TEST

Leg CT scan

A leg CT scan uses X-rays and computer processing to create detailed cross-sectional images of the leg.

WHAT IT MEASURES
Cross-sectional detail of leg bones, tissues, and blood vessels

SAMPLE
None

FASTING NEEDED?
Sometimes, before sedation or when the imaging centre requests it

HOW LONG IT TAKES
Usually 10-30 minutes; longer for contrast or procedures

RESULTS IN
Often 1-3 days; timing varies by imaging service

USED FOR
Diagnosis, injury assessment, and treatment planning

MAIN LIMITATION
Movement or metal can hide important detail

Overview

A leg CT scan is an imaging test that produces detailed pictures of the leg. CT stands for computed tomography. The scanner takes many X-ray images from different angles, and a computer combines them into thin "slices."

The scan may cover the hip, thigh, knee, lower leg, ankle, or foot. It can show bones, joints, muscles, fat, and other soft tissues. CT is especially useful for examining complicated fractures and areas where bones overlap on ordinary X-rays.

Some scans use an iodine-based contrast dye injected into a vein. Contrast makes blood vessels and certain tissues easier to see. A CT angiogram, or CTA, is a contrast-enhanced scan designed to examine the arteries supplying the leg.

CT does involve ionising radiation. This means it uses enough energy to create images inside the body. The imaging team balances the radiation dose against the expected benefit of answering a specific medical question.

Why the test is ordered

A leg CT scan may be ordered when an examination, X-ray, or ultrasound does not provide enough detail. It may also help plan surgery or another procedure.

Common reasons include:

CT is not automatically the best test for every leg problem. Ultrasound is commonly used to look for a blood clot in a deep vein. MRI often gives more detail about ligaments, tendons, bone marrow, nerves, and some soft-tissue abnormalities.

- Examining a complex or difficult-to-see fracture
- Checking how a fracture is healing
- Assessing bone damage around a joint replacement or other implant
- Looking for infection, a collection of pus, or gas in tissues
- Evaluating a lump or an abnormal area found on another scan
- Planning surgery, a biopsy, or treatment
- Examining blood flow after an injury or when an artery may be narrowed or blocked

Who should have the test

A leg CT scan is appropriate when the expected images are likely to help answer a clear clinical question. It is not generally used to screen people without symptoms or a relevant finding.

Before the scan, tell the imaging team if you:

Pregnancy does not always prevent a medically necessary CT. However, the team may consider ultrasound, MRI, or a modified scanning plan, depending on the body area and the reason for imaging.

- Are or could be pregnant
- Have previously reacted to CT contrast
- Have kidney disease or recent kidney test abnormalities
- Have diabetes or take metformin
- Have asthma or significant allergies
- Have metalwork, a joint replacement, or previous surgery in the area
- Cannot lie flat or remain still

- Have severe anxiety in medical settings

How to prepare

Follow the instructions from your imaging centre because preparation differs between a plain CT, a contrast CT, and a scan performed with sedation.

For many leg CT scans, you may eat and drink normally. Some centres ask you not to eat for a few hours before contrast or sedation. Clear fluids may still be allowed, but use the instructions provided for your appointment.

Take regular medicines unless you have been given specific directions. Do not stop metformin or another prescribed medicine on your own. Contrast policies can differ, especially when kidney function is reduced.

Wear comfortable clothing without metal around the area being scanned. You may need to remove jewellery, belts, clothing fasteners, or a removable brace. Metal that cannot be removed can usually remain, although it may affect the images.

If contrast is planned, the imaging service may review a recent blood test of kidney function. This is more likely if you have kidney disease, diabetes, are older, or have other relevant medical conditions.

What happens during the test

You will usually change into a gown and lie on a narrow table. The radiographer positions your leg and may use cushions or straps to help you remain comfortable and still.

The table moves through a wide, ring-shaped scanner. A CT scanner is not a long enclosed tunnel. The radiographer can see, hear, and speak with you throughout the scan.

The scanner itself does not touch you. You may hear whirring sounds as it takes the images. You might be asked to stay very still for several seconds.

If contrast is needed, a small plastic tube is placed into a vein, usually in your arm or hand. Contrast can cause a brief warm feeling, a metallic taste, or the sensation that you are passing urine. These feelings usually fade quickly.

Most appointments take about 10 to 30 minutes, although image collection may last only a few minutes. Scans involving several areas, specialised blood-vessel timing, sedation, or an image-guided procedure can take longer.

Understanding your results

A radiologist, who is a doctor trained to interpret medical images, reviews the scan. The report describes what was seen and relates it to the reason for the test.

Results may describe:

A finding on CT does not always explain pain or swelling. Some changes may be old, expected after surgery, or unrelated to the current problem. The report should be considered alongside your symptoms, examination, previous images, and other tests.

Reference ranges are not usually used for a standard CT report. Measurements and interpretation can vary with the imaging service, age, sex, pregnancy status, medicines, previous treatment, and clinical context.

