TEST

Thoracic spine x-ray

A thoracic spine x-ray uses low-dose radiation to image the bones and alignment of your mid-back.

WHAT IT MEASURES
Mid-back bone shape, height, and alignment

SAMPLE
None

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually 10 to 15 minutes

RESULTS IN
Same day to several days; varies by imaging service

USED FOR
Diagnosing injury or disease and monitoring spinal changes

MAIN LIMITATION
Can miss subtle fractures and soft-tissue problems

Overview

A thoracic spine x-ray creates pictures of the middle part of your spine. This area runs from the base of your neck to the bottom of your rib cage and contains 12 bones called vertebrae.

The test uses a small amount of ionising radiation. Dense structures such as bone absorb more radiation and appear lighter on the image. Lungs and other less dense tissues appear darker.

The images can show the shape, height, and alignment of the vertebrae. They may reveal a fracture, an unusual spinal curve, or age-related bone changes. However, an x-ray does not show the spinal cord, discs, nerves, and other soft tissues in detail.

Why the test is ordered

A thoracic spine x-ray may be ordered after a fall, collision, or other injury. It can help look for a broken or compressed vertebra.

Other reasons include:

An x-ray is not always needed for short-term thoracic back pain without an injury or concerning symptoms. Depending on the question, a CT scan or MRI may provide more useful information.

- Persistent or unexplained pain in the mid-back
- A visible or suspected change in spinal shape
- Monitoring scoliosis or kyphosis, which are abnormal spinal curves
- Checking the position of spinal implants
- Looking for changes linked to arthritis, infection, or a bone disorder

Who should have the test

Whether this x-ray is suitable depends on your symptoms, examination, medical history, and risk of bone injury or disease.

It may be useful if you have had an injury, have a change in spinal shape, or have symptoms that have not improved as expected. Your healthcare professional may also consider factors such as older age, known osteoporosis, cancer history, long-term steroid medicine use, or previous spinal surgery.

After a serious injury, CT is often better at finding thoracic spine fractures. MRI may be preferred when symptoms suggest pressure on the spinal cord or nerves, or when infection or a tumour is being considered.

Children and pregnant people may still have medically necessary x-rays. The expected benefit is weighed against the radiation exposure, and the examination may be adjusted.

How to prepare

You can usually eat, drink, and take your medicines normally. Fasting is not required, and there is no special preparation at home.

Wear comfortable clothing without metal around your chest or back. You may need to remove jewellery, a bra with metal parts, removable piercings, or clothing with zips and fasteners. The imaging department may give you a gown.

Tell the radiographer before the test if you are or might be pregnant. Also mention recent spinal surgery, difficulty standing, or pain that may make certain positions difficult. A radiographer is the healthcare professional who takes the x-ray images.

Bring details of previous spinal imaging if the imaging service does not already have access to

it. Comparing old and new images can be helpful.

What happens during the test

The examination is usually performed in a hospital or imaging centre. You may stand, sit, or lie on an x-ray table, depending on your condition and the equipment.

The radiographer normally takes images from more than one direction. A standard examination often includes a front-facing or back-facing view and a side view. Extra views may be needed if part of the spine is hidden by your shoulders or other structures.

You must keep as still as possible. You may be asked to hold your breath briefly while each image is taken. Taking the image does not hurt, although moving into position may be uncomfortable if your back is painful.

The radiographer checks the images before you leave. This does not usually mean they can discuss the result with you.

Understanding your results

A radiologist, a doctor trained to interpret medical images, usually reviews the x-rays and prepares a report.

The report may describe:

Terms such as "degenerative changes" usually describe wear-related findings that become more common with age. These changes do not always cause pain. An abnormal-looking area on an x-ray does not by itself prove what is causing your symptoms.

There is no universal normal range for this test. Interpretation varies with age, sex, pregnancy status, previous surgery, medicines that affect bone, and the wider clinical context. The radiologist also considers image quality and the reason for the examination.

An x-ray may suggest that bones look less dense, but it cannot reliably diagnose osteoporosis. A DXA scan is generally the more appropriate test for measuring bone density.

- Vertebral height and alignment
- A fracture or compression of a vertebra
- Scoliosis, kyphosis, or another change in spinal curve
- Wear-related changes, such as small bone spurs

- Changes around previous surgery or implants
- Areas that need assessment with another imaging test

What affects the results

Several factors can hide abnormalities or make an image harder to interpret even when the x-ray equipment is working correctly.

