

How surgery works

Epilepsy surgery can work in 3 different ways:

1. By removing the 'bad' part of the brain (resective epilepsy surgery)
2. Removing the connection of the 'bad' part to the other brain areas
3. Implanting an electrical stimulator that, through electrical stimulation, reduces the excitability of the 'bad' part(s) of the brain.

Resective epilepsy surgery works by identifying the main area from which seizures arise and removing that area (provided it is not critical for important functions such as speech and movement).

It is important to realise that brain surgery for epilepsy may not always lead to a complete cure. In fact overall probably only half of all people treated will become completely seizure free.

One of the side effects of epilepsy surgery in the temporal lobe may be the weakening of memory. Other people may experience some difficulties finding the right word, or have mood problems after surgery.

Post-surgery

A life without seizures can take some adjustment, not only for the individual but also those around them. Families and individuals undergoing the surgery may need additional support to adjust to this. Medication will continue for at least a period, and there is no guarantee that it will be weaned with success.

You can read more about epilepsy surgery on e-pilepsy's website.

www.e-pilepsy.eu



IMPROVING ACCESS TO EPILEPSY SURGERY ACROSS EUROPE

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What is epilepsy surgery?

Epilepsy is a condition whereby individuals are prone to recurrent epileptic seizures. Although many gain seizure control through medication, about one third of people with epilepsy are not controlled with anti-epileptic drugs. For these people, other treatments are needed. Some persons with persistent seizures – especially when the seizures start in one area of the brain - are suitable for surgical treatment. When seizures start in one part of the brain only, this is called focal epilepsy.

Epilepsy surgery is an established treatment in the management of carefully selected individuals with drug resistant focal epilepsy. Individuals are evaluated to determine whether a single area of the brain is causing seizures and if that area could be removed without causing further problems, potentially curing the epilepsy.



When is surgery considered?

There are a number of factors that need to be taken into account before it is possible to say whether or not brain surgery is an option. Surgery can be considered if:

- Several anti-epileptic medications have been tried and have not led to seizure freedom;
- The seizures arise from one brain region;
- This brain region is accessible to surgery and can be removed without seriously damaging important functions such as language, strength and vision;
- The chances of becoming seizure free after surgery are reasonable.

Sometimes epilepsy can be caused by a structural problem in the brain. This may have been present from birth, and manifests itself later in life with seizures, or may be caused later in life because of an injury to the brain such as trauma, stroke, a tumour or infection. If test results show that the seizures appear to be arising from this particular area, brain surgery may be a good option.

About 1 in 5 people with seizures arising from one area of the brain have normal MRI brain imaging. If all other tests point to the same brain area, surgery may also be possible. Often, more tests, including brain imaging tests, or more EEG tests are needed.

In a few people EEG recordings may need to be performed directly from the brain. Such recordings may help if a general area of the brain is suspected of being the cause of the seizures, but more precise information on where seizures may start is needed. This is called intracranial EEG recordings.

How is a patient's suitability assessed?

On referral to a centre specialising in epilepsy surgery, an individual will undergo an initial consultation followed by a full evaluation. This will involve several different types of EEG, usually to document seizures, as well as several types of scan aiming to find the area of brain that is responsible for seizures.

Individuals will also undergo a full assessment of learning. This may also involve further types of scan. This is to determine whether an individual has any problems with memory, speech or learning, and to see whether any of these may be at risk from surgery.

An individual may also meet with a neuropsychiatrist to determine what they may hope for from surgery, as well as determine any problems they may have with mood.

The whole epilepsy surgery team then discusses all the results of the investigations to determine whether surgery can be offered without causing further problems. The team will then meet the individual and their family to outline the results, the surgery to be offered, the likely benefits, as well as possible risks. It will then be for the individual and/or their family to decide whether they wish to go ahead.

