



# Epilepsy 101

## An Introduction

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hello



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# ABOUT US

**Mission, Purpose, Vision**

## **OUR MISSION:**

To support people living with or impacted by Epilepsy through education, support, connection, and advocacy

## **OUR PURPOSE:**

The Epilepsy Association of Calgary (EAC) is a charitable not for profit agency established to address community, individual, and family needs related to Epilepsy

## **OUR VISION:**

A community where all people living with or impacted by Epilepsy can thrive



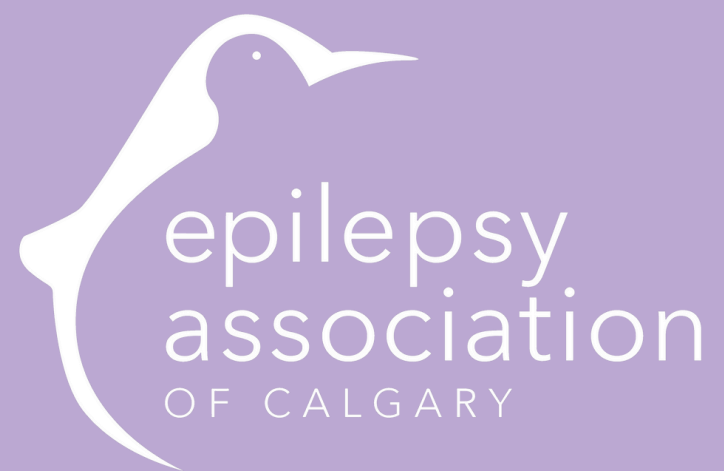
MORE THAN 30,000  
PEOPLE IN SOUTHERN  
ALBERTA ARE  
DIAGNOSED  
WITH  
EPILEPSY

The EAC provides unique support services for people with epilepsy that do not exist elsewhere in Calgary and Southern Alberta!



They, and their  
loved ones, depend  
on our services!

# What is Epilepsy?



- A condition of the central nervous system
- Causes seizures

# Epilepsy Facts



Epilepsy is the 4th most common neurological condition after stroke, migraines, and Alzheimers

Epilepsy is an individual, episodic condition and ranges from mild to debilitating

Seizures are the symptoms

When someone has two or more unprovoked seizures, they will be diagnosed with Epilepsy

1.5% of the population of Alberta has a diagnosis of Epilepsy

A seizure is an excessive discharge of electrical activity in the brain that can affect how a person feels, thinks, and/or behaves



- Anyone can develop Epilepsy at any point in their lifetime
- 1 in 100 live with Epilepsy
  - 30,000 people here in Southern Alberta
  - 260,000 in Canada
  - 65 million worldwide

# What causes Epilepsy



Genetic  
Causes



Structural  
Causes



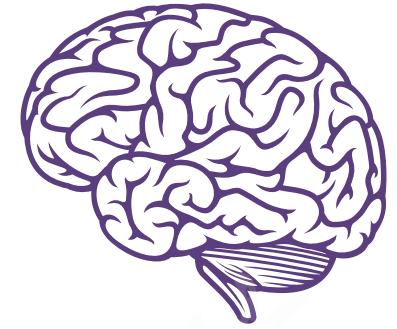
Metabolic  
Causes



Immune  
Causes



Infectious  
Causes

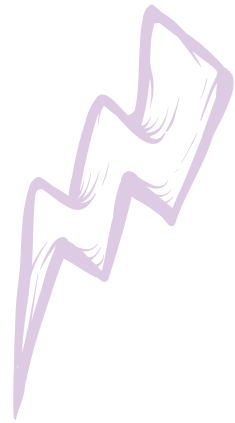


Unknown  
Causes

60 - 75% of the cases are idiopathic (have no known cause)



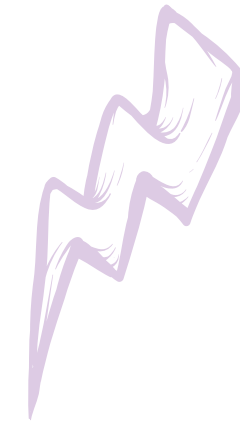
# What does a seizure look like?



A brief stare



A change of awareness



Unusual body movements

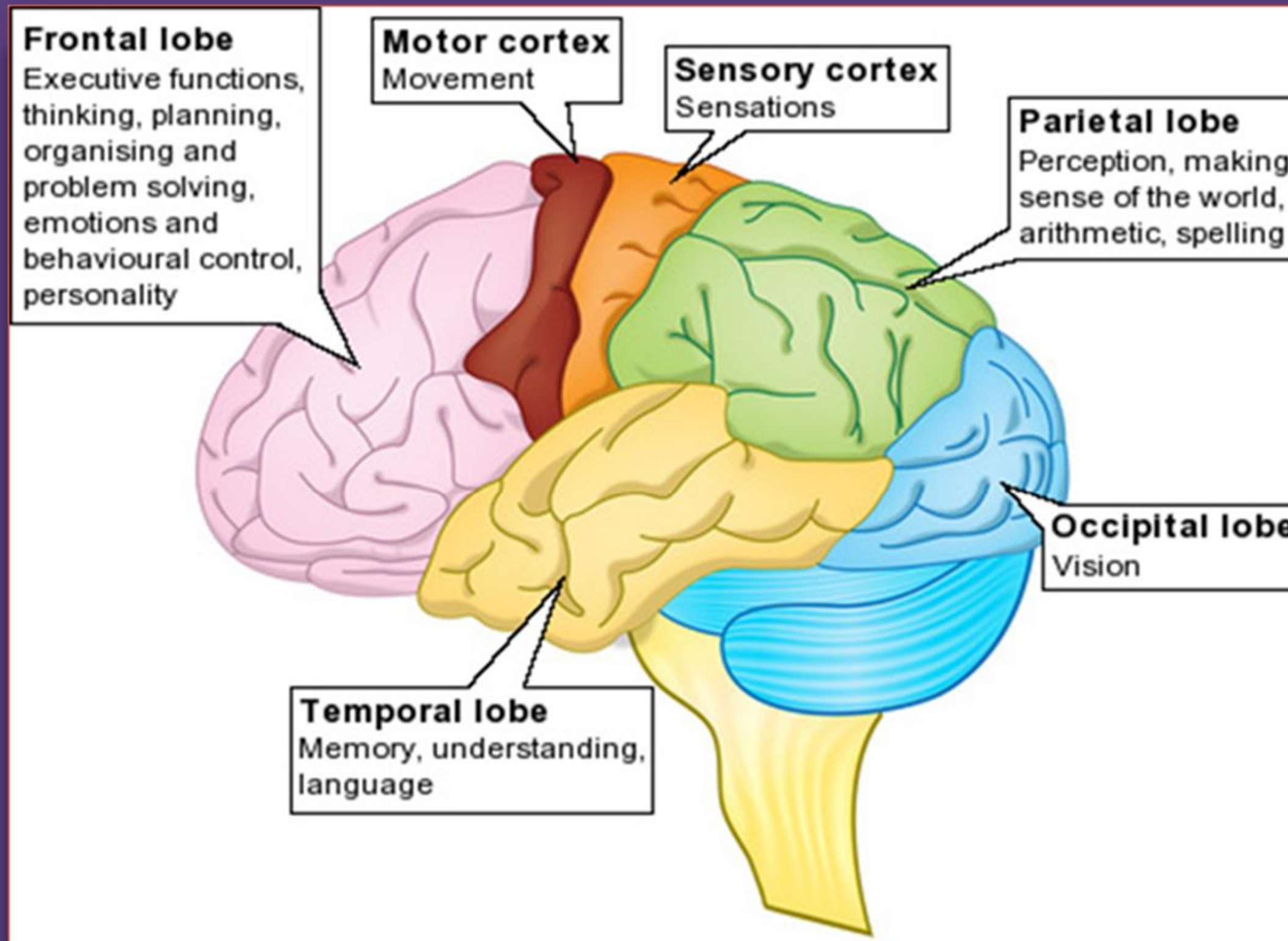


Convulsions

For most people, seizures are brief and infrequent.  
A single seizure does not mean a person has epilepsy.