Movement can blur the image. Pain, breathing, or difficulty holding a position may make this more likely. Rotation of your body can also make the spine appear less well aligned than it is.

The thoracic spine lies behind the ribs, lungs, heart, and other structures. These overlap on a two-dimensional x-ray and can hide small changes. The shoulders can obscure the upper thoracic vertebrae.

Body size affects how easily x-rays pass through the area. Metal from clothing, jewellery, implants, or external medical equipment can cover part of the image. Recent barium contrast in the digestive system may also interfere with some views.

Older fractures, normal anatomical differences, and previous surgery can resemble new abnormalities unless earlier images are available. Low bone density may make a subtle fracture difficult to see. Pregnancy mainly affects the decision about when and how to perform the test rather than the appearance of the spine.

Accuracy and limitations

A thoracic spine x-ray can identify many obvious fractures, alignment changes, and spinal curves. However, there is no single accuracy figure that applies to everyone. Performance changes with the type of injury, image quality, number of views, and the area being examined.

The test can miss small, non-displaced, or early compression fractures. Upper thoracic vertebrae can be difficult to see because of the shoulders. A normal x-ray therefore does not always rule out an injury.

X-rays can also show changes that are real but unrelated to your symptoms. Wear-related changes and old healed injuries are common examples. Occasionally, overlapping structures or a normal bone feature may look concerning and lead to further imaging even though no important problem is present.

CT provides more detailed pictures of bone and is often better after significant trauma or when a fracture is still suspected despite normal x-rays. MRI is better for the spinal cord,

nerves, discs, bone marrow, infection, and many tumours.

Risks and complications

The test uses a low dose of ionising radiation. No radiation remains in your body afterward, and the examination itself is painless.

Positioning may briefly worsen existing discomfort. If pregnancy is possible, tell the radiographer so the imaging team can assess the safest approach. Thoracic spine x-rays do not usually involve injections, contrast dye, or sedation.

What happens next

Your report may be available the same day, but it can take several days depending on the imaging service and how urgently it is needed. The healthcare professional who requested the test will usually explain the result and whether you need treatment, observation, or another scan.

Routine follow-up may include pain management, physiotherapy, comparison with earlier images, or monitoring a spinal curve. CT, MRI, or a bone-density scan may be recommended if the x-ray does not fully answer the clinical question.

Do not wait for a routine report if you develop new leg weakness, loss of bladder or bowel control, numbness around the groin or buttocks, or severe symptoms after a major injury. Seek emergency care. Severe chest pain or difficulty breathing also needs emergency assessment because these symptoms may have causes outside the spine.

Contact your healthcare service promptly for worsening pain with fever, or for symptoms that are rapidly changing.

Common questions

Can I drink coffee before a thoracic spine x-ray?

Yes. You can usually eat and drink normally, including coffee. Fasting is not needed unless you are also having another procedure that requires it.

Does the time of day matter?

Usually not. A thoracic spine x-ray can be performed at any time. Scheduling may be influenced by appointment availability or how urgently the images are needed.

Can I exercise beforehand?

Normal activity does not usually change the images. If exercise makes your pain worse or leaves you unable to hold still, consider avoiding strenuous activity immediately before the appointment.

Do I need to remove my bra?

You may need to remove it if it contains metal hooks, wires, or adjusters that could cover the spine. The radiographer will provide privacy and may offer a gown.

Can I have the x-ray if I am pregnant?

Sometimes. Tell the imaging team if you are pregnant or might be pregnant. They will consider why the test is needed, whether another test would be suitable, and how to limit radiation exposure.

Can I drive home afterward?

Yes. The x-ray does not normally require sedation or affect your ability to drive. An injury or pain medicine may affect driving separately.

Sources

- American College of Radiology. ACR Appropriateness Criteria: Thoracic Back Pain
- American College of Radiology. ACR Appropriateness Criteria: Acute Spinal Trauma
- Radiological Society of North America and American College of Radiology. Spine X-ray
- US Food and Drug Administration. Medical X-ray Imaging
- National Health Service. X-ray
- National Institute for Health and Care Excellence. Spinal injury: assessment and initial management, NG41