TEST

Knee MRI scan

A knee MRI uses a strong magnet to create detailed joint images

WHAT IT MEASURES
Detailed images of knee bones, cartilage, ligaments, and tendons

SAMPLE
None

FASTING NEEDED?
Sometimes, if sedation is planned

HOW LONG IT TAKES
Usually 20 to 45 minutes

RESULTS IN
Several days, varying by imaging service or laboratory

USED FOR
Diagnosis and treatment planning

MAIN LIMITATION
Abnormal findings may not explain knee symptoms

Overview

A knee MRI scan creates detailed pictures of the inside of your knee. MRI stands for magnetic resonance imaging. It uses a powerful magnet and radio waves rather than X-rays.

MRI can show soft tissues that are difficult to assess on a standard X-ray. These include the menisci, which are pads of cartilage between the bones, and ligaments such as the anterior cruciate ligament, or ACL. It can also show tendons, joint cartilage, bone marrow, fluid, and some fractures.

The scan does not diagnose the cause of knee symptoms by itself. A radiologist interprets the images alongside information about your symptoms, examination, previous injuries, operations, and other tests.

Most knee MRI scans do not need an injection. In some situations, a contrast agent called gadolinium is injected into a vein to make certain tissues clearer.

Why the test is ordered

A knee MRI may be ordered after an injury or when symptoms continue despite initial care. It is usually used when the result could change treatment or help plan an operation.

It may help assess:

MRI is not always the first test. After a significant injury, an X-ray may be used first to look for a fracture. For long-term knee pain, weight-bearing X-rays can show joint-space narrowing and alignment in ways that a routine MRI, taken while you are lying down, cannot.

- A suspected meniscus, ligament, tendon, or cartilage injury
- Ongoing pain, swelling, locking, or giving way
- A fracture not clearly visible on an X-ray
- Damage to bone beneath the joint surface
- Infection, inflammation, a cyst, or a mass
- Healing or complications after knee surgery
- The extent of arthritis or other joint damage when detailed imaging is needed

Who should have the test

You may benefit from a knee MRI if a clinician suspects damage that cannot be assessed fully through an examination or simpler imaging. It is also useful when symptoms persist and the result is likely to guide treatment.

Many people with uncomplicated knee pain do not need an immediate MRI. Some problems improve with time and appropriate rehabilitation. MRI may also find age-related changes that are not causing your symptoms.

Tell the imaging service before the appointment if you have an implanted medical device, metal fragments in your body, previous surgery, severe kidney disease, or possible pregnancy. Many modern implants can be scanned safely under specific conditions, but staff need the exact device details.

A hot, red, very swollen knee with fever needs prompt medical assessment rather than waiting for a routine MRI. After an injury, seek urgent care for a visibly deformed knee, inability to bear weight, or rapidly worsening swelling. A cold, pale, numb, or weak foot below the injury is an emergency.

How to prepare

Most knee MRI scans need little preparation. You can usually eat, drink, and take your usual medicines. Follow different instructions if sedation is planned or the imaging service tells you to fast.

Wear loose clothing without metal fasteners if possible. You will need to remove metal items such as jewellery, watches, keys, hearing aids, and removable piercings. Clothing containing metal fibres may also need to be changed.

Complete the MRI safety questionnaire carefully. Tell staff about:

Bring details of implants and relevant previous imaging if requested. If you may need medicine to help you relax, arrange transport home and follow the service's instructions about food, drink, and supervision.

- A pacemaker, defibrillator, medicine pump, or nerve stimulator
- Aneurysm clips, surgical clips, joint replacements, or other implants
- Metal fragments, especially in or near the eyes
- Kidney disease or a previous reaction to MRI contrast
- Pregnancy or the possibility of pregnancy
- Claustrophobia or difficulty lying still

What happens during the test

You lie on a movable table, usually on your back. Your knee is placed in a supportive device called a coil, which receives the signals used to create the images. Padding may be added to help keep the knee comfortable and still.

The table moves into the scanner. Depending on the scanner, much of your body may remain outside, although this differs between machines and positioning methods.

MRI makes loud tapping, knocking, and humming sounds. You will receive ear protection. Staff can see and hear you throughout the scan, and you will normally have a call button.

You need to keep your knee still while each group of images is taken. The appointment often lasts about 20 to 45 minutes, but extra images, contrast, discomfort, or movement can make it longer.

If contrast is needed, a small tube is placed into a vein, usually in your arm or hand. Most routine assessments of ligaments and menisci do not require contrast.

Understanding your results

A radiologist examines the images and sends a report to the clinician who requested the scan. The report may describe the menisci, ligaments, tendons, cartilage, bones, joint lining, and amount of joint fluid.