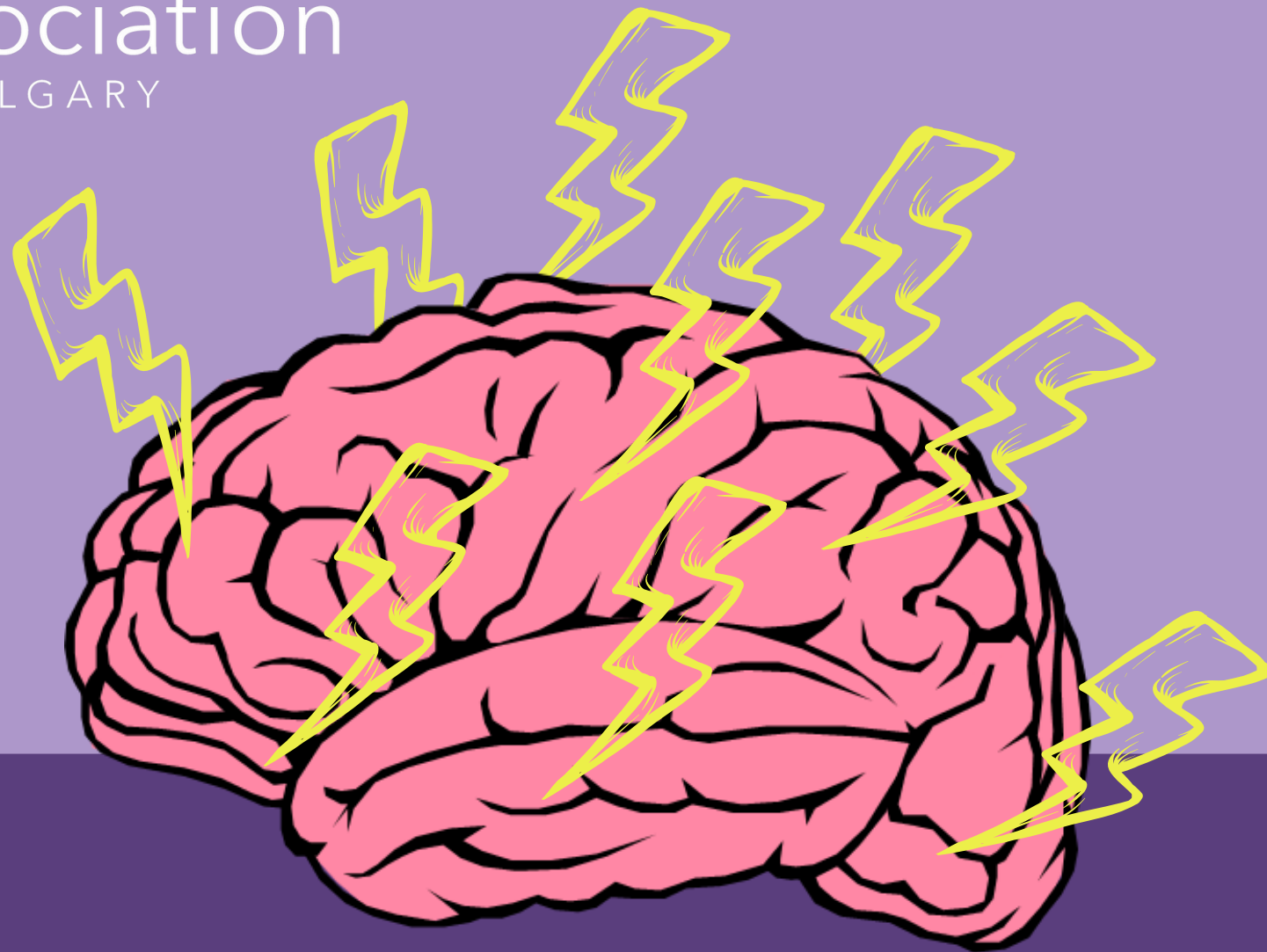
# Types of Seizures





## PARTS OF THE BRAIN

Seizures can affect us differently depending on where in the brain they originate.



