

Epilepsy: An Introduction

- Epilepsy is one of the most common disorders of the nervous system.
- It affects people of all ages, races, and ethnic backgrounds.
- More than 2.7 million Americans of all ages are living with epilepsy.
- Every year, 181,000 Americans will develop seizures and epilepsy for the first time.
- Epilepsy can develop at any time of life, especially in early childhood and old age.

Seizure First Aid

First aid for seizures is simple. Keep calm and make sure the person having the seizure is comfortable and safe from harm.

Types of Seizures

There are many different types of seizures: including ones affecting the whole brain (convulsions) and ones only impacting a part of the brain.

Medication

Medicines are the most common type of epilepsy treatment.

Surgery

For some individuals, medication does not work well against seizures. Doctors may consider brain surgery as a means of treatment.

Employment Issues

People with epilepsy may face barriers to getting and keeping a job.

Driving

States have different driving rules and requirements for people with epilepsy.

Epilepsy is a neurological condition that makes people susceptible to seizures. A seizure is a change in sensation, awareness, or behavior brought about by a brief electrical disturbance in the brain.

Seizures vary from a momentary disruption of the senses, to short periods of unconsciousness or staring spells, to convulsions. Some people have just one type of seizure. Others have more than one type.

Although they look different, all seizures are caused by the same thing: a sudden change in how the cells of the brain send electrical signals to each other.

If you have epilepsy, you probably already know that it's not a mental disorder. It can be caused by anything that affects the brain, including tumors and strokes. Sometimes epilepsy is inherited. Often, no cause can be found.

Epilepsy is generally not the kind of condition that gets worse with time. Most adults who have it can expect to live a normal life span.

Doctors treat epilepsy primarily with seizure-preventing medicines. Although seizure medications are not a cure, they control seizures in the majority of people with epilepsy.

Surgery, diet (primarily in children), or electrical stimulation of the vagus nerve, a large nerve leading into the brain, may be options if medications fail to control seizures. Several drugs (called antiepileptic or anticonvulsant drugs) are prescribed to prevent seizures. Many factors are involved in choosing the right seizure drug. The goal of treatment is to stop seizures without side effects from the medicines.

Terminology

The term "seizure" is widely used to describe an abnormal spasm or convulsion, generated by excessive electrical activity in the brain.

In the medical community, the Latin word "ictus" may be used to describe a seizure. Related terms are used to define events associated with a seizure. Using this lexicon, "ictus" refers to the seizure itself; "ictal" defines the period in which the seizure occurs; "pre-ictal" and "post-ictal" describe periods before and after the seizure; while inter-ictal refers to the period between seizures. Thus, when an EEG reading, for example, is described as "inter-ictal," it means that it was recorded between seizures.

Seizures are epileptic events and having seizures is the defining characteristic of epilepsy.

Epilepsy is from the Greek word "epilambabein," meaning to seize or to attack. Epilepsy has been recognized as a unique disorder for thousands of years, and references to its symptoms occur through the ages, from Babylonian tablets to the Bible.

If you are being treated with antiepileptic drugs, you may need blood tests from time to time, but it is important to remember that drug levels cannot tell how you feel or how many seizures you have had. Achieving the best seizure control possible depends on your taking the same amount of the medicine every day in the manner prescribed by your doctor. However, epilepsy can affect many aspects of life besides the need to take a certain number of pills on time.

If You Have Epilepsy

Epilepsy is what you have, not what you are. You are not an "epileptic." You are a person with epilepsy. Epilepsy is part of your life. It is not your whole life.

Other people may think that having epilepsy makes you different in some obvious way. But that's their mistake. Given the chance, you can probably live, work, and function in the world just as well as anyone else.

However, there are many areas of life in which having epilepsy can cause special difficulties. Knowing more about them may make it easier to cope.

If you have had epilepsy since childhood, you may be concerned about what it's going to mean to you as an adult. With the best of intentions, your parents may have protected you too well from the outside world. You may wonder now how you are going to make the change from being dependent on them to living on your own. Doing so may take some extra effort on your part.

If you have frequent seizures, you may feel you have to live at home. But there may be other living arrangements to help you live independently. To find out what's available in your area, contact your local Epilepsy Foundation.

If you have recently developed epilepsy, you may wonder how much your plans for the future will have to be changed. Perhaps no changes will be required. Or perhaps you will have to re-think some of your plans, at least until your treatment has had a chance to work and your seizure control becomes stable.

The following is intended to provide basic information about epilepsy and seizure disorders to the general public. It is not intended to, nor does it, constitute medical advice, and readers are warned against changing medical schedules and activities without first consulting a physician.

What is epilepsy?

Epilepsy is a neurological condition that from time to time produces brief disturbances in the normal electrical functions of the brain. Normal 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. When someone has epilepsy, this normal pattern may be interrupted by intermittent bursts of electrical energy that are much more intense than usual. They may affect a person's consciousness, bodily movements or sensations for a short time.

