The BRAIN TUMOUR CHARITY

Research | Awareness | Support

Scans for adults with brain tumours

Scans provide a detailed image of the brain.

Scans are used during diagnosis. They allow doctors to see whether there is a tumour and, if there is, its size and position.

Scans are also used for monitoring during and after treatment.

The two scans that are most commonly used are CT scans and MRI scans.

In this fact sheet:

- CT scans, including scan procedure
- Answers to some common questions you may have about CT scans
- MRI scans, including scan procedure
- Answers to some common questions you may have about MRI scans

CT scans

CT stands for 'Computerised Tomography'. You may also hear doctors referring to CAT scans. These are the same thing as CT scans.

CT scanners use x-rays to build up a 3D image of the inside of your head. They use the x-rays to take several cross-sectional pictures through your head. These 2D picture 'slices' are then stacked together using a computer to make the 3D image.

What happens during a CT scan?

- Before the scan, you'll need to take off glasses, earrings, hair clips, removable dental braces or anything in the head or upper neck area that contains metal. In other words, anything that might get in the way of the area being scanned.
- You may be given an injection of a fluid called a contrast medium. This helps to give a more detailed picture of the brain on the scan. This can be given into the arm or back of the hand.

  If you're having a scan of other parts of your body at the same time, you may be given the contrast medium as a drink.

  You won't be given the contrast medium if you're allergic to it or have poor kidney function.

- The scanner is shaped like a doughnut or ring, with a round hole in the middle – this is where your head will go.
- You'll lie on the 'treatment table' part of the scanner.
- The medical staff will take a bit of time to get you into the right position.
- The staff will leave the room, but will be nearby and able to see and hear you. You will also be able to hear the medical staff.
- During the scan, you'll hear a humming from the scanner and louder clicking sounds when it's taking pictures. It sounds a bit like a noisy washing machine on a spin cycle.
- The table will move in and out of the scanner a few times during the scan.
- It's important to lie very still during the scan. This is so the pictures of your brain aren't blurred.
- After the scan, you'll usually be allowed to go straight home. If you had a sedative to calm you, the hospital staff will first check that it's safe for you to go home. You should arrange for a friend or relative to accompany you and take you home afterwards.

Other common questions about CT scans

Is the scan painful?

No, but if you have a contrast medium injected, this may make you feel hot or flushed. This feeling usually only lasts for about a minute.

Very rarely, some people have reported feeling cold after having the contrast medium.

How long does the CT scan take?

The CT scan itself takes around 5-10 minutes. Your appointment will last longer, as time will be spent beforehand getting you into the right position for the scan.

The newest CT scanners take about 1 minute to scan the whole brain.

I get claustrophobic. What can you suggest?

If you feel claustrophobic, it's a good idea to let the hospital staff know before the day of your scan.

If necessary, you may be given a sedative to help calm you before the scan, but you'll need to ask in advance if you think you will need one.

Can I breathe normally during the CT scan?

Yes, it's fine to carry on breathing normally during the scan.

Are CT scans dangerous?

CT scans are used only when they're considered necessary, with the benefits outweighing the risks. Radiation is used, but it's kept at a very low dose.

MRI scans

MRI stands for Magnetic Resonance Imaging. This scanner uses magnetic fields to build up a 3D image of the brain. It does this by taking pictures from several angles around your head to build up a detailed image.

It can give lots of different kinds of information about the tumour and surrounding brain tissue.

Due to the powerful magnets used, the staff will check that you don't have any metal on your body (e.g. jewellery, zips, metal belt buckles or clasps on clothing, wrist watches or hair clips).

They'll also check if you have anything metal in your body. Screws, plates and pins from operations should be okay, but some things, such as pacemakers, infusion pumps or programmable shunts, may mean you cannot have an MRI.

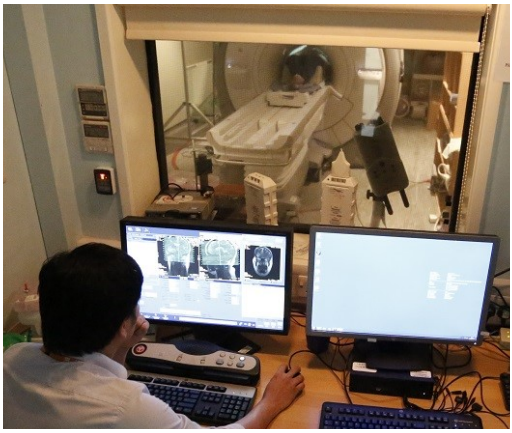
You should also tell your doctor if you've ever worked in the metal or steel industry, as you may have very small fragments of metal lodged in your body.

What happens during an MRI scan?