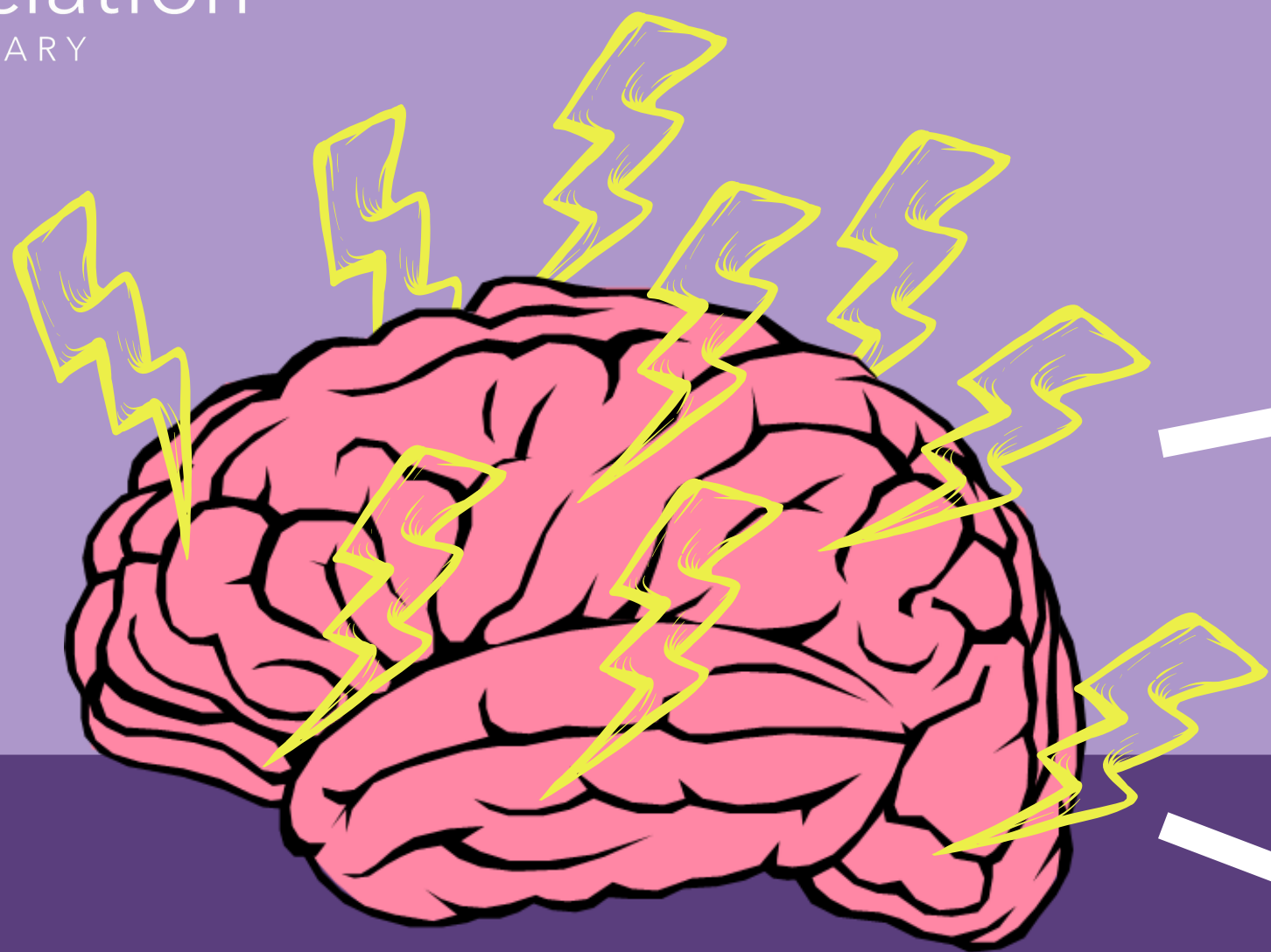
## **GENERALIZED ONSET**

A seizure that involves  
the whole brain



## **FOCAL ONSET**

A seizure that involves  
a specific area of the  
brain



**GENERALIZED SEIZURE**

A seizure that involves  
the whole brain



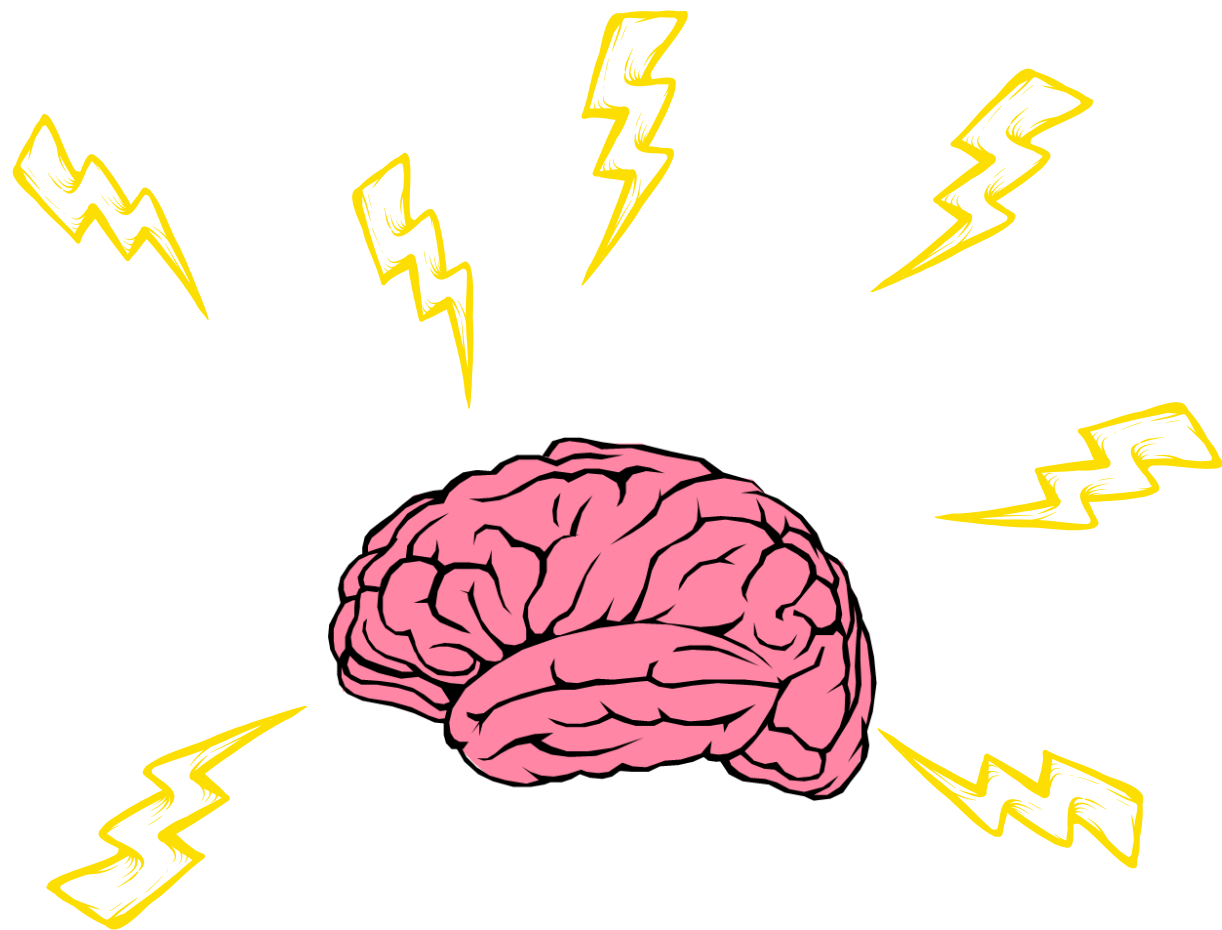
Tonic  
Clonic



Absence

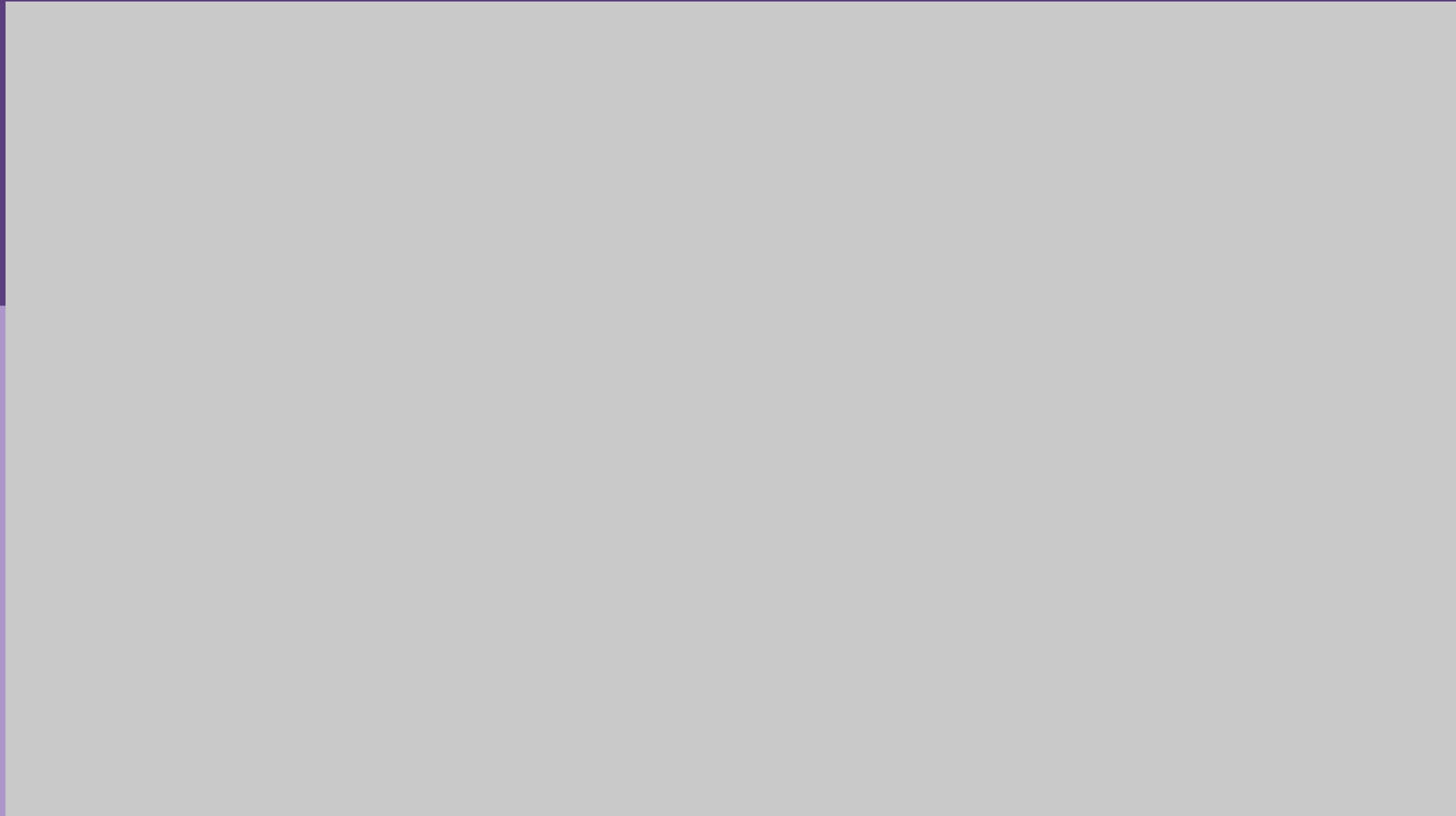


# Generalized - Tonic Clonic



- Person may vocalize and fall to the ground
- Tonic Phase, stiffening
- Clonic phase, shaking (convulsions)
- Skin may turn blue
- Breathing may change
- Person may drool, bite their tongue
- May lose bladder or bowel control
- Can last 1 - 2 minutes +
- Recovery from event can take time
- Person is usually exhausted afterwards

