What is epilepsy?
Epilepsy is a common neurological disorder in which the normal activity of brain cells is sometimes disturbed. This can result in strange sensations, emotions and behaviour. Epilepsy can also cause convulsions, muscle spasms and a loss of consciousness.¹

How common is epilepsy?
Around 50 million people have epilepsy worldwide; it is especially prevalent in childhood, adolescence and old age. Epilepsy is the most common serious brain disorder worldwide.²,³

What causes epilepsy?
Brain function is made possible by millions of tiny electrical charges passing between nerve cells in the brain and to all parts of the body. Epilepsy interrupts this normal pattern of charges with excessive electric discharges of nerve cells (also known as neurons). This can affect a person’s consciousness, movements or sensations for a brief period of time.⁴,⁵

Epilepsy is classified into three main types:

- **Idiopathic**: where there is no apparent cause, but it is possible that there may be a genetic link.⁶,⁷
- **Symptomatic**: where a cause has been found. Causes can include: head injury, brain damage at birth, stroke, brain infection and occasionally brain tumour.⁶,¹⁸
- **Cryptogenic**: where doctors believe there is likely to be a cause but they are unable to find it.⁶

60% of people with epilepsy have idiopathic epilepsy.⁷

Introduction to seizures
Seizures types may vary from a very brief lapse in attention or muscle jerk to severe and prolonged convulsions. Seizures can also vary in frequency, from less than one a year to several per day.⁷

What are the different types of seizures?
Doctors have described more than 30 different types of seizures. Symptoms vary with each seizure type, but can include muscle jerking, convulsions, memory loss, eye blinking, muscle stiffening or loosening (which can cause the person to fall), a blank stare, and loss of consciousness.⁶,⁹

Seizures can be divided into two main categories:

- **Partial seizures**: start in, and affect, just one part of the brain. Partial seizures are also referred to as ‘focal’ seizures because the seizure occurs in just one area.⁴
- **Generalised seizures**: are the result of simultaneous abnormal activity in the whole of the brain.¹⁰

What are the different types of epilepsy syndromes?
There are many different types of epilepsy and doctors have identified over one hundred different epilepsy syndromes which are characterised by specific signs and symptoms depending on where in the brain they originate. Specific classification is important as it guides treatment and determines prognosis.⁴,⁸

How is epilepsy diagnosed?
For a diagnosis of epilepsy a person must have had two or more unprovoked seizures. But making a definitive diagnosis is not easy as there is no single test that can diagnose the disease. The first step towards diagnosing epilepsy is identifying the type of seizure and the precipitating factors.¹,¹¹,¹²

If there is a possibility that a person has epilepsy their General Practitioner may refer them to a neurologist, who specialises in conditions affecting the brain and nervous system. Healthcare professionals use a range of tools and investigational techniques to help
diagnosis including: taking a detailed patient history, witness accounts (e.g. from a family member), video recording, EEG and or neuroimaging.\(^{10,11}\)

### How is epilepsy treated?

In most cases epilepsy is treated using antiepileptic drugs (AEDs). The goal of epilepsy treatment is to achieve freedom from seizures with minimal side effects. Monotherapy is the ideal treatment approach but 30% to 40% of patients will need combination therapy to control seizures.\(^ {13,14}\)

Antiepileptic drug treatment should be tailored to the needs of the individual patient. The choice of which drug to prescribe and at what dosage depends on many factors including: the type of seizures a person has and how frequent they are, a person’s lifestyle and age and, for women, the likelihood of pregnancy. People with epilepsy should follow their doctor’s advice and share any concerns they may have about their medication with their doctor.\(^ 8\)

### How does epilepsy affect daily life?

Epilepsy can be associated with profound physical, psychological and social consequences,\(^ 15\) and its impact on a person’s quality of life can be greater than that of some other chronic conditions.\(^ {16}\) A number of factors are thought to contribute to this including the unpredictability of seizures as well as the stigma associated with epilepsy.\(^ {14}\)

People with epilepsy can develop behavioural and emotional problems and have an increased risk of poor self-esteem, depression, and suicide. Many people with epilepsy live in fear that they will have another seizure.\(^ 9\)

Epilepsy can also affect an individual’s education, employment opportunities, independence and notably their ability to drive and hold a driver’s licence.\(^ {15}\)

### What are the risks associated with epilepsy?

Epilepsy carries a significant mortality which is 2-3 times higher than in the general population. This is due to the underlying conditions which cause epilepsy and to the associated effects of recurrent seizures.\(^ {13,17}\)

Physical hazards are a particular concern due to the unpredictability of the seizures. One study found that in patients who had had at least one seizure in the previous year, 24% sustained at least one head injury, 16% sustained a burn or scald, 10% a dental injury and 6% experienced a fracture.\(^ 18\)

In developing countries, 60% to 90% of people with epilepsy receive no treatment due to inadequacies in health care resources and delivery, and due to social stigma.\(^ 3\)

Up to 30% of patients don’t respond to currently available treatments and still have uncontrolled seizures highlighting the need for new antiepileptic drugs.\(^ {2,19,20}\)

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**References**

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