- You'll need to take off glasses, hair clips, belts, dental braces or anything with metal before the scan.
- You may be given an injection (or occasionally a drink) of a fluid called a contrast medium. This helps to give a more detailed picture of the brain on the scan.
- The contrast medium could be given before, or part way through, the scan. It can make you feel warm all over.
- The scanner is an open-ended tunnel. The body part being scanned will be in the middle. For brain tumours, this usually means that your head and shoulders will be in the tunnel.

  Occasionally, you may need your spine scanned, in which case your spine will be in the middle of the scanner and your head may be near or out of the other (open) end.

- You will lie on a motorised bed. A frame may be placed over your head. This helps pick up the signals to make sure the image is clear.
- The bed will be moved into the scanner so that your head is in the right place.
- The medical staff will leave the room, but they'll continue to monitor you closely. They are able to see and hear you, and you'll also be able to hear them.



- You may be given a button to press to stop the scan if you need to, though this may mean the scan has to be started again.
- You can have a friend or relative with you during the scan, if you're nervous.
  They will also have to remove anything metal, and should let the radiographers know if they are within the first three months of pregnancy. If they have anything metal in their body, they may not be allowed into the room.
- The scan is very noisy. It makes loud knocking and clanging sounds.

  You can hear the noises of an MRI scanner online: **youtube.com/watch?v=xS_V_OgeX-U**

  The noises are caused by the electric current in the scanner coils being turned on and off.

- You'll be given headphones and/or earplugs to wear during the scan to reduce the level of noise.
- Many hospitals can play music or a DVD to entertain you during the scan.

You could take your favourite CD with you and ask the hospital to play it during your scan.

- It's important to lie very still during the scan. This is so the pictures of your brain are not blurred.
- After the scan, you'll usually be allowed to go straight home.

Other common questions about MRI scans

Is the scan painful?

No, but you may feel coolness at the site of injection of the contrast medium. This usually only lasts for a minute or two.
(Different contrast mediums are used in MRI scans from the ones used in CT scans.)

How long does the MRI scan take?

The scan itself can take between 15 and 90 minutes, depending on the size of the area being scanned and how many images are taken.

Your appointment will be longer, however, as time will be spent beforehand explaining the scan and going through the safety questionnaire with you. It will also take some time to get you into the right position for the scan.

What if I'm claustrophobic?

Although the 'tube' of an MRI scanner is longer than in a CT scanner, the scanner is open-ended, so you are never completely enclosed while having your scan. However, depending on which part of your body is being scanned (head or spine), it may still feel enclosed to you.

Often a mirror can be placed so you can see out of the scanner, which can help to make it feel less claustrophobic. And newer machines are wider than older ones.

If you think you're still likely to feel claustrophobic, let the hospital staff know as soon as possible before the day of the scan.

Most people find scans manageable with support from the radiographer. If necessary, you may be given a sedative to help calm you before the scan, but you'll need to ask in advance if you think you need one.

Can I breathe normally during the MRI scan?

Yes, it's fine to carry on breathing normally during your scan.

You may be asked to hold your breath a few times during the scan, for example if your spine is also being scanned. This is to stop the image blurring, but it'll only be for a few seconds each time.

Can I have an MRI scan if I have fillings or wear braces on my teeth?

If you have any fillings or you wear braces on your teeth, the quality of the MRI scan image could be affected. However, it's completely safe to have an MRI scan with both of these.

Let your radiographer know about any fillings or braces before your scan. He or she may ask you to take out any easily removable items.

Are MRI scans dangerous?

MRI scans are completely safe. There are no risks associated with them and they don't expose your brain to radiation.

However, they aren't suitable for some people who have metal in their body (for example, skull plates).

This doesn't necessarily mean you cannot have an MRI scan. It will depend on where the metal is, what type of metal it is, how long it's been there (so how much scar tissue has formed round it), whether it's an implant and whether it's adjustable or not.

Very rarely, the contrast medium can affect the kidneys, particularly if your kidneys are not working properly. It's important therefore to tell you medical team if you have any kidney problems.

How long will I have to wait for the results?

For both CT and MRI scans, the radiography team will send a copy of the scan to your medical team in time for your next appointment, when you will be given the results.

How long this takes can vary. As many of these scans are very detailed, you are unlikely to get the results the same day. They can take up to a week.

This is because your doctors may need to discuss your scan with other members of the medical team at weekly meetings, known as the Multi-Disciplinary Team (or MDT) meeting. The result of your scan may not be available until this has been done.

For more information, see the Multi-Disciplinary Team (MDT) for adults webpage and fact sheet.

Also, even one simple scan, especially if it's an MRI scan, can produce hundreds of images, which need to be carefully interpreted. This can take time to do.

You should be told when you'll get the results by your doctor, clinical nurse specialist or the radiographer carrying out the scan.

