TEST

Sinus CT scan

A sinus CT scan uses X-rays to create detailed pictures of your sinuses and nearby structures.

WHAT IT MEASURES
Detailed images of the sinuses, drainage pathways, and surrounding bone

SAMPLE
None

FASTING NEEDED?
Sometimes, if contrast or sedation is planned

HOW LONG IT TAKES
Usually 10 to 20 minutes

RESULTS IN
Often one to two days; timing varies by imaging service

USED FOR
Diagnosis and treatment planning

MAIN LIMITATION
Abnormal findings may not explain your symptoms

Overview

A sinus CT scan is a computed tomography scan of the air-filled spaces around your nose, eyes, and forehead. It combines multiple X-ray images to produce detailed cross-sectional pictures.

The scan shows the sinus drainage pathways, surrounding bone, nasal cavity, and nearby structures. It can detect swollen sinus lining, trapped fluid, polyps, bone changes, and some masses.

Most sinus CT scans are performed without an injected contrast dye. Contrast may be used when there is concern about a mass, an abscess, or inflammation spreading beyond the sinuses.

A CT scan is not usually needed for a straightforward short episode of sinus symptoms. Symptoms and an examination are often enough at first.

Why the test is ordered

A sinus CT may be ordered when your symptoms are persistent, recurrent, unusual, or not improving as expected. It can help show whether sinus drainage pathways are narrowed or blocked.

Common reasons include:

CT may also help distinguish sinus disease from another cause of facial pressure. However, it cannot always show whether findings seen on the scan are responsible for your symptoms.

- Investigating possible chronic or recurrent sinus inflammation
- Planning sinus surgery or reviewing sinus anatomy before surgery
- Checking for complications involving the eye socket, bone, or brain
- Assessing a suspected nasal or sinus mass
- Evaluating facial injury or certain structural problems
- Reviewing symptoms after previous sinus surgery

Who should have the test

You may be offered a sinus CT if symptoms have lasted for a prolonged period, repeatedly return, or continue despite appropriate treatment. An ear, nose, and throat specialist may use it when considering surgery.

Imaging is generally not needed for uncomplicated acute sinusitis. Acute means symptoms began recently. A CT scan cannot reliably tell whether a routine sinus infection is viral or bacterial.

Children may have sinus CT when the result is likely to change care, particularly if complications or an unusual condition are suspected. Because CT uses radiation, the scan should use settings appropriate for the child's size.

Tell the imaging team if you are pregnant or could be pregnant. The sinuses are far from the uterus, but the team still needs this information when deciding how and when to perform imaging.

How to prepare

A sinus CT without contrast usually needs little preparation. You can normally eat, drink, and take your regular medicines.

Remove glasses, hearing aids, jewellery, hairpins, or removable dental items if asked. Metal near your face can interfere with parts of the image.

If contrast is planned, the imaging service may give you instructions about eating and drinking. Tell them about previous reactions to contrast, kidney problems, diabetes, pregnancy, and all medicines you take.

Sedation is uncommon but may be considered if you cannot remain still. If sedation is planned, you will receive separate fasting, medicine, transport, and recovery instructions.

What happens during the test

You will usually lie on your back on a narrow table. Your head may rest in a support to help you keep still.

The table moves through the scanner, which is shaped like a large ring rather than a long tunnel. The scanner takes images from several angles. You may hear humming or clicking, but the scan should not touch or hurt you.

A radiographer operates the scanner from the next room and can see and speak with you. You may be asked to stay still or briefly hold your breath.

If contrast is required, it is usually injected into a vein in your arm. You may briefly feel warm or notice a metallic taste.

The imaging itself often takes only a few minutes. Positioning, checks, and contrast preparation can make the full appointment longer.

Understanding your results

A radiologist, who is a doctor trained to interpret medical images, reviews the scan and sends a report to the clinician who ordered it.

The report may describe:

Mild lining thickening is common and may not explain your symptoms. A report may also describe an "incidental" finding, meaning something noticed unexpectedly that may be unrelated.

There is no universal numerical reference range for a sinus CT. Interpretation varies with the imaging service, your age, pregnancy status, medicines, previous treatment or surgery, and clinical context. Sex usually has little direct effect on sinus CT interpretation.

- Mucosal thickening: swelling of the tissue lining a sinus
- Opacification: a sinus contains tissue or fluid instead of mostly air
- Air-fluid level: fluid with air above it inside a sinus
- Blocked drainage pathway: narrowing where mucus normally drains
- Polyp: a soft, usually non-cancerous tissue growth
- Bone change: thickening, thinning, damage, or remodelling of bone
- Anatomical variation: a difference in sinus shape or structure

What affects the results

Movement during the scan can blur fine detail. This matters when the images are being used to plan surgery around the eyes, nerves, and skull base.

