TEST

# Hand x-ray

A hand x-ray uses low-dose radiation to make pictures of the bones and joints in your hand.

**WHAT IT MEASURES**
Bones, joints, alignment, and visible foreign objects

**SAMPLE**
None; imaging test

**FASTING NEEDED?**
No

**HOW LONG IT TAKES**
Usually 10 to 15 minutes

**RESULTS IN**
Often same day; reporting time varies by imaging service

**USED FOR**
Diagnosis and monitoring of hand injuries and bone changes

**MAIN LIMITATION**
Tendons, ligaments, cartilage, and subtle fractures may not show

## Overview

A hand x-ray is an imaging test that uses a small amount of ionizing radiation to create pictures of your hand. Ionizing radiation has enough energy to pass through the body and produce an image.

Dense structures, such as bones, appear lighter on an x-ray. Muscles, tendons, ligaments, and cartilage are much less clearly shown.

The images usually include your fingers, thumb, palm bones, and wrist-side joints. Several pictures are taken from different angles because a fracture or joint problem may be visible on one view but hidden on another.

A radiographer takes the images. A radiologist, who is a doctor trained to interpret medical images, usually reviews them and sends a report to the clinician who requested the test.

## Why the test is ordered

A hand x-ray is often used after an injury. It can help look for a broken bone, a joint that has

moved out of position, or changes in bone alignment.

It may also be ordered to investigate longer-lasting pain, swelling, stiffness, reduced movement, or a change in the shape of a finger or joint.

Common reasons include:

An x-ray may also be taken before or after surgery to document alignment or the position of wires, screws, plates, or other devices.

- Looking for fractures or dislocations after a fall, crush injury, or blow
- Checking whether a fracture is healing in the expected position
- Assessing arthritis-related joint or bone changes
- Looking for signs that may suggest a bone or joint infection
- Finding some foreign objects, such as metal or glass
- Checking bone development or skeletal maturity in selected children

## Who should have the test

A hand x-ray may be appropriate if your symptoms, examination, or injury history suggest a bone or joint problem. It is not normally used as a general screening test in people without symptoms or a relevant medical reason.

Not every hand injury needs an x-ray. Minor soft-tissue injuries may improve without imaging. However, an x-ray is more likely to be considered when there is marked tenderness over a bone, deformity, difficulty moving a finger, or concern about a fracture or dislocation.

Children can have hand x-rays when needed. Their images must be interpreted with care because normal growth plates can resemble fracture lines. Growth plates are areas near the ends of developing bones.

Tell the imaging team if you are pregnant or could be pregnant. A hand x-ray exposes the abdomen and pelvis to very little scattered radiation, but this information allows the team to plan the examination appropriately.

## How to prepare

You can usually eat, drink, and take your usual medicines. Fasting is not needed, and no contrast dye or injection is normally used.

Wear clothing that allows easy access to your hand and wrist. You may need to remove rings,

watches, bracelets, or other metal objects because they can cover part of the image. Do not force off a ring if the finger is very swollen; tell the radiographer instead.

Let the team know about:

Bring earlier hand images or reports if the imaging service does not already have access to them. Comparing old and new images can help separate longstanding changes from a recent injury.

- The exact location and cause of your symptoms
- Previous fractures, surgery, or implanted metal in that hand
- A cast, splint, dressing, or object that cannot be removed
- Any possibility of pregnancy

## What happens during the test

You will usually sit beside the x-ray table. The radiographer positions your hand flat, angled, or on its side. Most examinations use at least two or three views.

You need to keep your hand still for a few seconds while each image is taken. The x-ray itself is painless, but positioning an injured hand may be uncomfortable. Tell the radiographer if a position causes significant pain; the view can often be adjusted.

The radiographer may check the images before you leave to make sure the correct area is included and the pictures are clear. Extra views may be needed if the suspected injury is difficult to see or if the first image was blurred.

The whole appointment commonly takes about 10 to 15 minutes. Complicated injuries or difficulty positioning the hand may take longer.

## Understanding your results

A hand x-ray report describes what is visible rather than giving a single number or result. There is no universal numerical reference range.

The report may comment on:

Terms such as "no acute osseous abnormality" generally mean that no recent bone abnormality is visible. It does not rule out every injury, especially damage to ligaments, tendons, cartilage, or a fracture too subtle to appear initially.

