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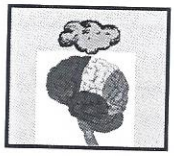
Seizures & Epilepsy



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Director of Education
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National Epilepsy Facts:

- **2.9 million** Americans have epilepsy.
- Roughly **181,000 new cases** of seizures and epilepsy occur each year.
- 50% of people with epilepsy develop seizures by the age of 25; however, **anyone can get epilepsy at any time.**
- Now there are as many people with epilepsy who are **60 or older** as children aged 10 or younger.
- **1 in 10** will have a single seizure in lifetime

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Epilepsy Statistics (cont.):

- *Institutes of Medicine* study released in 2012, ***Epilepsy Across the Spectrum*** states **1 in 26** people will develop epilepsy in their lifetime.
- In Kentucky alone, this translates to over **153,000** living with epilepsy.

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What is a Seizure?

- Your brain cells (neurons) constantly send tiny electrical impulses (signals) that direct the functions of your body.
- All brain functions – including feeling, seeing, thinking and moving in the brain – depend on these electrical impulses passed between the neurons.
- A seizure occurs when too many neurons in the brain "fire" too quickly, causing an "electrical storm".
- These uncontrolled electrical impulses can cause a change in awareness or movement.

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Symptoms that may indicate a seizure disorder:

- Periods of blackout or confused memory
- Occasional "fainting spells"
- Episodes of blank staring
- Sudden falls for no apparent reason
- Episodes of blinking or chewing at inappropriate times
- A convulsion, with or without fever
- Clusters of swift jerking movements

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What is the difference between Epilepsy and Seizures?

- **Seizure** – a brief, temporary disturbance in the electrical activity of the brain
- **Epilepsy** – a disorder characterized by recurring seizures

☆ **A seizure is a *symptom* of epilepsy** ☆

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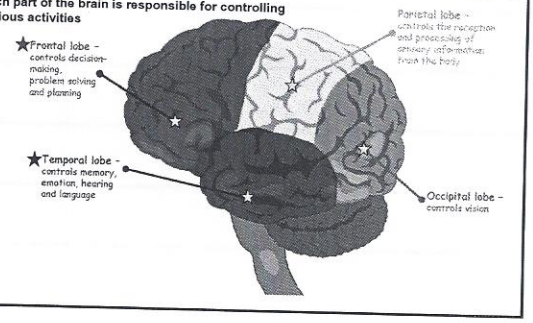
Each part of the brain is responsible for controlling various activities



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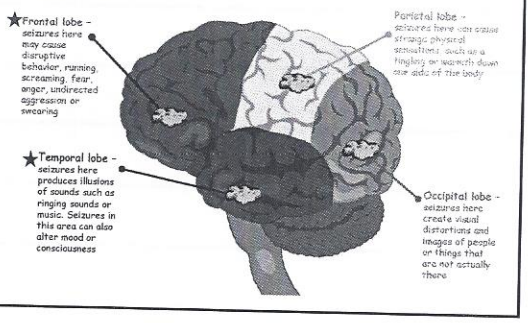
Possible Affects of Partial Seizures



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First Aid for Complex Partial Seizures

- ✓ Stay calm and track the time.
- ✓ DO NOT restrain the person.
- ✓ Remove dangerous objects from the person's path.
- ✓ Calmly direct the person to sit down and guide him or her from dangerous situations.
  - Use force only in an emergency to protect the person from immediate harm, such as walking out in front of an oncoming car.
- ✓ Observe, but do not approach a person who appears angry or combative.
- ✓ Remain with the person until he or she is fully alert.
- ✓ Call ambulance if seizure lasts longer than 5 minutes, or if it is unknown whether the person has had prior seizures.

No first aid is necessary for simple partial seizures.

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When to call an ambulance

- A convulsive seizure occurs in a person not known to have seizures or lasts more than 5 minutes.
- A complex partial seizure lasts more than 5 minutes BEYOND its usual duration for the individual.
- Another seizure begins before the person regains consciousness.
- Also call if the person:
  - Is injured or pregnant
  - Has diabetes/other medical condition
  - Recovers slowly
  - Does not resume normal breathing

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What can trigger a seizure?

- Missed medication (#1 reason)
- Stress/anxiety
- Hormonal changes
- Dehydration
- Lack of sleep/extreme fatigue
- Photosensitivity
- Drug/alcohol use; drug interactions

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Treatment Goals

- Help person with epilepsy lead full and productive life.
- Eliminate seizures without producing side effects.

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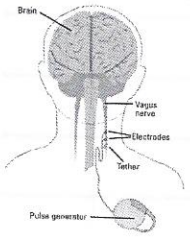
Vagus Nerve Stimulation (VNS)

Used to treat partial seizures when medication does not work.

VAGAL NERVE STIMULATOR



- **Vagus nerve** serves many organs and structures, including:
  - Larynx (voice box)
  - Lungs
  - Heart
  - Gastrointestinal tract
- Vagus nerve has connections to areas of the brain that are instrumental in producing seizures.
- Pacemaker-like device is implanted in the left side of the chest with electrodes wrapped around the vagus nerve.
- Controls seizures by delivering **electrical stimulation** at pre-set time intervals to the left vagus nerve in the neck, which relays impulses to widespread areas of the brain.

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How does VNS work?

- The electrical stimulation produced by the VNS device can significantly decrease the brain's ability to generate seizure activity in most patients.
- VNS therapy does not eliminate the occurrence of seizures in most cases.
- However, the VNS device can stop or decrease the time and severity of seizures when activated right before or during a seizure.
- Most patients will continue to take their anti-seizure medications.

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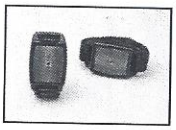
Stimulating the Vagus Nerve to Stop a Seizure



- If a person has a seizure warning sign (aura), he/she or a trained observer may swipe the magnet over the VNS device to activate it and help abort the seizure.
- The magnet may be swiped during an actual seizure to shorten the length of the seizure.
- Once activated, the device will send an additional electrical impulse to the vagus nerve.
- The magnet may be swiped over the VNS device as often as needed with **at least one minute** between swipes.

VNS magnets are usually worn on a belt or on the wrist.