These physical changes are called epileptic seizures. That is why epilepsy is sometimes called a seizure disorder. The unusual bursts of energy may occur in just one area of the brain (partial seizures), or may affect nerve cells throughout the brain (generalized seizures). Normal brain function cannot return until the electrical bursts subside. Conditions in the brain that produce these episodes may have been present since birth, or they may develop later in life due to injury, infections, structural abnormalities in the brain, exposure to toxic agents, or for reasons that are still not well understood. Many illnesses or severe injuries can affect the brain enough to produce a single seizure. When seizures continue to occur for unknown reasons or because of an underlying problem that cannot be corrected, the condition is known as epilepsy. Epilepsy affects

people of all ages, all nations, and all races. Epilepsy can also occur in animals, including dogs, cats, rabbits, and mice.

What is the difference between seizures and epilepsy?

Seizures are a symptom of epilepsy. Epilepsy is the underlying tendency of the brain to produce sudden bursts of electrical energy that disrupt other brain functions. Having a single seizure does not necessarily mean a person has epilepsy. High fever, severe head injury, lack of oxygen -- a number of factors can affect the brain enough to cause a single seizure. Epilepsy, on the other hand, is an underlying condition (or permanent brain injury) that affects the delicate systems which govern how electrical energy behaves in the brain, making it susceptible to recurring seizures.

Which doctors treat epilepsy?

Neurologists, pediatric neurologists, pediatricians, neurosurgeons, internists and family physicians all provide treatment for epilepsy. Specialized care for people whose seizures are difficult to control is available in large medical centers, neurological clinics at university and other hospitals, and from neurological specialists in private practice.

Is epilepsy ever contagious?

No, epilepsy is never contagious. You cannot catch epilepsy from someone else and nobody can catch it from you.

What should I consider if there has been only a single seizure?

When a child or adult has never had a seizure before, the first seizure is usually followed by a careful medical evaluation to help the doctor decide whether to recommend treatment with seizure-preventing drugs, or to wait and see whether it occurs again. The most important factor in deciding whether to begin drug treatment for a single seizure is the probability of further seizures. Physicians use both diagnostic tests and careful evaluation of the seizure itself to determine how likely it is that the patient may have more seizures in the future. Age, family history, and possible causes of the seizure are among the factors that are considered. Non-medical issues, such as loss of driver's license or worries about impact on employment, may also enter into the decision. In many cases, the doctor will recommend waiting to see if another seizure occurs before beginning treatment.

What causes epilepsy?

In about seven out of ten people with epilepsy, no cause can be found. Among the rest, the cause may be any one of a number of things that can make a difference in the way the brain works. For example, head injuries or lack of oxygen during birth may damage the delicate electrical system in the brain. Other causes include brain tumors, genetic

conditions (such as tuberous sclerosis), lead poisoning, problems in development of the brain before birth, and infections like meningitis or encephalitis. Epilepsy is often thought of as a condition of childhood, but it can develop at any time of life. About 30 percent of the 125,000 new cases every year begin in childhood, particularly in early childhood and around the time of adolescence. Another period of relatively high incidence is in people over the age of 65.

What should I do if I suspect a seizure disorder?

If you think you or a loved one might be having seizures, it is important to discuss with your physician what has been happening. Keep a record of how often the unusual episode occurs, the time of day it happens and what form it takes. Giving the doctor this information will help him or her determine if what you are describing might be a type of epilepsy.

How is epilepsy diagnosed?

The doctor's main tool in diagnosing epilepsy is a careful medical history with as much information as possible about what the seizures looked like and what happened just before they began. A second major tool is an electroencephalograph (EEG). This is a machine that records brain waves picked up by tiny wires taped to the head. Electrical signals from brain cells are recorded as wavy lines by the machine. Brain waves during or between seizures may show special patterns which help the doctor decide whether or not someone has epilepsy. Imaging methods such as CT (computerized tomography) or MRI (magnetic resonance imaging) scans may be used to search for any growths, scars, or other physical conditions in the brain that may be causing the seizures. In a few research centers, positron emission tomography (PET) imaging is used to identify areas of the brain which are producing seizures.

How can people guard against having seizures?

A person with epilepsy can help control his or her seizures by taking the prescribed medication regularly, maintaining regular sleep cycles, avoiding unusual stress, and working closely with his or her physician. Regular medical evaluation and follow-up visits are also important. However, seizures may occur even when someone is doing everything he or she is supposed to.

How is epilepsy treated?

Epilepsy may be treated with drugs, surgery, a special diet, or an implanted device programmed to stimulate the vagus nerve (VNS therapy). Of these treatments, drug therapy is by far the most common, and is usually the first to be tried. A number of medications are currently used in the treatment of epilepsy. These medications control different types of seizures. People who have more than one type of seizure may have to take more than one kind of drug, although doctors try to control seizures with one drug if possible. A seizure-preventing drug (also known as an antiepileptic or anticonvulsant drug) won't work properly until it reaches a certain level in the body, and that level has to

be maintained. It is important to follow the doctor's instructions very carefully as to when and how much medication should be taken. The goal is to keep the blood level high enough to prevent seizures, but not so high that it causes excessive sleepiness or other unpleasant side effects.

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1 (888) 886-EPILEPSY