TEST

Sinus MRI scan

A sinus MRI scan uses magnets and radio waves to image the sinuses and nearby soft tissues.

WHAT IT MEASURES
Detailed images of sinuses and nearby soft tissues

SAMPLE
None

FASTING NEEDED?
Sometimes, when sedation is planned

HOW LONG IT TAKES
Usually 30-60 minutes

RESULTS IN
Usually 1-3 days; varies by radiology department

USED FOR
Diagnosing and monitoring complex sinus or nearby disease

MAIN LIMITATION
Fine bone detail is clearer on CT

Overview

A sinus MRI scan creates detailed pictures of the air-filled spaces around your nose, called the paranasal sinuses. It can also show nearby soft tissues, including the eyes, nerves, brain coverings, blood vessels, and muscles.

MRI stands for magnetic resonance imaging. It uses a strong magnet and radio waves rather than X-rays. This means it does not expose you to ionizing radiation.

MRI is not usually the first imaging test for uncomplicated sinus inflammation. A CT scan often shows the thin sinus bones and drainage pathways more clearly. MRI is more useful when detailed pictures of soft tissue are needed or when a condition may have extended beyond the sinuses.

Some scans use an injection of a gadolinium-based contrast agent. Contrast changes the appearance of certain tissues and blood vessels, which may help the radiologist identify inflammation, a mass, or spread into nearby areas.

Why the test is ordered

A sinus MRI may be ordered when symptoms, an examination, or another scan suggests that more detailed imaging is needed.

Possible reasons include:

MRI may also be used when a CT finding is uncertain. It is not normally needed to confirm an ordinary cold or a short episode of sinus symptoms.

- Examining a suspected growth or mass
- Checking whether disease has reached an eye socket or the skull
- Investigating possible complications of a serious infection
- Distinguishing trapped sinus fluid from abnormal tissue
- Assessing nerves, blood vessels, or other nearby soft tissues
- Monitoring a known condition or changes after treatment

Who should have the test

This scan is generally considered for people whose symptoms or earlier test results suggest a complex sinus or nearby soft-tissue problem. The decision is based on your symptoms, examination, medical history, and any previous imaging.

MRI is not suitable for every person or every implanted device. Many newer pacemakers and other implants can be scanned under specific conditions, but the MRI team must identify the exact device first. Never assume that an implant is safe because you have had another type of scan.

Tell the imaging service if you have:

MRI does not use ionizing radiation, but gadolinium contrast is generally avoided during pregnancy unless the expected medical benefit justifies its use.

- A pacemaker, implanted defibrillator, pump, nerve stimulator, or cochlear implant
- Metal clips, fragments, shrapnel, or previous metalwork
- Had metal enter your eye
- Kidney disease or dialysis
- A previous reaction to MRI contrast

- Pregnancy or possible pregnancy
- Severe claustrophobia or difficulty lying flat

How to prepare

Most sinus MRI scans do not require fasting. You can usually eat, drink, and take your regular medicines normally. Follow the instructions from your imaging service because fasting may be required if you will receive sedation.

Complete the MRI safety questionnaire carefully. Bring details of implanted devices, including the manufacturer and model if available. The MRI team may need time to confirm the scanning conditions.

Remove jewellery, piercings, hearing aids, removable dental work, hair accessories, and clothing containing metal. Phones, watches, bank cards, and other electronic items must remain outside the scanner room.

Tell the service before your appointment if enclosed spaces are difficult for you. They may discuss a wider scanner, additional support, or prescribed sedation. If you receive a sedative, arrange for someone to take you home and follow the service's restrictions on driving and other activities.

What happens during the test

You will lie on a narrow table, usually on your back. A device called a coil is placed around or close to your head. It receives the signals used to make the images but does not produce radiation.

The table moves into the MRI scanner. The scanner is open at both ends, but your head will usually be inside it. Staff can see, hear, and speak with you throughout the test. You will receive ear protection because the scanner makes loud knocking, tapping, and buzzing sounds.

You need to keep your head still while each set of images is taken. Some sequences last several minutes. You can breathe normally.

If contrast is needed, a small plastic tube is placed into a vein in your hand or arm. Images may be taken before and after the injection. The full appointment commonly takes 30 to 60 minutes, although complex scans or sedation can take longer.

Understanding your results

A radiologist, a doctor trained to interpret medical images, reviews the scan. The report describes what was seen and how it relates to the reason for the test.

The report may comment on:

Minor sinus-lining changes can appear in people without significant sinus disease. A result therefore needs to be interpreted alongside your symptoms, examination, age, medicines, previous treatment, and other imaging.

There is no universal numerical reference range for a sinus MRI. The meaning of a finding varies with the imaging method, age, sex, pregnancy status, medicines, medical history, and clinical context.

