TEST

Thoracic spine CT scan

A thoracic spine CT scan uses X-rays to create detailed images of the middle part of your spine.

WHAT IT MEASURES
Detailed cross-sectional images of the middle spine and nearby structures

SAMPLE
None

FASTING NEEDED?
Sometimes, if contrast or sedation is planned

HOW LONG IT TAKES
About 10 to 30 minutes

RESULTS IN
Often 1-2 days; timing varies by imaging service

USED FOR
Diagnosis, monitoring, and treatment planning

MAIN LIMITATION
Less soft-tissue detail than MRI

Overview

A thoracic spine CT scan is an imaging test of the middle section of your spine. The thoracic spine runs from the base of your neck to the bottom of your rib cage and contains 12 vertebrae, which are the bones of the spine.

CT stands for computed tomography. The scanner uses X-rays taken from different angles to build thin, cross-sectional images. A computer can also arrange these images into three-dimensional views.

CT shows bone in considerable detail. It can also show the spinal canal, some soft tissues, and nearby structures such as the ribs and lungs. However, MRI usually gives clearer images of the spinal cord, nerves, discs, ligaments, and bone marrow.

Some scans use an iodine-containing contrast material injected into a vein. Contrast can make certain tissues, blood vessels, inflammation, or abnormal areas easier to see. It is not routinely needed for every thoracic spine CT.

Why the test is ordered

A thoracic spine CT may be ordered to look for:

In major trauma, the thoracic spine may be included in a wider CT examination of the chest, abdomen, or entire spine.

CT is not usually the first or best test for every type of back pain. Your symptoms, examination, medical history, previous imaging, and the suspected cause help determine whether CT, MRI, X-ray, or no immediate imaging is most appropriate.

- A fracture after a fall, collision, or other injury
- Changes in the position or shape of the vertebrae
- Bone damage caused by infection or a tumour
- Narrowing of the spinal canal
- Complications involving spinal implants or previous surgery
- A bone abnormality first seen on an X-ray or another scan
- Details needed before surgery or another procedure

Who should have the test

You may be offered this scan when detailed images of the thoracic vertebrae are likely to affect your care. It can be particularly useful when a fracture is suspected or when MRI cannot be performed.

Before the scan, tell the imaging team if you:

Pregnancy does not automatically rule out medically necessary CT. The team will weigh the benefit of getting timely information against radiation exposure and may consider another test when suitable.

- Are or may be pregnant
- Have previously reacted to CT contrast
- Have kidney disease or reduced kidney function
- Have asthma or significant allergies
- Take medicines for diabetes, including metformin
- Have metalwork, implants, or previous surgery in your spine

- Have difficulty lying flat or keeping still

How to prepare

For a CT without contrast or sedation, you can usually eat, drink, and take your usual medicines normally. Follow the instructions in your appointment letter because local procedures differ.

If intravenous contrast is planned, you may be asked not to eat for a few hours. You can often still drink clear fluids, but confirm this with the imaging service. Blood tests may be needed to check kidney function, especially if you have kidney disease or other relevant risk factors.

Do not stop metformin or any other prescribed medicine unless the healthcare team gives you specific instructions. Whether metformin needs to be paused around contrast depends on kidney function and the clinical situation.

Wear comfortable clothing without metal around the chest or back. You may need to remove jewellery, a bra with metal fasteners, hearing aids, or removable metal items. Tell the team beforehand if pain or anxiety may make it difficult to lie still.

What happens during the test

You will usually change into a gown and lie on your back on a narrow table. The table moves through a large, open, ring-shaped scanner. A CT scanner is not a long enclosed tunnel.

The radiographer operates the scanner from the next room but can see, hear, and speak with you. You will need to stay still and may be asked to hold your breath briefly. The scan itself often takes only a few minutes, although positioning and preparation make the appointment longer.

If contrast is needed, a small plastic tube called a cannula is placed into a vein, usually in your arm. The injection may cause a brief warm feeling, a metallic taste, or the sensation that you are passing urine. These feelings normally disappear quickly.

A standard thoracic spine CT is painless. You may, however, feel discomfort from lying flat if your back is painful.

Understanding your results

A radiologist, a doctor trained to interpret medical images, reviews the scan. The report may describe the alignment and height of the vertebrae, fractures, bone changes, the width of the

spinal canal, and visible surrounding tissues.

There is no numerical "normal range" for a thoracic spine CT. Findings are interpreted using the images, your reason for having the scan, symptoms, medical history, and earlier imaging. Laboratory reference ranges do not apply.

Interpretation and test choice may also be influenced by age, sex, pregnancy status, medicines, previous surgery, and the clinical context. For example, age-related wear may be visible without explaining your symptoms. An imaging finding does not always mean treatment is needed.

