

SEIZURES

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DEFINITION:

"A seizure is a burst of uncontrolled electrical activity between brain cells (also called neurons or nerve cells) that causes temporary abnormalities in muscle tone or movements (stiffness, twitching or limpness), behaviors, sensations or states of awareness." (Johns Hopkins Medicine, 2020). Epilepsy is recurring seizures. Seizures are diagnosed with an EEG. MRIs and similar tests may be used to provide further information and to determine an underlying cause.

SEIZURE TYPES:

The two main categories of seizures are focal onset and generalized onset. Focal onset seizures begin in one area of the brain and can spread across the brain. Symptoms can be mild to severe. Generalized onset seizures may start as a focal seizure that spreads to both sides of the brain or seizure activity may start simultaneously on both sides of the brain. These latter seizures are more likely to start in childhood.

Focal onset seizures include the following:

- Focal unaware or complex partial seizures: these seizures cause altered awareness.
- Focal aware or simple partial seizures: the person is aware of what is happening and may experience unusual sensations and movements.

Generalized onset seizures include the following:

- Absence seizures: brief staring episodes, though these can develop into tonic-clonic seizures.
- Myoclonic seizures: sudden body or limb jerks, which may include the arms, head and neck. These can occur on both sides of the body in clusters.
- Tonic and atonic seizures:
 - Tonic seizures cause sudden stiffness in the arms and body, which can lead to falls and injuries. Lennox Gastaut syndrome is a type of tonic seizure disorder.
 - Atonic seizures lead to a sudden loss of body tone leading to collapse and possible injury.
 - A brief tonic episode followed by an atonic seizure is called a tonic-atonic seizure.
- Tonic, clonic and tonic-clonic seizures (formerly known as grand mal): these seizures evolve from any of the focal or generalized seizure types. These seizures may be part of another syndrome, such as juvenile myoclonic epilepsy. Tonic-clonic seizures cause loss of consciousness and violent muscle contractions.

ETIOLOGY:

Seizures are often seen in people with other diagnoses where brain injuries have occurred including cerebral palsy, developmental disorders, meningitis, stroke, brain tumors, traumatic brain injury and other brain injury causes (i.e., anoxic or toxins).

TREATMENT:

The most common treatment is medications. If seizures are particularly difficult to control, diet therapy, nerve stimulation or surgery may be recommended. A ketogenic diet sometimes reduces seizure activity. vagus nerve stimulation is an implanted device which, when activated, sends electrical signals along the left vagus nerve to the brainstem, which then sends signals to specific areas of the brain. This is typically used for focal seizures (Mayo Clinic, 2020). Deep brain stimulation can also reduce seizures that are difficult to control — electrodes are implanted in certain areas of the brain, producing electrical impulses to regulate abnormal impulses. The stimulation is regulated by a device placed under the skin.

Some people who experience seizures require wheeled seating and mobility equipment.

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REFERENCES:

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Michelle Lange is an occupational therapist with more than 30 years of experience and has been in private practice, Access to Independence, for over 10 years. She is a well-respected lecturer, both nationally and internationally and has authored numerous texts, chapters, and articles. She is the co-editor of Seating and Wheeled Mobility: a clinical resource guide, editor of Fundamentals in Assistive Technology, 4th ed., NRRTS Continuing Education Curriculum Coordinator and Clinical Editor of DIRECTIONS magazine. Lange is a RESNA Fellow and member of the Clinician Task Force. Lange is a certified ATP, certified SMS and is a senior disability analyst of the ABDA.

