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## Brain Injury and Epilepsy

Epilepsy occurs in around 5% of people with brain injury, which is about ten times more common than in the population as a whole. Epileptic seizures, or 'fits', are most frequent in the first week after brain injury and tend to become less common after this.

### What is an epileptic seizure?

An epileptic seizure is a sudden change in movement, behaviour or perception caused by uncontrolled electrical activity in the brain.

During a seizure, the nerve cells in the brain become over-active and fire off in a random and erratic fashion. This activity often disturbs neighbouring cells which can also become over-active and set up a kind of 'chain reaction', so that an area of the brain or the whole brain can become temporarily upset.

Sometimes this over-activity can occur with no obvious external evidence, but commonly the person shows signs and symptoms such as a change in or loss of consciousness, shaking or convulsing, tongue biting, etc.

### Types of epileptic seizures

**Generalised tonic-clonic seizures:** Sometimes referred to as '**grand mal**' seizures. These are characterised by a sudden loss of consciousness and falling, followed by stiffening (**tonic phase**) and then rhythmic jerking of the whole body (**clonic phase**). The person may bite their tongue or lips, or be incontinent. Following this there may be a period of drowsiness, confusion or sleep. Generalised tonic-clonic seizures are sometimes preceded by a strange taste, smell or other sensation, known as an '**aura**', which tends to occur in the same way before each seizure.

**Partial seizures:** Sometimes referred to as '**petit mal**' seizures (although this term is falling out of use). These affect only part of the brain. Changes in consciousness and behaviour occur, such as lip-smacking, picking at clothing, grimacing and unresponsiveness. These seizures can also have symptoms of sudden anger, panic, depression and other states of mind.

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## Diagnosing epilepsy

### EEG (Electroencephalography)

Measurement of the electrical activity on the surface of the brain. Recording electrodes are placed on the scalp, usually for about 20 minutes, or sometimes overnight. Sometimes a person may be asked to stay awake overnight and come into hospital to have an EEG recording whilst falling asleep (a 'sleep deprived' EEG). Wearing the EEG electrodes for 2 or 3 days can help if a recording is needed during a seizure. The wires can be hidden and the recording made on a small recording device attached to a belt.

### ECG (Electrocardiography)

Recording of the electrical activity and rhythm of the heart. Changes in the rhythm of the heart can sometimes trigger off 'epilepsy-like' attacks, therefore heart problems may need to be ruled out.

### MRI (Magnetic Resonance Imaging) Scanning

A brain scanning technique involving using a magnetic field to create pictures of the brain in different planes, or layers. When having an MRI scan you need to put your head in a confined space, which is also noisy, for around 20 minutes and keep as still as possible. Some people who have had a brain injury may find this difficult. In these cases a sedative, or in rare cases an anaesthetic, may be given to help.

## Controlling epilepsy

If you are liable to epileptic seizures, you may be able to recognise the 'warning signs' that one is about to occur (e.g. an aura), and have time to sit down or tell someone what is about to happen. It may then be possible to prevent the seizure from becoming generalised by using a variety of techniques to reduce arousal levels. There is no single proven method of reducing the frequency of seizures or preventing the seizure from becoming generalised: different methods work for different people. It is important to look at individual patterns of seizures and, in particular, at any triggers such as tiredness, stress, caffeine and even relaxation.

Anti-convulsant medication may be prescribed to control seizures that develop following a brain injury. Some people are given drug treatment for epilepsy

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before they have even had a seizure following their brain injury, in order to prevent seizures from developing (prophylaxis).

## What to do if someone has an epileptic seizure

### During the seizure:

- **Loosen any tight clothing around the neck** so that they can breathe freely
- **Do not place anything in their mouth** as this is likely to cause more harm than good
- **Place the person on their side** with something soft under their head. Do not move them any more than this, unless they are lying in a dangerous place

It is not usually necessary to send a person who is having a seizure to hospital. However, medical help should be sought if the seizures show no sign of stopping after a few minutes, or if the individual suffers a series of seizures or suffers physical injury.

### After the seizure:

- **Do not give the person anything to eat or drink** until they have fully recovered
- **Allow them to sleep** if they wish
- The person may experience a **headache** or a period of **confusion**, which could last for hours. If this happens the person should be allowed to **sit or lie quietly** until this improves.

People liable to seizures sometimes carry a card issued by the British Epilepsy Association, or a note saying what should be done in the event of a seizure. It is a good idea to look for such a card or note as it might give some helpful instructions.

## Epilepsy and driving

If you have a seizure, regardless of how 'minor' it was or whether or not you have been diagnosed as having epilepsy, you must inform the Drivers Medical Unit at the DVLA (Driver and Vehicle Licensing Agency). The DVLA will

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typically contact your doctor for a medical report. Occasionally, they will ask you to undergo an examination by one of their medical advisors.

## Useful Contacts

### Epilepsy Action

New Anstey House, Gate Way Drive, Yeadon, Leeds, LS19 7XY

Telephone Helpline: 0808 800 5050

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

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

*Provides a wide range of services, including insurance, and information to people with an interest in epilepsy. Has a network of local branches throughout the UK which supports people with epilepsy, their families and friends, and professional carers.*

### National Society for Epilepsy

Chesham Lane, Chalfont St. Peter, Buckinghamshire, SL9 0RJ

Telephone Helpline: 01494 601 400

Website: [www.epilepsysociety.org.uk](http://www.epilepsysociety.org.uk)

*Provides health information to people with epilepsy, health professionals, and the public. Seeks to raise awareness and understanding of epilepsy and bring about improvements in treatments and services.*

### DVLA

Drivers Medical Unit, DVLA, Swansea, SA99 1TU

Tel: 0300 790 6806

Website: [www.direct.gov.uk](http://www.direct.gov.uk) (click 'Motoring' then 'Medical rules for all drivers')

## Further Reading

- Tony Smith (ed.) (1999). *Epilepsy*. (British Medical Association Family Doctor Series).
- Jolyon Oxley & Jay Smith (1991). *The Epilepsy Reference Book*.
- Adrienne Richard & Joel Reiter (1995). *Epilepsy: A New Approach*.
- *Driving After Brain Injury*. Headway publication.

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