Interpretation can vary with image quality, age, skeletal maturity, sex, pregnancy status,

medicines that affect bones over time, previous surgery, and the clinical context. The radiologist compares the images with your symptoms, injury details, and earlier imaging when available.

- Whether a fracture is present and whether bone pieces have moved
- The alignment of bones and joints
- Joint-space narrowing or bony growths linked with arthritis
- Bone erosion, loss, or unusual areas of increased density
- Soft-tissue swelling visible around the bones
- Foreign objects that block x-rays
- The position of surgical hardware

## What affects the results

Hand x-rays have fewer preparation-related influences than blood tests, but several factors can make the images misleading without anything being wrong with the equipment.

Movement can blur fine fracture lines. Poor positioning may cause bones to overlap, hiding an injury or making alignment look unusual. Rings, dressings, splints, and casts may also cover part of the hand.

Timing matters. Some small or non-displaced fractures do not show clearly immediately after an injury. Bone changes from healing may make them easier to see on a later x-ray.

Normal growth plates in children can be mistaken for injuries, while small fractures near a growth plate can be difficult to identify. Previous fractures, arthritis, surgery, or congenital differences in bone shape may also complicate interpretation.

Medicines, meals, coffee, exercise, and recent blood transfusions do not directly change a hand x-ray. Medicines such as long-term corticosteroids like prednisone or hydrocortisone can affect bone health over time, but they do not suddenly alter the image on the day of the test.

## Accuracy and limitations

Hand x-rays are good at showing many fractures, dislocations, bone alignment problems, and radiopaque foreign objects. "Radiopaque" means an object blocks x-rays and therefore appears clearly on the image.

The test can miss a small, non-displaced, or very recent fracture. A normal initial x-ray does not

always exclude a fracture when pain and examination findings remain strongly suggestive. Repeat x-rays after an interval, or another type of scan, may then be more useful.

X-rays may sometimes show an irregular line or old bone change that resembles a new fracture. Multiple views, earlier images, and the injury history help reduce this kind of false alarm.

X-rays do not show tendons, ligaments, nerves, and cartilage well. Ultrasound or MRI may be better when damage to these structures is suspected. CT can provide more detailed pictures of complex fractures or joint surfaces. Some wood, plastic, and other low-density foreign objects may not appear on an x-ray; ultrasound or CT may be considered instead.

## Risks and complications

A hand x-ray uses a low dose of radiation. The radiation does not remain in your body after the image is taken.

There are no expected complications from the imaging itself. Positioning may briefly increase pain in an injured hand, but the radiographer can usually modify the position.

The potential risk from radiation is considered in relation to the medical value of the test. Children and pregnant people require particular care with radiation exposure, although the uterus is not in the direct beam during a hand x-ray.

## What happens next

The radiologist's report is sent to the clinician or service that requested the x-ray. In urgent injury settings, the images may be reviewed before you leave. In routine outpatient care, the report may be discussed at a later appointment or sent through a patient portal.

Next steps depend on the findings and your symptoms. They may include routine follow-up, a splint or cast, referral to a fracture or hand clinic, repeat x-rays, or another imaging test.

Seek urgent medical assessment if pain or swelling is rapidly worsening, a finger becomes numb, pale, blue, or cold, or a cast or splint feels dangerously tight.

Call emergency services or attend an emergency department for uncontrolled bleeding, an open injury with visible bone, or a severely deformed hand after a major injury. These symptoms relate to the injury, not to the x-ray.

## Common questions

Can I drink coffee before a hand x-ray?

Yes. Coffee, food, and other drinks do not affect the images. No fasting is needed.

Does the time of day matter?

No. A hand x-ray can be performed at any time. Service availability and the urgency of the injury usually determine the appointment time.

Can I exercise beforehand?

Yes, but avoid activity that worsens an injured hand. Exercise does not alter the x-ray image, although it may temporarily increase pain or swelling.

Do I need to remove my rings?

Usually, yes, if they can be removed safely. Metal can hide nearby bones. Do not force a ring over a swollen finger; the imaging team can advise what to do.

Will the x-ray hurt?

Taking the image does not hurt. Moving an injured hand into the required positions may be uncomfortable, so tell the radiographer if you cannot hold a position.

Can a normal x-ray still mean I have an injury?

Yes. Small early fractures and injuries to tendons, ligaments, or cartilage may not appear. Persistent or worsening symptoms may need reassessment, repeat x-rays, or a different scan.

## Sources

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