# Generalized Seizure - Tonic Clonic



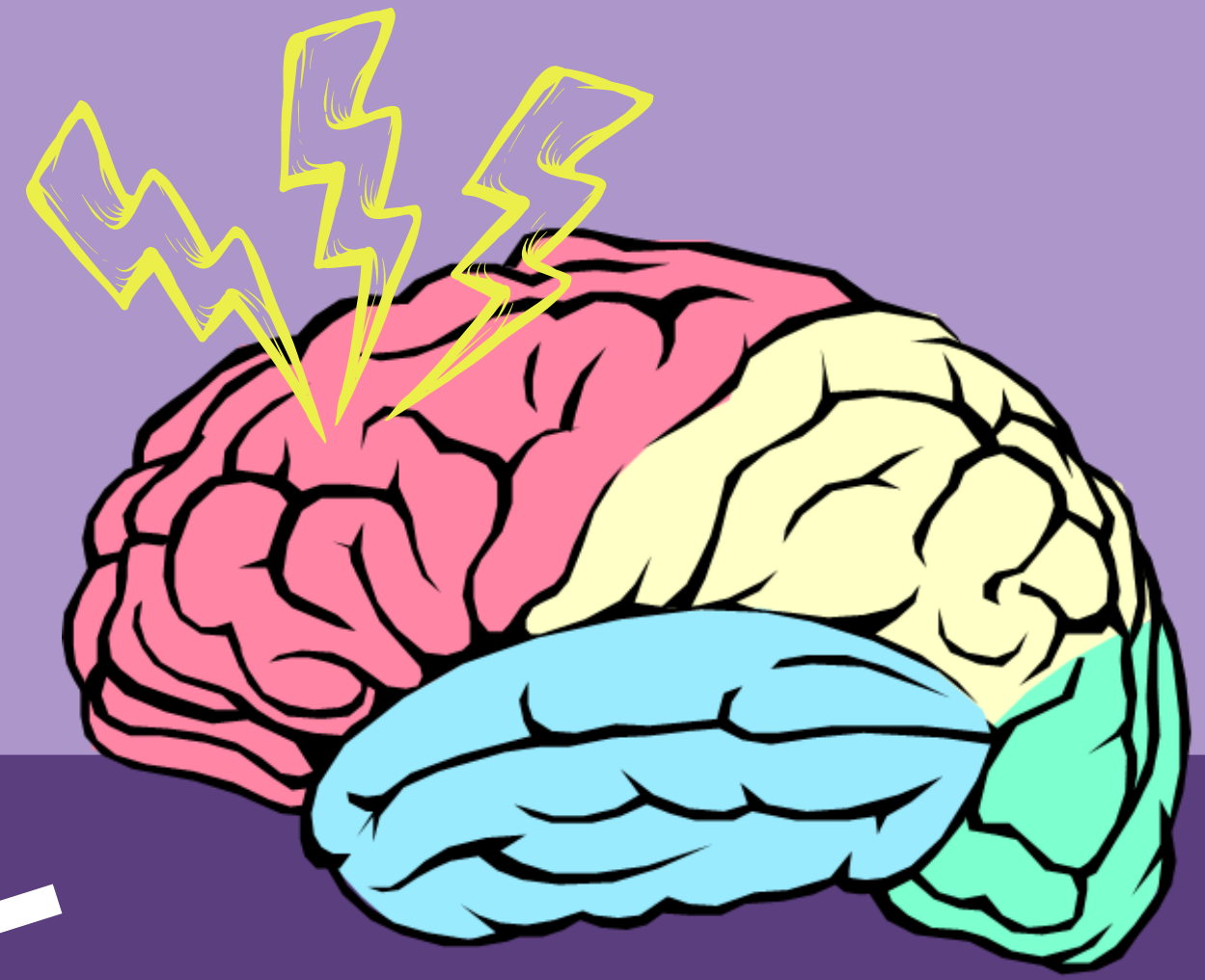
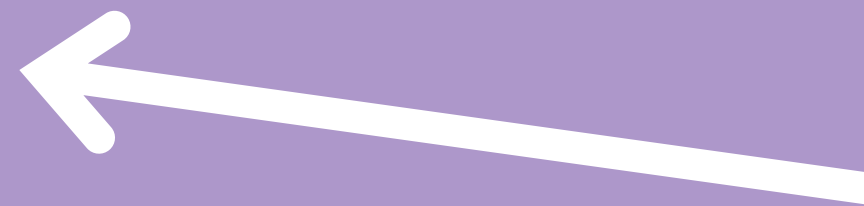
# Generalized Onset Seizure - Absence

- Often occur in children between 4-14
- Sudden brief loss of consciousness
- Repetitive eye blinks
- Resemble daydreaming
- slight muscle movements around mouth
- Lasts 2 - 10 seconds
- People can have 100+ a day
- No recovery time





With  
awareness



With impaired  
awareness



**FOCAL ONSET SEIZURE**

A seizure that involves  
a specific area of the  
brain



# FOCAL ONSET SEIZURES

## **Focal Seizures with Awareness formerly called Aura**

- Could be: strange sensations, sudden or restless movement, hearing distortion, sudden sense of fear, stomach discomfort, dizziness
- Will not lose consciousness
- Can occur alone or as a precursor to a larger seizure
- Lasts between 30 secs - 2 mins

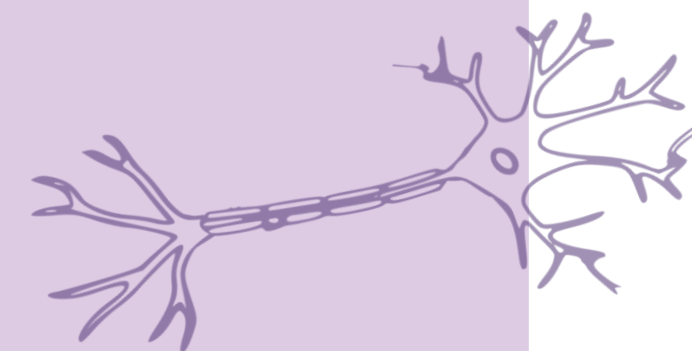


# FOCAL SEIZURES

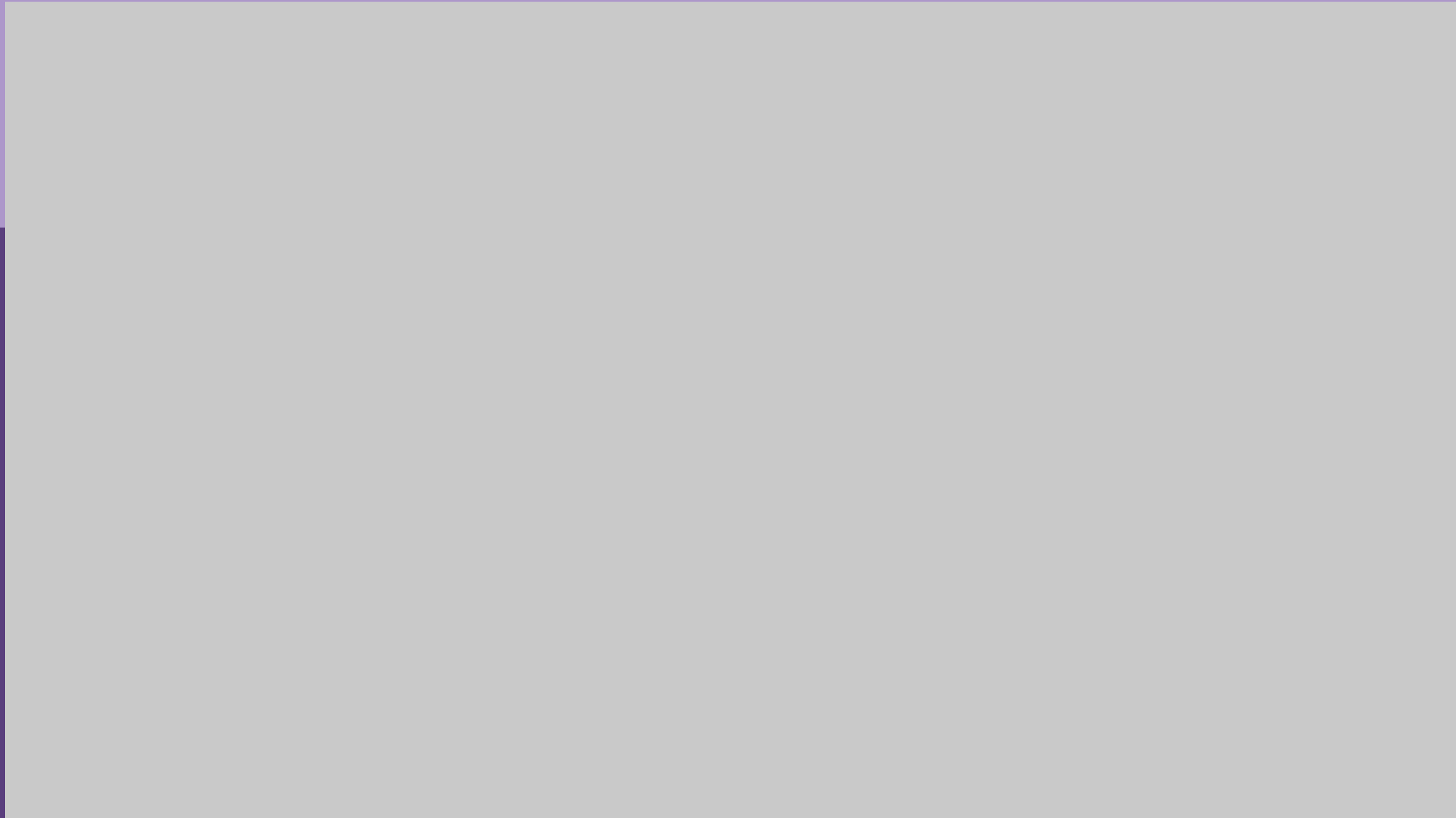
## IMPAIRED AWARENESS

### IMPAIRED AWARENESS

- Once called complex partial seizures
- Change or loss of consciousness
- May stare into space and not respond normally
- May demonstrate repetitive movements
  - Hand rubbing, chewing, lip smacking, walking in a circle, pulling on clothing
- Lasts between 1 to 2 mins