The clinician who requested the scan should explain what the report means for you rather than considering one phrase in isolation.

What affects the results

CT has relatively few preparation-related influences, but several factors can make the images unclear or misleading without anything being wrong with the scanner.

Movement or breathing during image capture can blur fine details. Metal implants, surgical screws, jewellery, or other dense material can create streaks that hide nearby structures. A larger body size may reduce image detail, although modern scanners can often adjust for this.

The scan technique matters. Thicker image slices may miss small findings, while a scan covering only part of the spine may not show an abnormality outside that area. Contrast timing can affect how well blood vessels and certain tissues appear.

Old fractures, healing bone, arthritis, and changes from previous surgery can sometimes resemble a newer problem. Comparing the CT with earlier images often helps.

Kidney function, pregnancy, and medicines generally affect whether contrast or CT is appropriate rather than changing the underlying spine images. Recent exercise, food, time of day, and blood transfusions do not usually alter the findings.

Accuracy and limitations

CT is very good at showing the bony structure of the thoracic spine and can identify many fractures that are difficult to see on ordinary X-rays. Its accuracy is not represented by one universal percentage because it changes with the condition being investigated, scanner technique, image quality, and the person interpreting the scan.

CT can miss injuries mainly affecting the spinal cord, nerves, ligaments, discs, or bone marrow.

Very small fractures may also be overlooked, particularly when movement or metal creates image distortion. A normal CT therefore does not rule out every possible cause of pain, weakness, or altered sensation.

The scan may also show something that appears important but is an old injury, a harmless variation, or an age-related change. This can lead to further imaging even when the finding is unrelated to your symptoms.

MRI is often the better test when spinal cord compression, nerve injury, ligament damage, infection, a tumour, or an abnormality inside the bone marrow is suspected. In some situations, follow-up imaging or comparison with earlier scans is needed before a clear conclusion can be reached.

Risks and complications

CT exposes you to ionising radiation. The dose is kept as low as reasonably possible while producing useful images. Radiation carries a small long-term risk, so unnecessary repeat scans are avoided, but an appropriate scan may provide information that directly guides care.

If intravenous contrast is used, you may have temporary warmth, nausea, or a metallic taste. Mild allergic-like reactions, such as itching or hives, can occur. Serious reactions are uncommon, and imaging departments are equipped to treat them.

Contrast can sometimes leak into tissue around the injection site, causing pain or swelling. It may also affect kidney function, mainly in people who already have severe kidney problems or certain other risk factors.

Seek emergency help after contrast if you develop trouble breathing, swelling of your face or throat, fainting, or a rapidly spreading rash. Mild soreness or bruising where the cannula was placed can usually be monitored at home.

What happens next

If you did not receive sedation, you can normally return to your usual activities immediately. If contrast was used, you may be observed briefly. Follow any instructions about drinking fluids or restarting medicines.

The report is sent to the clinician who requested the scan. Routine results are usually discussed at a follow-up appointment, by telephone, or through a patient portal. Findings may lead to no further testing, comparison with older images, an MRI, specialist review, or treatment planning.

Do not wait for a routine report if you develop new leg weakness, loss of bladder or bowel control, numbness around the genitals or buttocks, or severe symptoms after a significant injury. These require urgent medical assessment because they may reflect the condition being investigated, not an effect of the CT scan.

Common questions

Can I drink coffee before a thoracic spine CT?

Usually yes for a scan without contrast or sedation. If fasting instructions apply, black coffee may or may not be allowed, so follow the instructions from your imaging service.

Does the time of day matter?

No. Thoracic spine structures do not meaningfully change during the day. Appointment timing may matter only for fasting, medicines, transport, or sedation arrangements.

Can I exercise beforehand?

Gentle or usual exercise does not normally change the images. Avoid activity that worsens your pain or conflicts with advice given after an injury.

Will I need contrast?

Not always. CT for a suspected fracture is often performed without intravenous contrast. Contrast may be useful when looking for infection, a tumour, blood vessel problems, or some complications of surgery.

Will I feel claustrophobic?

Most people tolerate CT well because the scanner is a short, wide ring rather than a long tunnel. Tell the team in advance if anxiety or difficulty lying still may be a problem.

Can I drive home afterwards?

You can normally drive after a standard CT, including most scans with intravenous contrast. You must not drive if you received sedation; arrange an escort and follow the discharge instructions.

Sources

- Radiological Society of North America and American College of Radiology. CT of the Spine
- American College of Radiology. ACR Appropriateness Criteria: Thoracic Back Pain

- American College of Radiology. ACR Appropriateness Criteria: Suspected Spine Trauma
- American College of Radiology. ACR Manual on Contrast Media
- US Food and Drug Administration. Computed Tomography
- National Institute for Health and Care Excellence. Spinal injury: assessment and initial management, NG41