Magnetic resonance imaging (MRI) and epilepsy

What is an MRI scan used for?

Some people have epilepsy because they have some damage or other problems in their brain. Damage to the brain may have been caused by scar tissue from an illness or a brain injury. Some people can also have problems in their brain that they are born with. An MRI scan is used to find out if you have any type of damage to your brain.

How does an MRI scan show the damage?

The MRI scan uses a strong magnetic field and radio waves to create pictures on a computer of tissues, organs and other structures inside your body. These pictures can show up any damage in your brain.¹

Will I be offered an MRI scan?

You might be offered an MRI scan when you are first being investigated for epilepsy, or if your seizures are difficult to control. The National Institute for Health and Care Excellence (NICE) recommends that you should have an MRI scan if you are in one of the following groups:²

- You developed epilepsy before you were 2 years old
- You developed epilepsy when you were a child or an adult and there's a chance it is caused by some damage or other problems in your brain
- You are still having seizures even though you are taking epilepsy medicines

How can I get an MRI scan?

If you believe an MRI scan would help get the best treatment for your epilepsy, ask your GP, epilepsy nurse or specialist to arrange one for

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you. If they agree, NICE recommends an MRI scan should be done within 4 weeks of the doctor requesting it.³

Is an MRI scan useful for everyone?

An MRI is not usually needed for people who have a generalised epilepsy (when seizures affect both halves of their brain) or childhood epilepsy with centro-temporal spikes. This is because these types of epilepsy aren’t likely to be caused by a problem in a single part of the brain. So, an MRI scan isn’t likely to find anything that could help with your diagnosis or treatment.

What does it involve?

The MRI scanner is like a tunnel. It’s about 1.5 metres (5 feet) long and is surrounded by a large circular magnet. You lie on a bed, which then slides into the open-ended scanner. During the MRI scan, images of your brain will be sent to a computer, which shows different types of brain tissue in different colours.

The MRI scan doesn’t hurt. The radiographer who does the scan might need to inject you in your hand or arm, with a harmless dye. This is to make the tissue show up as clearly as possible. A few people have had allergies to the dye, so the radiographer will ask if you have any allergies first.

The MRI scan can last between 15 and 90 minutes.

Is an MRI scan safe?

MRI scans are one of the safest medical procedures and there is no evidence that they cause harm to the human body.⁴ However, the powerful magnets used can affect metal implants and devices. For example, if you have a vagal nerve stimulator (VNS), pacemaker, or any other metal parts in your body, you may not be able to have an MRI scan.

Having a metal implant or device doesn’t always mean that you won’t be able to have an MRI scan. Medical staff decide on a case by case basis, if there are any risks. Sometimes further measures can be taken to ensure the scan is safe. For example, if you have a VNS fitted, your epilepsy specialist may switch it off before you have the scan.⁵

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If you are unable to have an MRI scan, your epilepsy specialist nurse or doctor may be able to arrange for you to have a different type of scan. MRI scans are also not usually recommended during pregnancy.\(^6\)

**How will I feel during my MRI scan?**

The MRI is noisy when it is scanning, but you will be given earplugs or headphones to protect your hearing. The inside of the scanner is like a hollow open-ended tube. You might find this worrying if you are uncomfortable in confined spaces. You might be given a buzzer to hold, so that you can let the radiographer know if you feel uncomfortable while the scan is being done.

You might be able to listen to music, or watch a DVD while the scan is done, to help you to relax. A relative or friend might be able to go into the room with you.

If you feel nervous, or can’t keep still while the scan is being done, you could be offered medicine to help you relax or sleep. Young children and people with learning disabilities may need a very light general anaesthetic to make sure that they keep completely still during the scan. This is to avoid the scan pictures being blurred.

**What will happen after my scan?**

After your scan, a radiologist will study the pictures taken by the MRI. They will then send your results to the doctor who arranged your scan. This will generally be your epilepsy specialist. It usually takes a week or two for your MRI results to come through.\(^7\)

**About this information**

This information is written by Epilepsy Action’s advice and information team, with guidance and input from people living with epilepsy, and medical experts. If you would like to know where our information is from, or there is anything you would like to say about the information, please contact us at epilepsy.org.uk/feedback

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Freephone 0808 800 5050, text 0753 741 0044, email helpline@epilepsy.org.uk

Contact details
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