# Focal Seizure- Impaired Awareness



# How Epilepsy is Diagnosed?

THERE IS NO ONE TEST FOR  
EPILEPSY

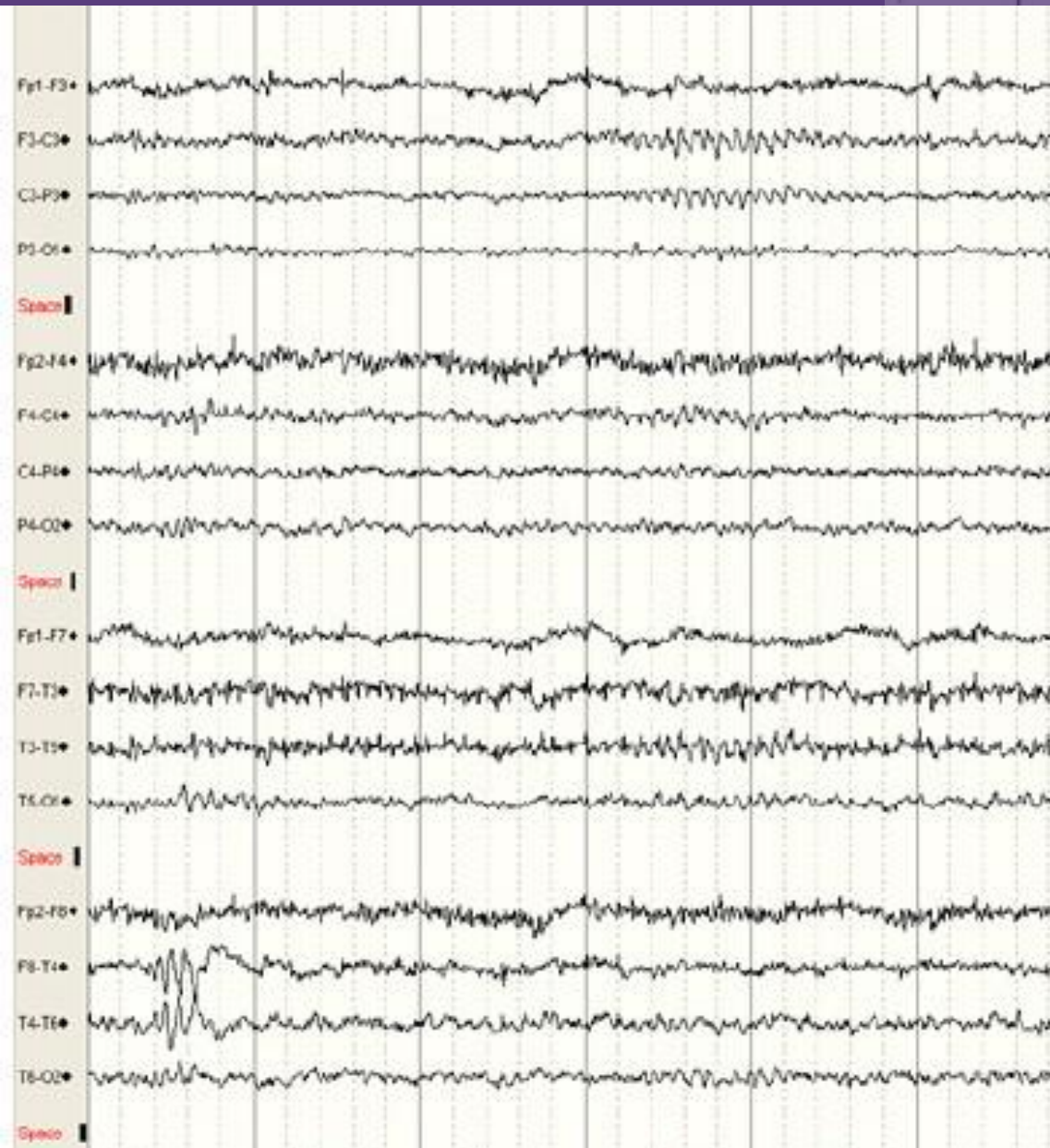


- A neurological exam where critical medical history is obtained
- Blood tests
- Electroencephalogram (EEG)
- Brain Imaging
  - Magnetic resonance imaging (MRI)
  - Computerized tomography (CT)

