TEST

Skull x-ray

A skull x-ray uses low-dose radiation to create images of the skull bones.

WHAT IT MEASURES
X-ray patterns of the skull bones and nearby structures

SAMPLE
None

FASTING NEEDED?
No

HOW LONG IT TAKES
About 10 to 20 minutes

RESULTS IN
Usually same day to several days; varies by radiology service

USED FOR
Diagnosis and follow-up of selected skull conditions

MAIN LIMITATION
Overlapping bones can hide injuries and other abnormalities

Overview

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

Skull x-rays are used less often than they once were. The skull has many overlapping bones, which can make x-ray images difficult to interpret. CT scans usually provide clearer images of fractures and are much better at finding bleeding or injury inside the head.

A skull x-ray may still be useful for a specific bone concern, a visible or suspected foreign object, or part of an x-ray series that checks medical equipment such as a shunt. A shunt is a tube used to drain extra fluid from around the brain.

The test does not show the brain in useful detail. It also cannot confirm or rule out a concussion.

Why the test is ordered

Your healthcare professional may order a skull x-ray when a simple bone image could answer a focused question. Possible reasons include:

A skull x-ray is not usually the preferred test for a recent significant head injury. If a fracture, bleeding, or brain injury is a concern, CT is generally more informative.

It is also not normally used as a routine screening test in someone without a specific concern.

- Looking at a known or suspected skull bone abnormality
- Checking the position or continuity of certain medical devices
- Locating some metal or other x-ray-visible foreign objects
- Following a previously identified skull finding
- Assessing the skull when CT is unavailable or unsuitable

Who should have the test

You may have this test if a healthcare professional decides that an image of the skull bones could help answer a particular question.

For head injuries, the choice of imaging depends on your symptoms, examination, age, medicines, and how the injury happened. Some people need no imaging. Others need a CT scan rather than an x-ray.

Children are more sensitive to radiation than adults, so imaging should be limited to what is needed. When an x-ray is appropriate, the imaging team adjusts the equipment for the child's size.

Tell the imaging team if you are or might be pregnant. A skull x-ray does not aim radiation at the abdomen, so radiation reaching a pregnancy is usually extremely low. The team can confirm whether the test should proceed and use an appropriate technique.

How to prepare

You can normally eat and drink as usual. Fasting is not required, and you can take your usual medicines unless you have been given different instructions for another test at the same visit.

Remove objects that may cover part of the skull image. These can include glasses, earrings, necklaces, hair clips, removable dental items, hearing aids, or metal-containing headwear. You may be asked to change into a gown.

Tell the radiographer about previous skull surgery, implanted devices, or known metal in your

head. A radiographer is the healthcare professional who performs the x-ray.

Bring details of earlier scans if the imaging service does not already have them. Comparison with older images can help show whether a finding is new or unchanged.

What happens during the test

The radiographer confirms your identity and explains how you will be positioned. You may sit, stand, or lie on an x-ray table.

Your head is placed next to an x-ray detector. The machine is aimed from different angles so that several views can be taken. Supports may help you keep your head still, but they should not hurt.

You will need to remain still for a few seconds during each image. Movement can blur the picture. The radiographer may reposition you between images.

Taking an x-ray does not cause pain, although holding a position may be uncomfortable if you have an injury. Tell the radiographer if you cannot move your head or neck safely.

The test usually takes about 10 to 20 minutes. The actual radiation exposure lasts only a fraction of that time. Contrast dye and injections are not normally needed.

Understanding your results

A radiologist, a doctor trained to interpret medical images, examines the x-rays and sends a report to the healthcare professional who requested the test.

The report may describe the skull bones as having no visible abnormality. It may instead mention a fracture, an area of unusual bone density, a change linked to previous surgery, a foreign object, or the visible parts of a medical device.

An abnormal description does not always identify one specific cause. Some findings need comparison with older images, another type of scan, or clinical assessment before their meaning is clear.

A normal skull x-ray does not rule out a concussion, bleeding inside the skull, a small fracture, or a brain abnormality. These may require assessment without imaging or imaging with CT or MRI.

There is no single numerical reference range for a skull x-ray. When measurements or comparisons are reported, interpretation may vary by radiology service, age, sex, pregnancy status, medicines, previous treatment, and the clinical context.