What is the difference between CT and MRI scans?

MRI scans and CT scans are similar. Both build up detailed images of the brain. However, there are a few differences:

- MRI scans don't use radiation to produce the images. CT scans use x-rays (radiation]) whilst MRI scans use magnetic fields (non-radiation.)
- CT scans are quicker and quieter than MRI scans, and people tend to find them less claustrophobic.
- MRI scans usually give more detailed images than CT scans.
- CT scans can be used when there is metal in the body that cannot be removed.

Neither scan is better than the other. It's more a question of which scan is best suited to meet the needs of the patient.

What other types of scan might I have?

MRI scans and CT scans are the most common types of scan you are likely to have, but there are some other types of scan that may be used to diagnose a brain tumour, or to find out more about a diagnosed tumour. These include:

PET (Positron Emission Tomography) scans

These are often used to help detect whether a brain tumour is low grade (slow growing) or high grade (fast growing).

SPECT (Single Photon Emission Computerised Tomography) scans

These are similar to PET scans. They can be used to help doctors find out more about the tumour and about chemicals within your brain.

fMRI (functional MRI scan)

When an area of the brain is active during a 'function', such as speech, that area uses more oxygen and more blood flows into it than into other areas. Functional MRI scans show movement of blood through the brain, highlighting which areas are active. This helps doctors to plan surgery to avoid the functional, active areas of the brain.

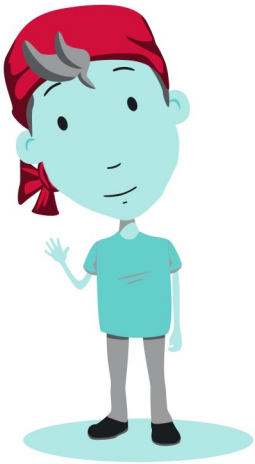
Resources

The following animation may help you to prepare for your scan:

Ask Jake about …. Scans
produced by The Brain Tumour Charity

Originally designed for children, we have found that people of all ages find this animation useful to watch to understand what happens.

thebraintumourcharity.org/understanding-brain-tumours/resources/animations-explaining-brain-tumours/



What if I have further questions or need other support?

You can contact our Information and Support Team in the following ways:

0808 800 0004
(Free from landlines and most mobiles: 3, O2, EE, Virgin and Vodafone)

support@thebraintumourcharity.org

Live Chat
Get in touch with us online via
thebraintumourcharity.org/live-chat

Join one (or more) of our
closed Facebook groups:
bit.ly/FBSupportGroups

thebraintumourcharity.org/getsupport

Disclaimer: This resource contains information and general advice. It should not be used as a substitute for personalised advice from a qualified specialist professional. We strive to make sure that the content is accurate and up-to-date, but information can change over time. Patients must seek advice from their medical teams before beginning or refraining from taking any medication or treatment. The Brain Tumour Charity does not accept any liability to any person arising from the use of this resource.

About this information resource

The Brain Tumour Charity is proud to have been certified as a provider of high quality health and social care information by The Information Standard - an NHS standard that allows the public to identify reliable and trustworthy sources of information.

Written and edited by our Information and Support Team, the accuracy of medical information in this resource has been verified by leading health professionals specialising in neuro-oncology.

Our information resources have been produced with the assistance of patient and carer representatives and up-to-date, reliable sources of evidence.

We hope that this information will complement the medical advice you have already been given. Please do continue to talk to your medical team if you are worried about any medical issues.

If you would like a list of references for any of our information resources, or would like more information about how we produce them, please contact us.

We welcome your comments on this information resource, so we can improve. Please give us your feedback via our Information and Support Team on **0808 800 0004** or ***support@thebraintumourcharity.org***

Your notes:

Your notes:

Your notes:

About The Brain Tumour Charity

The Brain Tumour Charity is at the forefront of the fight to defeat brain tumours and is the only national charity making a difference every day to the lives of people with a brain tumour and their families. We fund pioneering research worldwide, raise awareness of the symptoms and effects of brain tumours and provide support for everyone affected to improve quality of life.

We wouldn't be able to make the progress we have without the incredible input we receive from you, our community.
Whether it's reviewing our information resources, campaigning for change, reviewing research proposals or attending cheque presentations, everything you do helps to make a difference.
To find out more about the different ways you can get involved, please visit *thebraintumourcharity.org/volunteering*

We rely 100% on charitable donations to fund our work.

If you would like to make a donation, or find out more about other ways to support us, including leaving a gift in your Will or fundraising through an event, please get in touch:

Visit
thebraintumourcharity.org/get-involved
call us on 01252 749043 or email
fundraising@thebraintumourcharity.org

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The Information Standard Certified Member

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