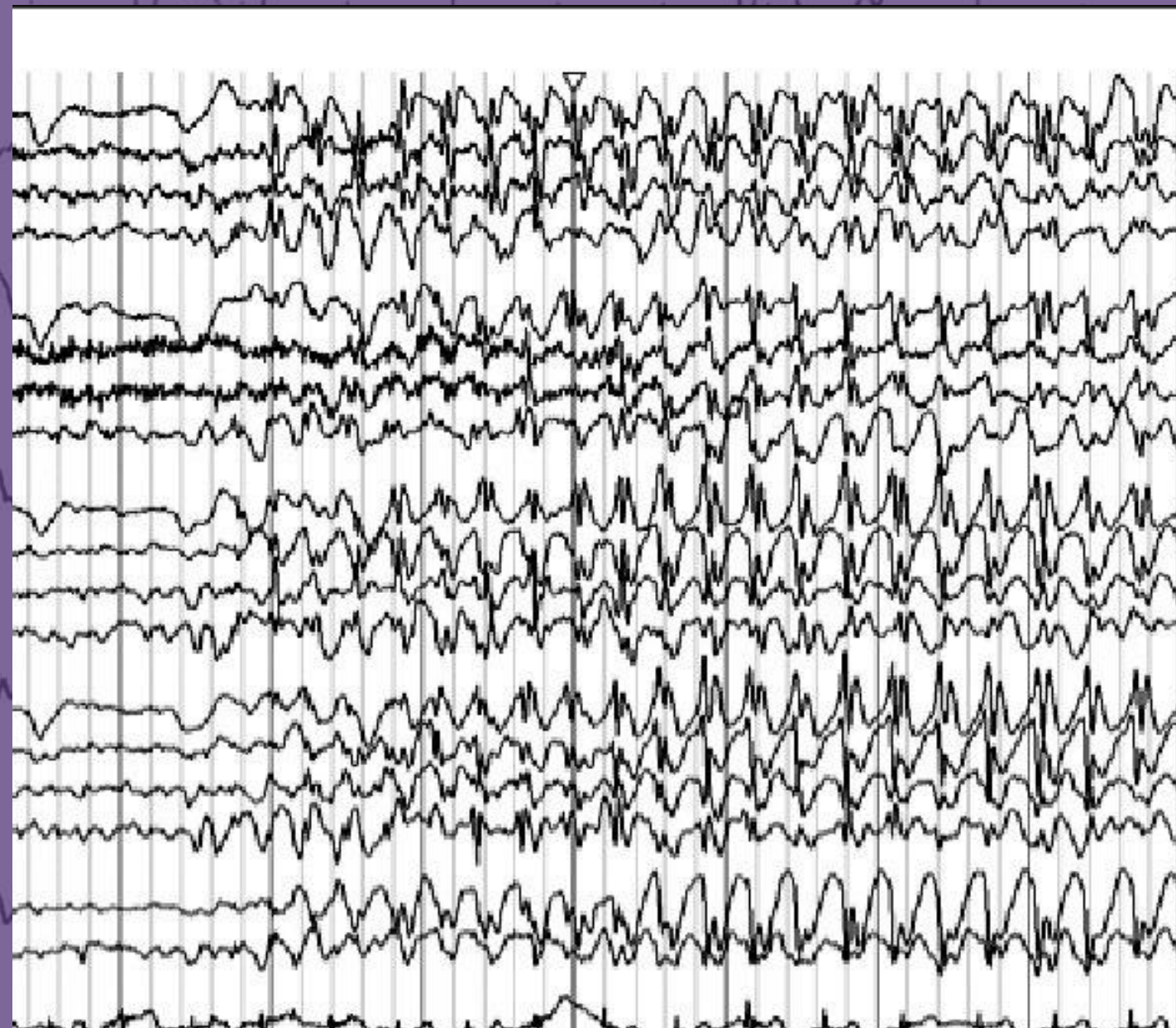




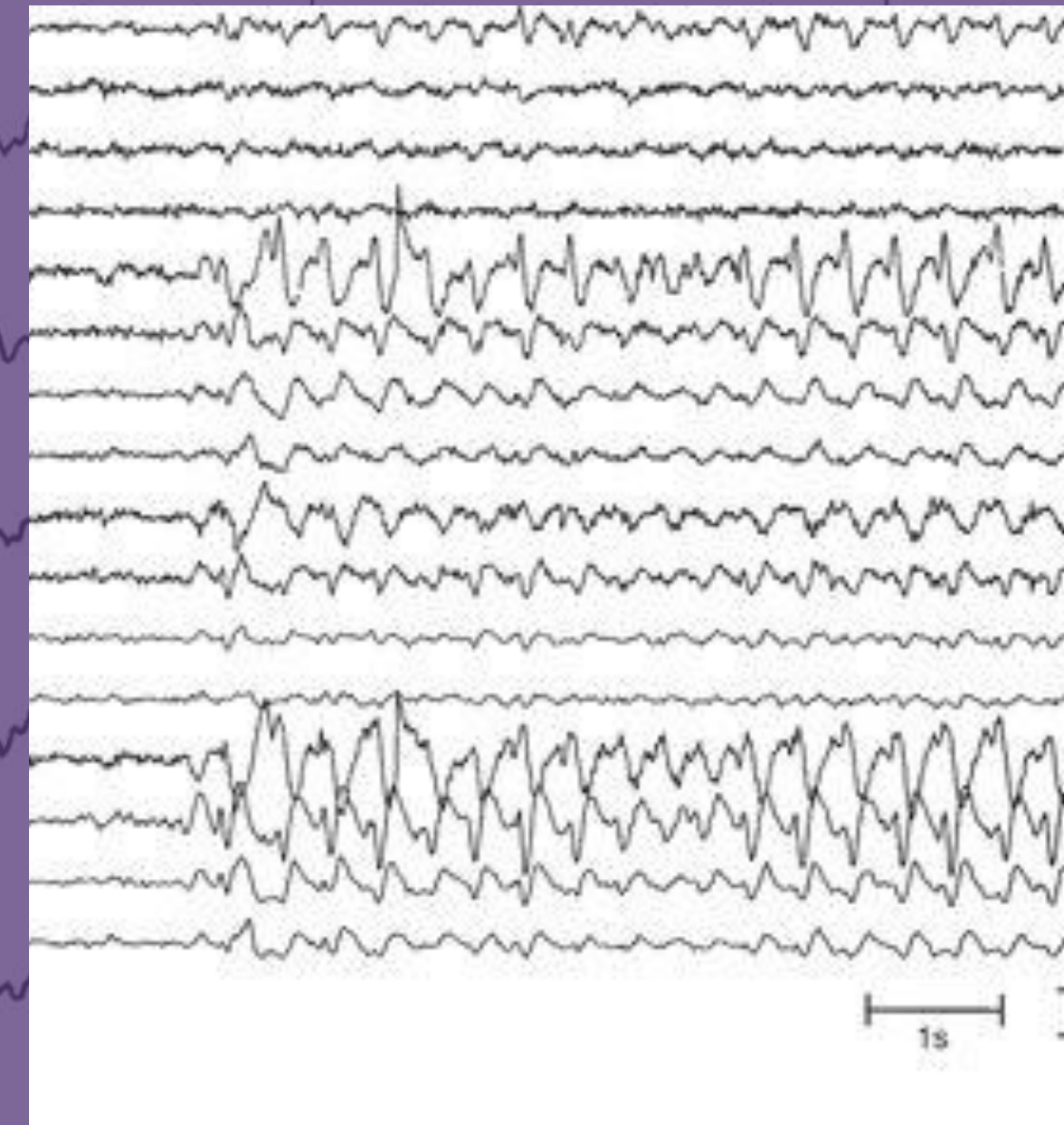
# How Epilepsy is Diagnosed?