- Whether a bone is broken and how the fragments are positioned
- Joint alignment and damage to nearby bone
- Swelling, fluid, gas, or a collection within the tissues
- The size and location of a lump or abnormal area
- Whether an artery appears open, narrowed, or blocked
- Changes around surgical metalwork or a joint replacement

What affects the results

A scan can be technically successful yet still give an incomplete or misleading picture.

Movement can blur small fractures or soft-tissue detail. Pain, tremor, or difficulty holding the leg in one position may make this more likely.

Metal from a joint replacement, screws, plates, or external objects can create streaks that hide nearby structures. Modern scanning methods can reduce these effects but cannot always remove them.

For CT angiography, the timing of the contrast injection is important. Slow blood flow, severe heart or circulation problems, or movement during the scan can leave an artery poorly filled with contrast. Calcium in artery walls can also make narrowing look greater or smaller than it really is.

Body size can affect image detail. Recent surgery, injections, injury, or inflammation may produce changes that overlap with infection or other conditions. Comparing the scan with earlier images can help.

Kidney function does not usually change what the leg looks like, but it affects decisions about contrast and how the body clears it. Medicines generally do not distort a routine CT image. Pregnancy, age, and sex may influence whether CT is the preferred test and how a finding is interpreted.

Accuracy and limitations

CT is very good at showing bone shape, displaced fractures, and small bone fragments. However, an early stress fracture or bone-marrow injury can be missed. MRI may be more useful when these are suspected despite a normal CT.

CT can find many soft-tissue abnormalities, but it does not identify every cause. Normal structures, scar tissue, inflammation, and infection can sometimes look similar. A scan may suggest a tumour, but imaging alone often cannot determine its exact type; MRI or a biopsy may be needed.

CT angiography can show major arteries clearly, but poor contrast timing, movement, and heavy calcium deposits may hide disease or make narrowing appear more severe. Ultrasound, magnetic resonance angiography, or catheter angiography may be better for some blood-vessel questions.

A normal scan lowers the chance of conditions the test is designed to detect, but it cannot rule out every cause of leg symptoms. Conversely, an abnormal-looking area may turn out to be harmless or unrelated after comparison imaging or further testing.

Risks and complications

CT uses radiation. The amount depends on the area scanned, the number of images, and the scanning technique. Radiation exposure is kept as low as reasonably achievable while obtaining useful images.

An intravenous line may cause brief discomfort, bruising, or light-headedness. Contrast can leak into the surrounding tissue, causing pain and swelling at the injection site.

Allergic-like reactions to iodine-based contrast can occur. Most are mild, such as itching or a rash, but serious reactions are possible. Contrast may also add risk for some people with severely reduced kidney function, which is why relevant medical history and kidney results may be checked.

After contrast, seek emergency help for trouble breathing, collapse, or swelling of the face, mouth, or throat. Contact the imaging service or seek prompt medical advice for a spreading

rash or worsening pain and swelling around the injection site.

What happens next

Most people can leave immediately and return to usual activities. If you received sedation, you will need to follow the centre's recovery and driving instructions.

You may be advised to drink normally after contrast unless you have a fluid restriction. The scan does not usually require special aftercare.

Routine results often take one to several days. Urgent findings may be reported sooner. The clinician who requested the scan should explain the result and whether you need observation, another imaging test, treatment, or no further action.

Do not wait for a routine results appointment if you develop sudden severe leg pain with a cold, pale, blue, numb, or weak foot. These symptoms can indicate a circulation emergency and need immediate assessment. Rapidly worsening swelling with breathing difficulty or chest pain also requires emergency care.

Common questions

Can I drink coffee before a leg CT scan?

Usually yes if you were not asked to fast. If contrast or sedation is planned, follow the centre's instructions about coffee, milk, and clear fluids.

Does the time of day matter?

Usually not. Timing may matter if the scan is coordinated with another procedure, contrast preparation, or a medicine schedule.

Can I exercise beforehand?

Gentle activity usually does not affect a routine leg CT. Avoid activity that significantly worsens pain or swelling. For a CT angiogram, follow any specific resting instructions from the imaging centre.

Can I drive after the scan?

You can usually drive after a standard CT, including most scans with intravenous contrast. Do not drive if you received sedation or if the imaging team tells you not to.

Will I be completely enclosed?

No. A CT scanner is a short, wide ring rather than a long tunnel. Your body moves through the

opening, and the radiographer remains in contact with you.

Why might I need another test after CT?

CT may answer the main question but show an area that needs closer assessment. MRI may provide better soft-tissue detail, ultrasound may assess veins or blood flow, and a biopsy may identify the type of abnormal tissue.

Sources

- American College of Radiology. ACR Manual on Contrast Media
- RadiologyInfo.org. Computed Tomography (CT)-Body
- RadiologyInfo.org. CT Angiography (CTA)
- US Food and Drug Administration. Computed Tomography (CT)
- NHS. CT scan