskeletal MRI . RadiologyInfo.org
- Radiological Society of North America and American College of Radiology. MRI Safety . RadiologyInfo.org
- NHS. MRI scan . Reviewed 25 July 2023
- U.S. Food and Drug Administration. MRI (Magnetic Resonance Imaging)