NON-EPILEPSY BRAIN

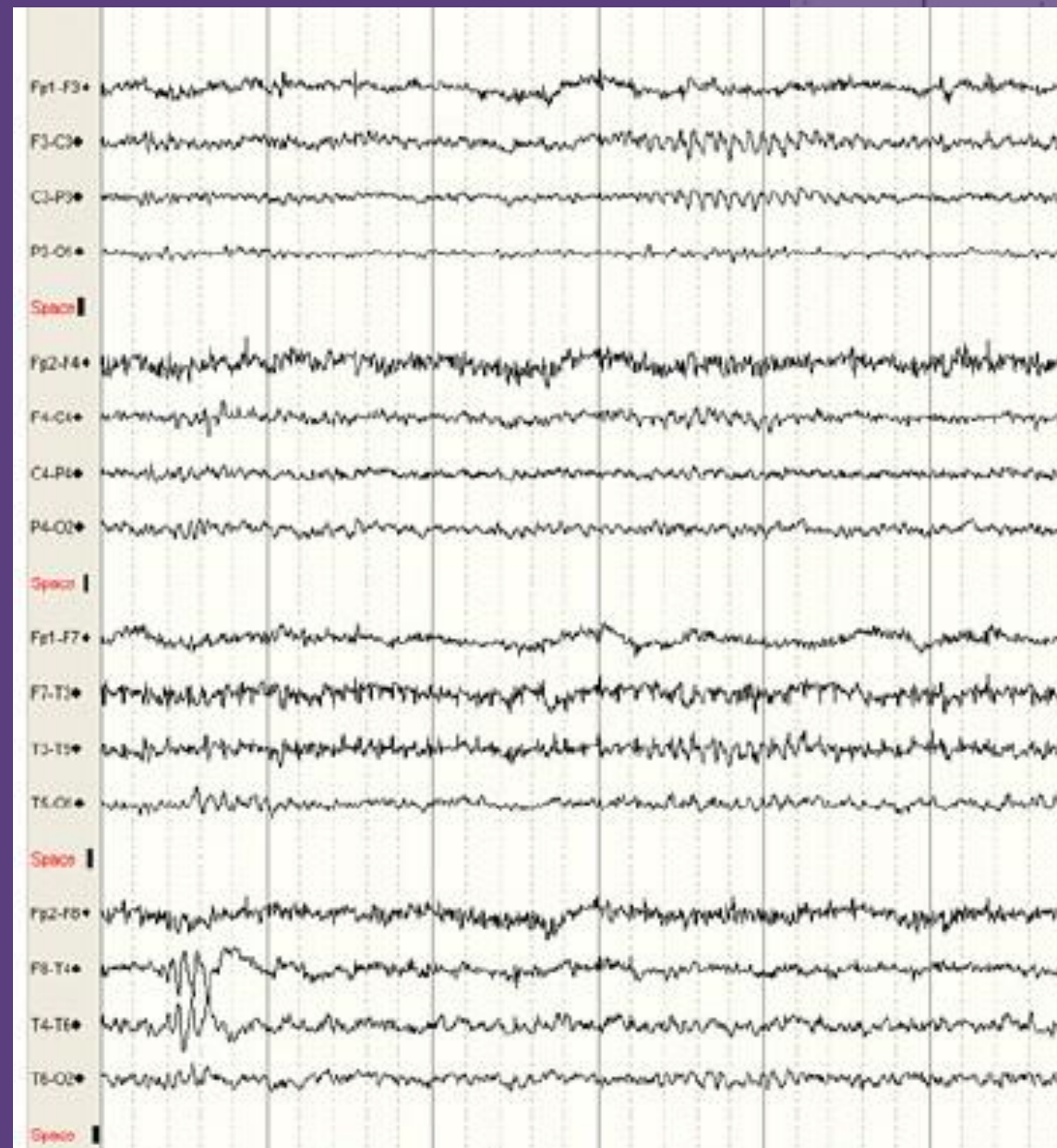


BRAIN WITH GENERALIZED NON-MOTOR

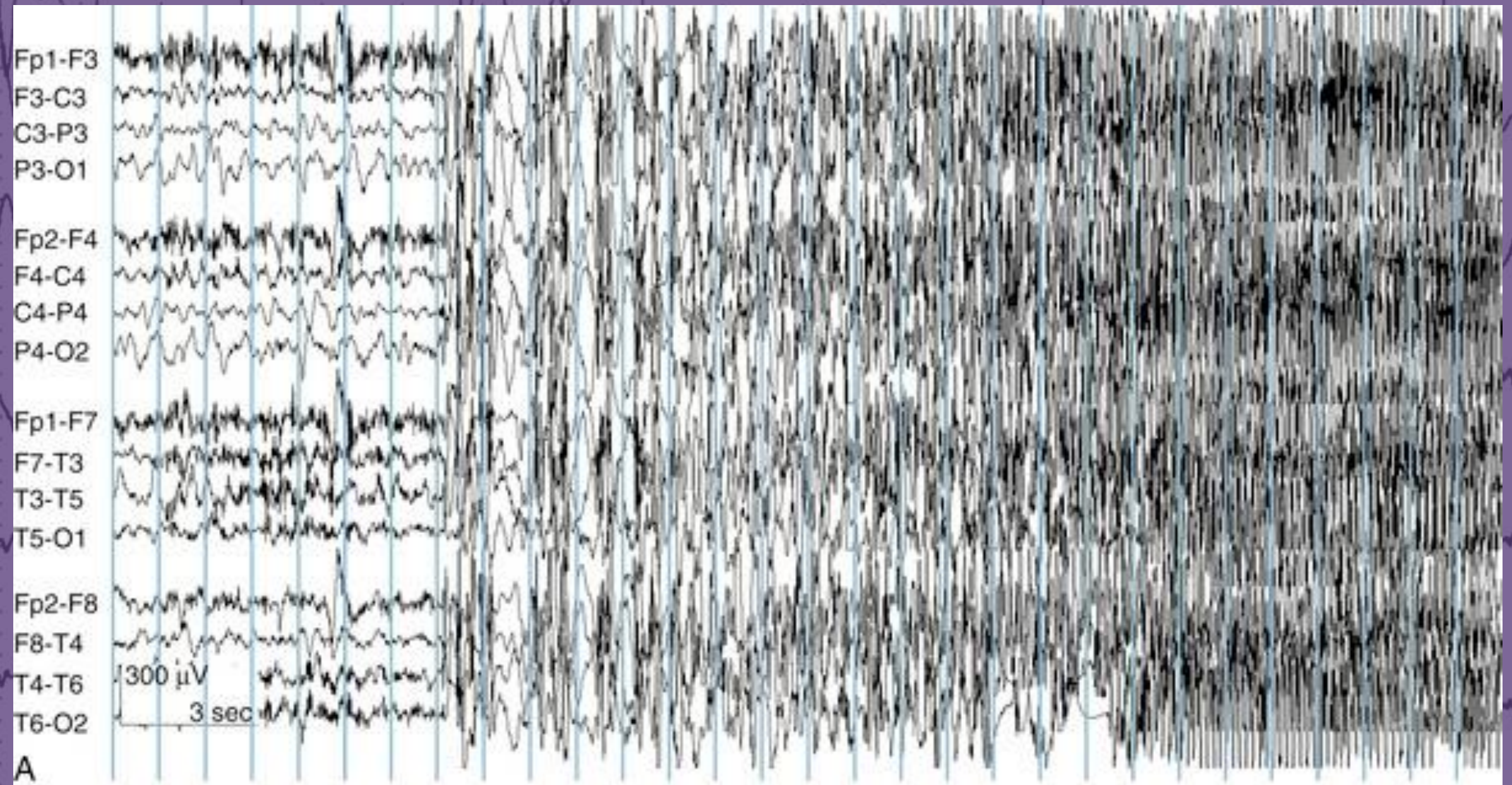


FOCAL IMPAIRED AWARENESS

# How Epilepsy is Diagnosed?



NON-EPILEPSY BRAIN



GENERALIZED TONIC CLONIC SEIZURE

# How Epilepsy is Treated?



## MEDICATION

Possible side effects:

- Fatigue
- Dizziness
- Skin rashes
- Rage
- Loss of coordination
- Speech problems
- Memory and thinking problems
- Depression
- Suicidal thoughts and behaviors

## SURGERY

The surgeon removes the area of the brain that's causing seizures.

- Seizures must originate in a small, well-defined area of your brain
- The area in the brain cannot interfere with vital functions such as speech, language, motor function, vision or hearing

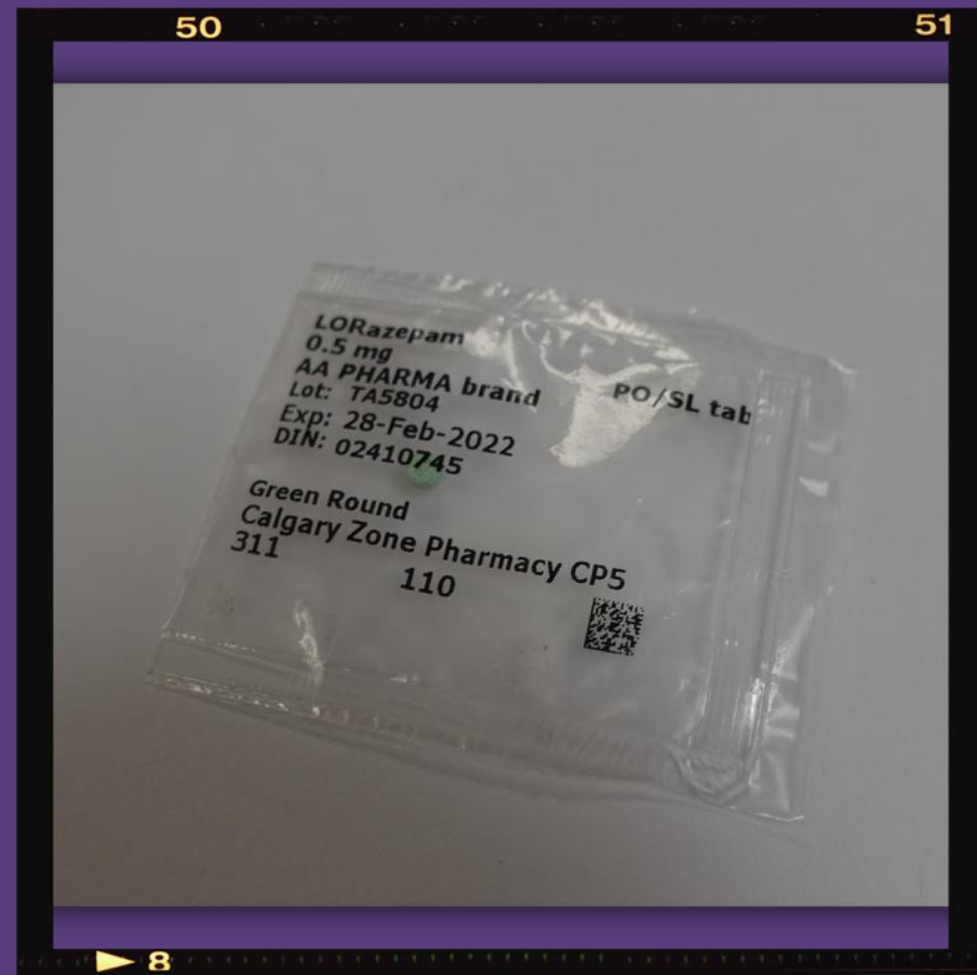
## ADD ON THERAPIES

- Lifestyle
  - Exercise
  - Sleep Hygiene
  - Mind Diet
  - Stress Management
- Vagus Nerve Stimulation
- Ketogenic diet (paediatrics)
- Deep brain stimulation

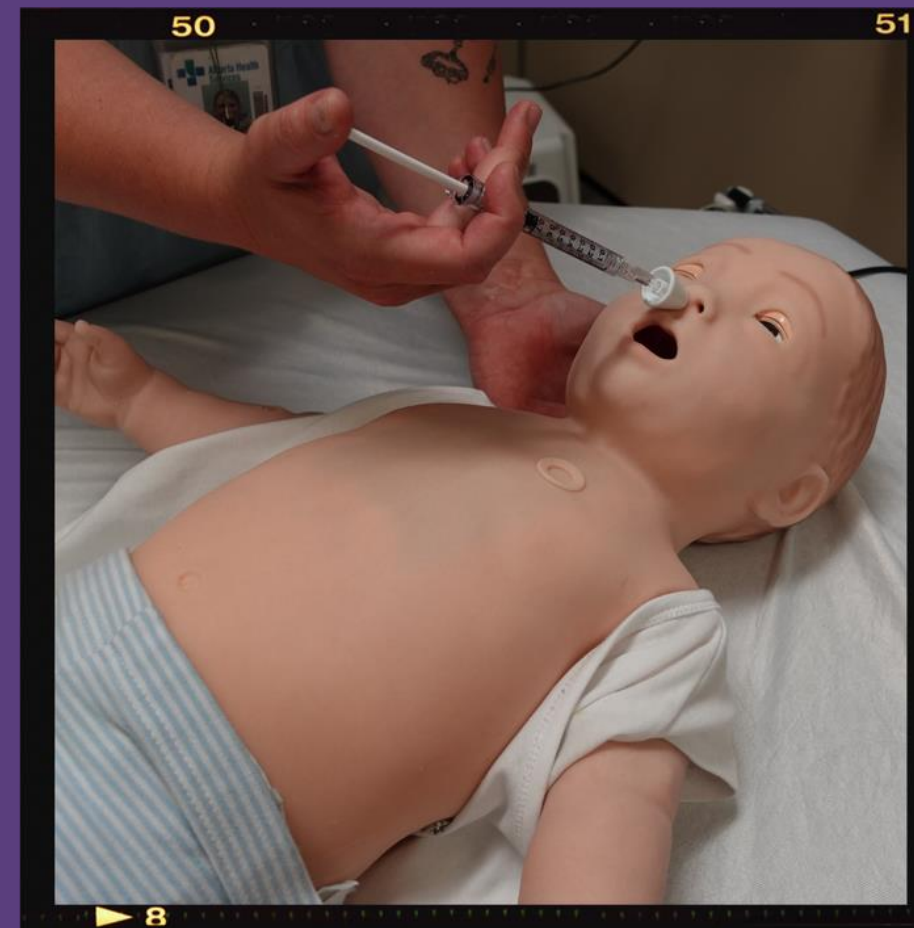
**30% OF PEOPLE LIVING WITH EPILEPSY ARE NOT ABLE TO GAIN SEIZURE CONTROL THROUGH TREATMENT**