What affects the results

Several factors can make the image unclear or misleading even when the equipment is working correctly.

Movement is a common issue. Even slight movement while an image is taken can blur fine fracture lines. Positioning also matters because skull bones overlap differently at each angle.

Jewellery, hair accessories, hearing devices, dental work, surgical plates, and other metal can cover part of the image or create shadows. Previous surgery may also change the normal appearance of the skull.

Normal skull sutures-the joints between skull bones-and grooves made by blood vessels can sometimes resemble fracture lines. In children, skull development and open sutures require age-specific interpretation.

Some bone disorders and long-term medicine effects can alter bone appearance. These are real changes rather than laboratory errors, but they may make a single image harder to interpret without your history.

Eating, coffee, exercise, kidney function, and a recent blood transfusion do not usually affect a skull x-ray. Pregnancy does not normally distort the result, but it can affect the decision about whether and how imaging is performed.

Accuracy and limitations

The accuracy of a skull x-ray depends on what it is being used to find. There is no single reliable percentage that applies to every skull condition.

The test can miss thin, small, non-displaced, or skull-base fractures. A non-displaced fracture is a crack where the bone has not moved out of position. Overlapping bones are an important reason these injuries may not appear clearly.

A skull x-ray can also appear abnormal when there is no fracture. Normal sutures, blood-vessel grooves, old injuries, or image artefacts can resemble a new break. An artefact is a mark created by movement, metal, positioning, or the imaging process.

CT is generally the better test for a suspected acute skull fracture or bleeding inside the head. It creates cross-sectional images without the same degree of bone overlap. MRI is usually better for detailed images of the brain, soft tissues, nerves, or bone marrow, although it is not normally the first emergency test for a head injury.

Risks and complications

A skull x-ray uses a low dose of ionizing radiation. The added long-term risk from one medically necessary examination is considered small, but unnecessary repeat imaging should still be avoided.

The test is painless and does not involve a needle, so bruising and fainting from a blood draw are not expected. You may have temporary discomfort from positioning if your head or neck is already painful.

Tell the radiographer immediately if a requested position increases your pain or feels unsafe.

What happens next

You can usually leave as soon as the images are complete. There are no restrictions on driving, eating, exercise, or normal activities because of the x-ray itself.

The radiographer may check that the images are clear before you go, but usually does not provide the final interpretation. Your results may be available the same day or within several days, depending on the reason for the test and the radiology service.

Routine follow-up may involve discussing the report with the healthcare professional who ordered the x-ray. You may need no further testing, repeat imaging at a later date, or a CT or MRI if the x-ray did not fully answer the question.

Do not wait for a routine x-ray result if you develop emergency symptoms after a head injury. Seek urgent emergency care for worsening severe headache, repeated vomiting, increasing confusion, unusual drowsiness, a seizure, new weakness, difficulty speaking, loss of consciousness, or clear fluid or blood coming from the nose or ears.

Common questions

Can I drink coffee before a skull x-ray?

Yes. Coffee, water, and food do not affect the images. You do not usually need to fast.

Does the time of day matter?

No. A skull x-ray can be performed at any time. Appointment timing is based on availability and how urgently imaging is needed.

Can I exercise beforehand?

Yes. Exercise does not change the x-ray result. If you have a recent head or neck injury, follow any activity restrictions you have been given.

Do I need to remove my jewellery?

Usually, yes, if it is near your head or neck. Metal can cover important areas or produce misleading shadows.

Can a skull x-ray show a concussion?

No. A concussion is a disturbance of brain function and does not appear on a skull x-ray. Imaging may still be used to look for a fracture or bleeding when symptoms suggest a more serious injury.

Why was I offered a CT instead?

CT shows skull fractures and structures inside the head more clearly. It is usually preferred when there is concern about an acute fracture, bleeding, or significant head injury.

Sources

- American College of Radiology. ACR Appropriateness Criteria: Head Trauma
- National Institute for Health and Care Excellence. Head injury: assessment and early management, NG232
- RadiologyInfo.org, American College of Radiology and Radiological Society of North America. Bone X-ray (Radiography)
- U.S. Food and Drug Administration. Medical X-ray Imaging
- NHS. X-ray
- International Atomic Energy Agency. Radiation protection of pregnant women in radiology