

# Epilepsy surgery

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## Introduction

This fact sheet looks at what epilepsy surgery is, and what types of surgery are available. It also gives some information about who might benefit from surgery, and where you can find further information.

## Epilepsy surgery

Epilepsy surgery is done to help to stop your seizures, or reduce how many you have.

## Kinds of epilepsy surgery

There are many different kinds of epilepsy surgery. The type you might have would depend on the type of seizures you have, and where they begin in your brain. Below we discuss some of the most commonly used.

### Temporal lobe resection

This is done when the surgeons are sure which part of the brain your seizures start in. The surgery involves having a small part of your brain removed. (Although this sounds worrying, the surgeon will only take away damaged parts that you don't need.) Around nine out of 10 people having this surgery have temporal lobe epilepsy.

Many people stop having seizures after this surgery. If they do still have seizures, they usually have a lot fewer than they had before the surgery.

### Multiple subpial transection

This is used when it's not possible to remove the part of the brain that's causing the seizures. The surgeon will make a series of cuts to help separate the damaged part of the brain from the surrounding area. This stops seizures from moving from one part of the brain to other parts of the brain. Around seven out of 10 people who have this type of surgery find it improves their seizure control. Between five and seven out of 10 people will be seizure free after multiple subpial transection.

### Corpus callosotomy

This surgery is used to separate the two sides (hemispheres) of the brain. It's usually done in children who have severe seizures that start in one hemisphere, and spread to the other side. It's difficult to say how many people will become totally seizure free after corpus callosotomy. However, between six and eight out of 10 people will have fewer seizures than they did before surgery.

### Hemispherectomy

This is major surgery, which involves removing the outer layer of half of the brain (hemisphere). It's used in children who have seizures because one half of their brain is damaged. Children who need this surgery usually have a rare condition that is present at birth, or appears in the first weeks of life. After hemispherectomy, between six and eight out of 10 people will become seizure free. The chance of a full recovery is best in young children.

## Who might benefit from surgery

To benefit from epilepsy surgery, you will need to meet all of the following requirements.

- You must have tried several anti-epileptic drugs (AEDs), and they have not stopped, or greatly reduced the number of seizures you have.
- You must have a specific cause for your epilepsy that can be taken away, without harming you in any other way.
- The doctors treating you must feel sure that you will have a better quality of life after surgery than you had before.

## Tests before surgery

If you're being considered for surgery, it's likely you will have lots of tests. This is called a pre-surgical evaluation, and the tests might include the following.

### EEG

This test tells the doctors about the activity of your brain. During an EEG, a technician places harmless electrodes on your scalp, using a special glue or sticky tape. The electrodes are then connected to the EEG machine that records the electrical signals in your brain on paper or computer. A video is often done at the same time so that, if you have a seizure, doctors can see exactly what happens.

### CT scan

This is a type of X-ray that shows the physical structure of your brain. It doesn't show if you have epilepsy, but it may show if there is an abnormality that could cause epilepsy.

### MRI scan

The MRI uses radio waves and a magnetic field, rather than X-rays. Like the CT scan, it can show if there's a structural cause for your epilepsy. The MRI is more powerful than the CT scanner, so it can pick up abnormalities that the CT scanner can't find.

### Functional MRI scan

This is similar to having an MRI scan but, during the scan, you will be asked to perform a task. For example, you may tap your thumb against your fingers, look at pictures or answer questions on a computer screen. This increases the flow of oxygen-rich blood to a particular part of your brain. This type of MRI scan can help to show exactly which part of your brain handles critical tasks such as thought, speech, movement, and sensation. This information may be important when epilepsy surgery is being considered.

### PET scan

This is an imaging test that uses a radioactive substance (called a tracer) to look for information about how the brain is working. It can also show any abnormalities.

### PECT scan

This scan shows different parts of the brain in different colours. The colours show how much blood flow is in each part of the brain. Usually, blood flow is higher in the part of the brain where seizures start.

For some people, a combination of these tests will be needed to show whether surgery is possible.

## What happens during surgery

What happens during surgery depends on the type of surgery you have. Usually you will be put to sleep with a general anaesthetic. The surgery involves making a small opening in your skull to get to the brain. Rarely, your surgeon may wake you up during part of the operation to help the operating team locate the part of your brain that controls language and movement. Your surgeon will be able to explain this to you. After the surgery, the bone is replaced and fixed to the skull for healing. Most epilepsy surgery takes at least four hours.

## **After epilepsy surgery**

When you wake up, your head will be swollen and painful. You will need to take painkillers for a few days. The pain and swelling will get less over the next few weeks.

You will need to rest and relax in the first few weeks after epilepsy surgery, and gradually become more active. It's usual to stay off work or school for around three months.

Generally, you will continue to take anti-epileptic drugs for a year or two after surgery, but you may be able to reduce, or even stop them, after that.

## **Risks of having surgery**

The risks depend on the type of surgery you have. The following are possible.

### **Memory problems**

The temporal lobes handle memory and language. This means that any surgery on these parts of the brain can cause difficulties in remembering, understanding and speaking.

### **More seizures than before**

Cutting the connections between the two sides (hemispheres) of the brain in corpus callosotomy stops seizures spreading from one hemisphere to the other. However, it doesn't stop the seizures. In fact, some people have more, but they are less severe.

### **Visual symptoms**

Reduced visual field or double vision. After hemispherectomy a person's area of vision is often reduced or they may have double vision.

### **Partial, one-sided paralysis**

After a hemispherectomy, you may have limited use of one side of your body. Physiotherapy can help with this.

Despite the tests before surgery, it's not always possible to know exactly what the risks are. However, following the pre-surgery tests the doctors will be able to make an educated decision. They will only go ahead with surgery if the tests show that the benefits are likely to be higher than the risk of complications.

## Further information and support

If you would like to find out if surgery could help you, please contact your epilepsy nurse or specialist. If you have already been told that surgery could help your epilepsy, the centre where your surgery is being planned, will be able to tell you more. They will also be able to answer your questions.

Epilepsy Action's online community, forum4e, has some members who have had epilepsy surgery. More information about the community can be found at [www.forum4e.com](http://www.forum4e.com)

## Epilepsy Helpline

freephone 0808 800 5050

text 07797 805 390

[helpline@epilepsy.org.uk](mailto:helpline@epilepsy.org.uk)

[www.epilepsy.org.uk](http://www.epilepsy.org.uk)

If you would like to know where we've got our information from, please contact us. Please quote F062.01. If you have any comments you would like to make about this fact sheet, please contact us.

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Epilepsy Services, Epilepsy Action

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