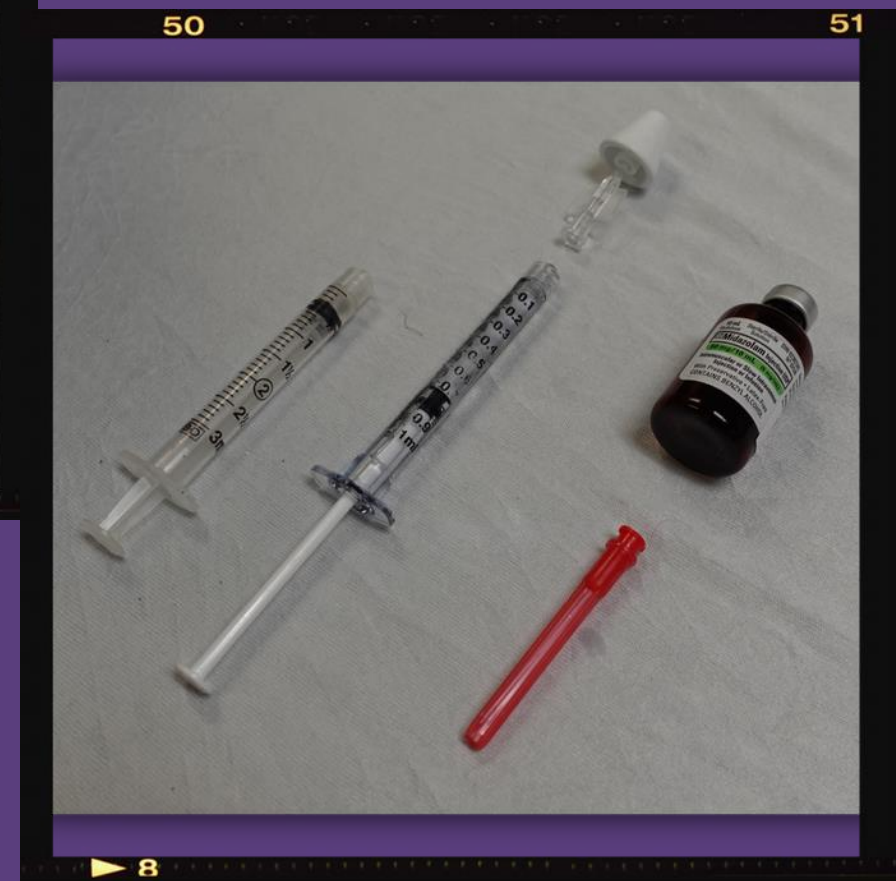
# RESCUE TREATMENTS



Sublingual / Buccal Lorazepam (Ativan)



Intranasal Midazolam



# Vagus Nerve Stimulator (VNS)



VNS Implantation  
Scars



VNS Magnetic Bracelet



# DIFFICULT TOPICS

## REFRACTORY

Refractory epilepsy, also called drug resistant epilepsy occurs when seizures are frequent and severe enough, or the required therapy for them troublesome enough, to seriously interfere with quality of life.

Occurs when a person has failed to become (and stay) seizure free with adequate trials of two seizure medications

## PNES

Psychogenic non-epileptic seizures are events resembling an epileptic seizure, without the characteristic electrical discharges.

Considered a functional neurological disorder or conversion disorder.

## SUDEP

Sudden Unexpected Death in Epilepsy affects 1 in 1000 per year.

People most at risk seem to be young adults with poorly controlled Epilepsy living with tonic clonic seizure disorder.

# SEIZURE FIRST AID

**BE AWARE**  
that the person  
will not be  
conscious of  
their actions

**DO NOT  
RESTRAIN** the  
person, let the  
seizure run its  
course

**GUIDE** the  
person gently  
away from  
danger

**TIME THE  
SEIZURE**, if  
longer than 5  
mins or are  
back to back,  
call 911

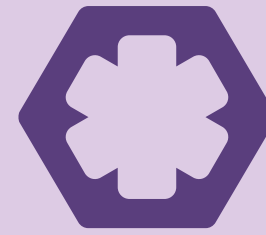
**STAY** with the  
person until  
they are fully  
alert again

**BE  
REASSURING**  
and ask the  
person how  
you can help





Prolonged  
pain



No medical ID



> 5 minutes



Severe  
headache



When is medical  
attention needed?



No  
consciousness



Occurs in  
water



Pregnant, injured,  
or diabetic



2nd seizure  
without recovery

# SEIZURE ACTION PLAN (SAP)



Name: \_\_\_\_\_ Birth Date: \_\_\_\_\_  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_  
Emergency Contact/Relationship: \_\_\_\_\_ Phone: \_\_\_\_\_

## Seizure Information

Seizure Type	How Long It Lasts	How Often	What Happens

### How to respond to a seizure (check all that apply)

- First aid – **Stay. Safe. Side.**
- Give rescue therapy according to SAP
- Notify emergency contact
- Notify emergency contact at \_\_\_\_\_
- Call 911 for transport to \_\_\_\_\_
- Other \_\_\_\_\_

### First aid for any seizure

- STAY** calm, keep calm, **begin timing seizure**
- Keep me **SAFE** – remove harmful objects, don't restrain, protect head
- SIDE** – turn on side if not awake, keep airway clear, don't put objects in mouth
- STAY** until recovered from seizure
- Swipe magnet for VNS
- Write down what happens \_\_\_\_\_
- Other \_\_\_\_\_

### When to call 911

- Seizure with loss of consciousness longer than 5 minutes, not responding to rescue med if available
- Repeated seizures longer than 10 minutes, no recovery between them, not responding to rescue med if available
- Difficulty breathing after seizure
- Serious injury occurs or suspected, seizure in water

### When to call your provider first

- Change in seizure type, number or pattern
- Person does not return to usual behavior (i.e., confused for a long period)
- First time seizure that stops on its' own
- Other medical problems or pregnancy need to be checked

### When rescue therapy may be needed:

#### WHEN AND WHAT TO DO

If seizure (cluster, # or length) \_\_\_\_\_  
Name of Med/Rx \_\_\_\_\_ How much to give (dose) \_\_\_\_\_  
How to give \_\_\_\_\_

If seizure (cluster, # or length) \_\_\_\_\_  
Name of Med/Rx \_\_\_\_\_ How much to give (dose) \_\_\_\_\_  
How to give \_\_\_\_\_

If seizure (cluster, # or length) \_\_\_\_\_  
Name of Med/Rx \_\_\_\_\_ How much to give (dose) \_\_\_\_\_  
How to give \_\_\_\_\_

Seizure Action Plan continued

## Care after seizure

What type of help is needed? (describe) \_\_\_\_\_  
When is person able to resume usual activity? \_\_\_\_\_

## Special instructions

First Responders: \_\_\_\_\_  
Emergency Department: \_\_\_\_\_

## Daily seizure medicine

Medicine Name	Total Daily Amount	Amount of Tab/Liquid	How Taken (time of each dose and how much)

## Other information

Triggers: \_\_\_\_\_  
Important Medical History \_\_\_\_\_  
Allergies \_\_\_\_\_  
Epilepsy Surgery (type, date, side effects) \_\_\_\_\_  
Device:  VNS  RNS  DBS Date Implanted: \_\_\_\_\_  
Diet Therapy  Ketogenic  Low Glycemic  Modified Atkins  Other (describe) \_\_\_\_\_  
Special Instructions: \_\_\_\_\_

## Health care contacts

Epilepsy Provider: \_\_\_\_\_ Phone: \_\_\_\_\_  
Primary Care: \_\_\_\_\_ Phone: \_\_\_\_\_  
Preferred Hospital: \_\_\_\_\_ Phone: \_\_\_\_\_  
Pharmacy: \_\_\_\_\_ Phone: \_\_\_\_\_  
My signature Date \_\_\_\_\_  
Provider signature Date \_\_\_\_\_

## IMPACTS TO EVERYDAY LIFE

- Fatigue
- Cognitive issues
  - attention
  - processing speed
  - memory
  - organizational skills
- Social isolation
- Low self-esteem
- Depression
- Anxiety

"Its about making adaptations, not limitations."

## Programs EAC

- Information and resource sharing
- Support groups for adults, women and caregivers
- Wellness programs - UPLIFT, PACES, HOBSCOTCH
- Community education presentations
- Volunteering
- Monthly Newsletter
- Camp Fireworks!
- Purple Day
- Monthly Webinar
- Peer2Peer

*All of our programs, including education sessions, are funded through grants and donations. We are always looking for support. If you are interested, please get in touch.*





# Additional Resources



## Alberta

Edmonton Association [Home \(edmontonepilepsy.org\)](http://edmontonepilepsy.org)  
[Epilepsy Education Webinars \(albertaeweb.ca\)](http://albertaeweb.ca)

## Canada

Canada Epilepsy Alliance:  
[Home | Canadian Epilepsy Alliance](#)

## International

International League Against Epilepsy

[Welcome to the International League Against Epilepsy \(ilae.org\)](http://ilae.org)





# GET CONNECTED

**Thank  
you!**



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