- Swelling of the sinus lining, called mucosal thickening
- Fluid or material filling part of a sinus
- The size and position of a mass
- How tissue behaves after contrast
- Changes involving an eye socket, nerve, skull, or brain covering
- Findings related to previous surgery or treatment

What affects the results

Movement is one of the main causes of unclear MRI images. Even small head movements can blur fine structures. Pain, coughing, anxiety, or difficulty lying flat can make staying still harder.

Dental braces, implants, fillings, and other metal near the face may distort the magnetic field. This can hide part of a sinus or create an appearance that is not truly present. The laboratory is not malfunctioning; this is a known imaging effect called artefact.

A recent cold, allergy flare, or sinus infection can temporarily thicken the sinus lining. This may look abnormal even when it is unrelated to the main reason for the scan. Nasal steroid medicines, decongestants, antibiotics like amoxicillin or doxycycline , surgery, or other recent treatment may reduce or alter these findings.

Previous surgery can change normal anatomy. Scar tissue, packing material, and healing inflammation may be difficult to separate from remaining disease, especially soon after a procedure.

Kidney function can affect whether gadolinium contrast is used. Pregnancy and a previous contrast reaction may also change the scan plan. A scan without contrast may still be useful,

but it may answer a different or narrower question.

Coffee, meals, exercise, and the time of day do not usually change sinus MRI findings. They may matter if sedation is planned.

Accuracy and limitations

MRI is particularly good at showing soft tissue. It can help separate ordinary secretions from some types of abnormal tissue and can show whether a process involves an eye socket, nerve, brain covering, or other nearby area.

However, it is not always the right first test. CT is generally better for fine bone detail, sinus drainage pathways, calcification, and planning many sinus operations. Dental imaging may be better when a tooth is the suspected source of a problem.

MRI can say that something appears abnormal when it is only harmless swelling, thick secretions, scar tissue, or a temporary change from a recent infection. In other cases, movement or metal artefact can hide a small finding. MRI may therefore miss a problem or make normal tissue look concerning.

A scan can show the position and imaging features of a mass, but it cannot always identify exactly what the tissue is. A different scan, endoscopic examination, blood tests, or a biopsy may be needed. A biopsy removes a small tissue sample for examination under a microscope.

Risks and complications

MRI itself does not use ionizing radiation. The strong magnetic field can move unsafe metal objects or interfere with some implants, which is why safety screening is essential.

An IV contrast injection can cause temporary discomfort, bruising, or swelling at the needle site. Some people feel nauseated or develop a mild reaction. Serious allergic-like reactions are uncommon, and staff are equipped to respond.

Gadolinium contrast requires extra care in people with severe kidney disease because of a rare condition called nephrogenic systemic fibrosis, which causes tissue thickening. Modern contrast selection and kidney screening have greatly reduced this risk. Small amounts of gadolinium may remain in the body after contrast, although harmful effects have not been established for most people.

Sedation has separate risks, including excessive sleepiness or breathing problems. Your imaging service should explain these if sedation is being considered.

What happens next

The radiologist sends a report to the clinician who requested the scan. Routine results are usually discussed at a follow-up appointment, by telephone, or through a patient portal. If the scan is unclear, another MRI sequence, CT scan, endoscopic examination, or tissue sample may be suggested.

Do not assume that a delayed report means something serious. Reporting time often reflects staffing, the scan's complexity, and whether older images need to be compared.

Do not wait for a routine result if you develop new loss of vision, severe eye swelling, confusion, a seizure, new weakness, or another rapidly worsening neurological symptom. Seek emergency medical help. Rapidly worsening eye pain, double vision, high fever, or marked facial swelling also needs urgent medical assessment.

Common questions

Can I drink coffee before a sinus MRI?

Usually, yes. Coffee does not change the sinus images. Avoid it if your appointment instructions require fasting for sedation.

Does the time of day matter?

Usually not. Sinus MRI findings are not interpreted using time-based reference ranges. Choose a time when you are most likely to remain comfortable and still.

Can I exercise beforehand?

Yes, unless your imaging service tells you otherwise. Exercise does not usually affect sinus MRI findings. Allow time to cool down and remove metal-containing sports clothing.

Will I need contrast?

Not everyone does. Contrast is more likely when the scan is assessing a mass, blood vessels, serious infection, inflammation beyond the sinuses, or changes after treatment.

Can I have the scan with braces or dental implants?

Often, but they can distort images near the face. Tell the MRI team what dental work you have. Removal of detachable orthodontic equipment may sometimes be discussed.

What if I am claustrophobic?

Contact the imaging service before the appointment. Support measures, a wider scanner, or sedation may be available. Do not take an unplanned sedative before arriving.

Sources

- American College of Radiology. ACR Appropriateness Criteria: Sinonasal Disease
- American College of Radiology. Manual on MR Safety
- American College of Radiology. Manual on Contrast Media
- RadiologyInfo.org, American College of Radiology and Radiological Society of North America. MRI of the Head
- NHS. MRI scan
- American College of Obstetricians and Gynecologists. Guidelines for Diagnostic Imaging During Pregnancy and Lactation