TEST

Chest x-ray

A chest x-ray uses low-dose radiation to create pictures of your lungs, heart, airways, and chest bones.

WHAT IT MEASURES
X-ray patterns from structures inside the chest

SAMPLE
None

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually 10 to 15 minutes

RESULTS IN
Often same day; timing varies by radiology service

USED FOR
Diagnosis and monitoring of chest conditions

MAIN LIMITATION
Overlapping structures can hide or resemble abnormalities

Overview

A chest x-ray is an imaging test that uses a small amount of ionizing radiation to create pictures of the inside of your chest.

Air-filled lungs look darker, while bones and denser tissues look lighter. Images may show your lungs, heart outline, major blood vessels, ribs, diaphragm, and parts of your spine.

The test is quick and does not require a blood sample, injection, or anaesthetic. It provides less detail than a CT scan but usually uses less radiation and is often a useful first test.

Why the test is ordered

A clinician may order a chest x-ray to investigate symptoms such as a persistent cough, shortness of breath, chest pain, fever, or coughing up blood.

It may help identify:

Chest x-rays can also monitor known conditions or check the position of central lines, breathing tubes, or feeding tubes. A normal result does not rule out every cause of chest symptoms.

- Pneumonia or another lung infection
- A collapsed lung, called a pneumothorax
- Fluid around the lungs, called a pleural effusion
- Changes linked to heart failure
- Some lung masses or nodules
- Rib or other chest injuries

Who should have the test

Whether you need a chest x-ray depends on your symptoms, examination, medical history, and the question being investigated. It is not automatically needed for every cough, infection, injury, or operation.

Children may have one when the likely benefit is greater than the small radiation risk. Staff adjust the equipment for the child's size.

Tell the imaging team if you are pregnant, might be pregnant, or recently had other chest imaging. A medically necessary x-ray may still be performed during pregnancy using techniques that limit exposure.

How to prepare

You can usually eat and drink normally, including coffee, and take your usual medicines. Follow any separate instructions for another test scheduled on the same day.

Wear clothing that is easy to remove from your upper body. You may need to change into a gown and remove jewellery, glasses, or clothing with metal parts because metal can obscure the image.

Bring details of chest imaging performed elsewhere. Comparing old and new images can show whether a finding has changed.

What happens during the test

A radiographer will position you against an x-ray detector. Most routine examinations include one image taken from the back toward the front and another from the side.

You will usually be asked to:

A deep breath expands the lungs and makes them easier to assess. The exposure takes less than a second.

If you cannot stand, a portable machine may be used while you sit or lie in bed. The appointment commonly takes 10 to 15 minutes, although positioning may take longer if movement is difficult.

- Stand or sit in a specific position
- Move your shoulders forward
- Take a deep breath
- Hold your breath for a few seconds
- Remain still during the image

Understanding your results

A radiologist usually reviews the images and sends a report to the clinician who ordered the test.

A report may say the lungs are clear or that there is no acute abnormality. "Acute" means new or requiring current attention; it does not exclude every subtle or long-term condition.

Common terms include:

These describe appearances rather than always providing a final diagnosis. For example, an opacity may result from infection, old scarring, overlapping tissues, or incomplete lung inflation.

There is no single normal range. Interpretation depends on factors such as age, body build, pregnancy, previous surgery, medical history, imaging technique, and the clinical question.

- Opacity: An area that looks whiter than expected
- Consolidation: Air spaces filled with fluid or inflammatory material
- Pleural effusion: Fluid between the lung and chest wall
- Pneumothorax: Air between the lung and chest wall
- Cardiomegaly: A heart outline that appears enlarged

- Nodule: A small, rounded area in the lung

What affects the results

Shallow breathing can make the lungs appear crowded and the heart look larger. Movement may blur details.

Position also matters. A portable image taken while lying down differs from a standard upright image and may make the heart appear wider or air and fluid harder to see.

Other influences include:

Pregnancy and age-related changes may affect the appearance. Medicines, food, coffee, and recent exercise do not usually alter the image, although you may need to rest if exercise leaves you too breathless to keep still.

- Clothing, hair, jewellery, or monitoring leads over the chest
- Body size, rotation, or difficulty holding position
- Old infections, surgery, radiation treatment, or scarring
- Breast implants, surgical clips, pacemakers, and other devices
- The timing of imaging during illness or after treatment

Accuracy and limitations

A chest x-ray creates two-dimensional images of three-dimensional structures. Overlapping ribs, blood vessels, the heart, and other tissues can hide or resemble abnormalities.

Small nodules, early pneumonia, subtle fractures, and problems behind the heart or diaphragm may be missed. A chest x-ray also cannot reliably rule out a blood clot in the lung.

Normal structures, shallow breathing, rotation, skin folds, nipples, or scars may look like disease and lead to repeat imaging or another test.

A CT scan provides more detailed cross-sectional images and may be used for a possible mass, complicated infection, major injury, or suspected blood clot. Ultrasound may better assess fluid around the lungs and can guide drainage. The best next test depends on the clinical question.

Risks and complications

A chest x-ray uses a low radiation dose and does not leave radiation in your body. The small risk is weighed against the expected benefit.

The test is painless and does not use contrast dye. Tell the imaging team if you are or may be pregnant so they can choose the safest appropriate approach.

What happens next

You can usually return to normal activities immediately.

The clinician who ordered the test should explain the report alongside your symptoms and other findings. Follow-up may include monitoring symptoms, comparing older images, repeating the x-ray after recovery, or arranging more detailed imaging.

Unexpected findings are not always serious, but they may still need clarification. Ask when and how you will receive the result, and contact the ordering service if you do not hear within the expected time.

Do not wait for routine results if you develop severe difficulty breathing, blue or grey lips, sudden intense chest pain, confusion, or collapse. Seek emergency medical help. Coughing up more than a small streak of blood or rapidly worsening breathlessness also needs urgent medical assessment.

Common questions

Can I drink coffee before a chest x-ray?

Yes. Food, coffee, and water are usually allowed. Follow separate instructions if you are having another test at the same appointment.

Does the time of day matter?

Usually not. Timing may matter when checking a device, assessing an urgent change, or monitoring treatment.

Can I exercise beforehand?

Usually, yes. If heavy activity leaves you breathing quickly, rest until you can hold still and comfortably take a deep breath.

Do I have to remove my bra?

You may need to remove it if it has metal fasteners, underwires, adjusters, or decorations that could cover the chest. Procedures vary by facility.

Can I have a chest x-ray while pregnant?

Tell the imaging team before the test. They will consider why it is needed and how to limit exposure. Do not delay necessary imaging without discussing the risks of waiting.

Is a chest x-ray the same as a CT scan?

No. A chest x-ray usually produces two flat images and uses less radiation. CT creates detailed cross-sectional images and is better for some conditions, but generally uses more radiation.

Sources

- Chest X-ray (Radiography) - RadiologyInfo.org, American College of Radiology and Radiological Society of North America
- Chest X-ray - MedlinePlus, US National Library of Medicine
- X-ray - NHS
- Medical X-ray Imaging - US Food and Drug Administration
- Radiation Protection of Patients During Diagnostic and Interventional X-ray Procedures - International Atomic Energy Agency