Dental fillings, implants, or braces may create streaks that hide nearby areas. These objects do not usually prevent the scan, but they can reduce image quality.

The timing of the scan matters. A recent cold, allergy flare, or respiratory infection can temporarily thicken the sinus lining. This may make the scan look abnormal even if you do not have ongoing sinus disease.

Medicines and treatment can also change the appearance. Nasal steroid like fluticasone or mometasone sprays, antibiotics like amoxicillin or doxycycline , allergy treatment, or recent sinus surgery may reduce or alter inflammation. Tell the clinician interpreting the result about recent treatment.

Previous surgery changes normal anatomy and may create scar tissue. Injury, radiation treatment, and dental disease can also affect the appearance of the sinuses.

Age influences sinus development, especially in children. Pregnancy does not usually change the sinus images directly, but it affects decisions about radiation and contrast. Kidney function matters if intravenous contrast is being considered, not for an ordinary non-contrast scan.

Unlike blood tests, eating, coffee, exercise, and the time of day do not usually alter the sinus findings.

Accuracy and limitations

CT is very good at showing sinus air spaces, drainage channels, and bone. It is often the preferred imaging test for chronic sinus inflammation and surgical planning.

However, an abnormal scan does not prove that the finding causes your symptoms. People without sinus symptoms can have mild mucosal thickening, especially during or soon after a cold.

CT may miss very small surface abnormalities inside the nose. Nasal endoscopy, in which a specialist looks inside the nose with a thin camera, may be better for examining the lining directly or obtaining a sample.

CT also cannot reliably separate viral from bacterial sinusitis. It may miss mild or intermittent disease if inflammation has settled by the day of the scan. Movement, dental metal, or an unsuitable scan protocol can hide abnormalities.

MRI gives better detail of soft tissue, nerves, the eye sockets, and the brain. It may be preferred when a tumour, fungal disease, or spread beyond the sinuses is suspected. A biopsy is needed to identify the exact type of an unusual growth.

Risks and complications

A sinus CT uses ionising radiation. The dose is limited to the area being examined, and imaging services aim to use the lowest dose that provides useful pictures. Radiation exposure is more important when scans are repeated or performed in children.

A routine scan without contrast does not require needles and usually has no physical after-effects.

If contrast is injected, the needle may cause brief discomfort or a small bruise. Contrast reactions can occur, and serious reactions are uncommon. Contrast can also be a concern for some people with significantly reduced kidney function.

Sedation has separate risks and requires monitoring, but it is rarely needed for a sinus CT.

What happens next

Routine results are usually reviewed at a follow-up appointment, by telephone, or through an electronic health record. The next step depends on your symptoms, examination, previous treatment, and the scan findings.

You may need no further action if the findings are minor and do not match your symptoms. Other possible next steps include medical treatment, allergy assessment, nasal endoscopy, dental review, MRI, or discussion of sinus surgery.

Seek urgent medical assessment if you develop swelling or redness around an eye, new double

vision, reduced vision, a severe worsening headache, confusion, weakness, or repeated vomiting.

Call emergency services for loss of consciousness, a seizure, severe difficulty breathing, or sudden major changes in vision or neurological function. Do not wait for a routine scan report if these symptoms occur.

Common questions

Can I drink coffee before a sinus CT?

Usually, yes. Coffee does not change sinus images. Follow different instructions if contrast or sedation is planned.

Can I eat before the scan?

You can normally eat before a non-contrast sinus CT. The imaging service may ask you not to eat for a period if sedation or contrast is planned.

Does the time of day matter?

Usually not. Sinus CT findings do not normally change enough during the day to affect scheduling.

Can I exercise beforehand?

Yes. Exercise does not usually alter sinus CT results. Avoid activity only if your symptoms make exercise unsafe or uncomfortable.

Will I need contrast dye?

Most scans for chronic sinus symptoms or surgical planning do not use contrast. Contrast may be needed to investigate a mass, abscess, or possible spread into nearby tissues.

Is a sinus CT claustrophobic?

The scanner is a short, open ring, so many people tolerate it better than an MRI scanner. Tell the imaging team beforehand if you are worried about remaining still.

Sources

- American College of Radiology. ACR Appropriateness Criteria: Sinonasal Disease
- Radiological Society of North America and American College of Radiology. CT of the Sinuses

- American Academy of Otolaryngology-Head and Neck Surgery Foundation. Clinical Practice Guideline: Adult Sinusitis
- U.S. Food and Drug Administration. Computed Tomography
- American College of Radiology. Manual on Contrast Media