Terms such as "tear," "degeneration," or "cartilage loss" describe appearances on the images. They do not always show what is causing pain. Meniscus tears and cartilage changes can be found in people who have few or no knee symptoms, particularly as they get older.

A result described as normal means no clear structural abnormality was seen with that scan and technique. It does not rule out every cause of pain. Some problems are related to movement, muscle function, pain processing, or changes too subtle for MRI.

There is no universal numerical reference range for a knee MRI. Where measurements or laboratory comparisons are included, ranges and interpretation can vary by laboratory, age, sex, pregnancy status, medicines, and clinical context.

What affects the results

Movement is one of the main causes of blurred knee MRI images. Pain, muscle spasms, anxiety, or difficulty holding the leg in position can make small abnormalities harder to see. Tell staff if you need a break rather than trying to tolerate a position you cannot maintain.

Metal from an implant or previous operation can distort the magnetic field. This may hide nearby tissues even when the implant itself is safe for MRI. Special scanning methods can sometimes reduce this effect.

The scan protocol matters. Different equipment, magnet strengths, image directions, and sequences may show certain injuries more clearly than others. A general knee MRI may not answer a highly specific question unless that question is included in the referral.

Recent injury, surgery, injection, or rehabilitation can change the appearance of tissues. Swelling, scar tissue, healing bone, and postoperative changes can resemble ongoing injury. Giving the radiologist accurate dates and details helps with interpretation.

Routine knee MRI is performed without weight on the joint. As a result, it may not show instability, kneecap tracking, or joint-space narrowing in the same way as an examination, movement-based test, or standing X-ray.

Food, coffee, time of day, and most medicines do not usually change a routine knee MRI. Previous images are valuable because they show whether a finding is new, stable, or healing.

Accuracy and limitations

MRI is generally good at showing major meniscus and ligament injuries, but accuracy differs by the structure involved, type of tear, scanner quality, movement, and reader experience. Small, complex, postoperative, or partly healed injuries can be missed.

MRI can also appear to show an injury when the tissue is normal or when the finding is an age-related change unrelated to symptoms. This is why the report needs to be matched with your history and physical examination.

A different test may be better for a particular question. X-rays are often better for assessing fractures, arthritis under weight, and bone alignment. CT provides finer detail of some complex fractures. Ultrasound can show superficial tendons, fluid, and structures during movement. Arthroscopy allows direct viewing inside the joint but is an operation, so it is not generally used only to obtain diagnostic images.

Risks and complications

MRI does not use ionising radiation. The scan itself is not known to damage body tissues when standard safety procedures are followed.

The strong magnet can move some metal objects, heat certain implants, or affect electronic devices. Careful screening is therefore essential. The noise may be uncomfortable, but ear protection reduces the risk to hearing.

Some people feel confined or anxious. Staff can explain the process, and some services have wider scanners or other support options.

If gadolinium contrast is used, the injection can cause brief discomfort, bruising, or leakage around the vein. Allergic-type reactions are uncommon. Gadolinium requires extra consideration in severe kidney disease and during pregnancy, so contrast is used only when its expected benefit justifies it.

Sedation has separate risks, including drowsiness and impaired coordination. You will need to follow the specific discharge and transport instructions provided.

What happens next

You can normally return to usual activities immediately after a scan without sedation. If you received sedation, do not drive or make important decisions until the service says it is safe.

The radiology report is usually available within several days, although timing differs between imaging services. Urgent findings may be communicated sooner.

Your next step may be rehabilitation, symptom management, further imaging, referral to a specialist, or discussion of surgery. Sometimes no further testing is needed. The MRI result is only one part of that decision.

Routine follow-up is appropriate for stable symptoms while you wait for results. Seek prompt care if the knee becomes hot and red with fever, or if pain and swelling worsen quickly. After an injury, loss of feeling, marked weakness, or a pale or cold foot requires emergency assessment.

Common questions

Can I drink coffee before a knee MRI?

Usually, yes. Coffee does not normally affect the images. Do not drink it if you have been told to fast for sedation or another part of the appointment.

Does the time of day matter?

Usually not. Choose a time when you can arrive without rushing and are most likely to lie still comfortably.

Can I exercise beforehand?

There is usually no exercise restriction. Tell staff if exercise immediately before the scan caused a new injury or sudden swelling, because that information may help interpretation.

Will my whole body go inside the scanner?

Not always. Knee positioning often leaves part of your body outside, but scanner designs differ. Ask the imaging service if enclosed spaces concern you.

Do I need contrast?

Most routine knee MRI scans do not need contrast. It may be used to assess certain masses, infections, inflammatory conditions, or postoperative problems.

Can I have a knee MRI while pregnant?

MRI does not use X-rays and may be performed during pregnancy when clinically needed. Tell staff if you are or may be pregnant. Gadolinium contrast is generally avoided unless there is a strong reason to use it.

Sources

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