



## Attentional and Neuropsychological Difficulties Experienced with Epilepsy

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### Learning Objectives

- Define what a neuropsychologist is and the role neuropsychology plays in treatment planning.
- Identify the kinds of attentional difficulties and executive dysfunction often experienced by individuals with epilepsy
- Discuss stressors related to epilepsy and how these issues may impact attention and executive functioning
- Outline how these findings can be used in identifying appropriate interventions



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### Are Epilepsy and Tic Disorders Related?



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## What is a Neuropsychologist?



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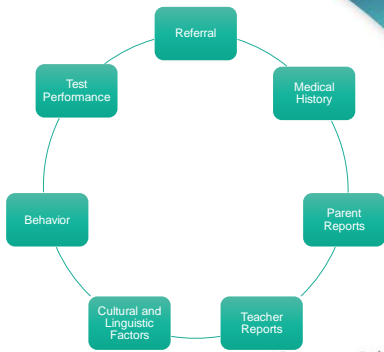
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## Areas of Assessment

- Intellectual Functioning (IQ)
- Language
- Visual-Spatial and Nonverbal Functions
- Fine Motor Skills
- Attention
- Executive Functioning
- Learning and Memory
- Academic Achievement
- Adaptive Functions
- Social-Emotional and Behavioral Functioning



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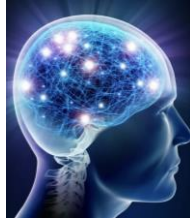
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## What is Epilepsy?

- Disorder of neural activity characterized by **seizures** or abnormal and excessive electrical activity in the brain



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## Prevalence

- Epilepsy is the **most common** neurological disorder to affect children and adolescents.
- Although many children with epilepsy (i.e., 70 – 80%) achieve seizure control with antiepileptic (AED) medications, many individuals also present with neurocognitive and psychological issues



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## Co-Occurring Conditions

- Intellectual Disability
- Anxiety
- Depression
- Attention-Deficit/Hyperactivity Disorder (ADHD)
- Executive Dysfunction



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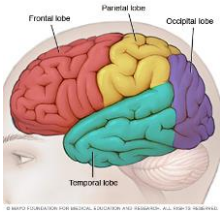
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## Attention and Executive Functioning



- Attention & executive functions are associated with activity in the prefrontal cortex.
- Research suggests that the most crucial function of this area is the regulation of perception, thought, and behavior via the inhibition and activation of other regions.




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## The Brain as an Orchestra




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## Attention

- How well an individual is able to regulate and direct their focus for brief and sustained periods of time.
  - Span
  - Focused
  - Selective
  - Sustained
  - Alternating
  - Divided




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## Executive Functioning

- No clear, agreed upon definition
- Umbrella term which encompasses multiple, inter-related cognitive processes required for goal directed behavior.
- These skills function together to form a cognitive control system.
- The importance of these skills increases with age as individuals are expected to take on additional academic and social responsibilities.




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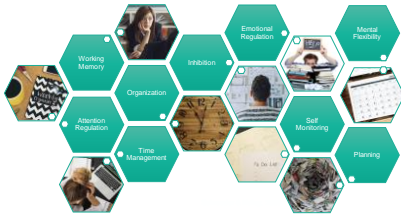
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## Executive Functioning




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Executive Skill	Academic Example	Home Example
Planning	Preparing for long term assignments or exams	Making plans with friends
Organization	Keeping one's desk organized.	Keeping one's room neat and keeping track of belongings
Time Management	Completing and turning in assignments on time	Accurately estimating how long it takes to get ready each morning
Initiation	Independently begins classroom assignments	Able to initiate homework without prompting
Inhibition	Ability to resist impulses, not calling out in class	Waiting one's turn in conversations (i.e., not butting in).
Task Monitoring	Awareness of one's performance, checking work for mistakes	--
Behavior Monitoring	--	Ability to understand the effect one's behavior has on others

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### Attention-Deficit/Hyperactivity Disorder ADHD

- Occurs up to 5 times more common in children with epilepsy (25-40%)
- No gender difference
- Some AEDs result in inattention as a side effect




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### Attentional Profiles in Epilepsy

- In approximately 82% of children with co-occurring ADHD and epilepsy, the core symptoms of ADHD are **seen before seizure onset**
- Predominantly inattentive symptoms.




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### Stigma Associated with Epilepsy

- Distress/guilt associated with family burden
- Low family mastery increases the risk of distress and behavior problems in epilepsy
- Family and teacher lowered expectations
- Social withdrawal
- Alienation




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## Psychological Symptoms Common in Epilepsy

- The strongest predictors of decreased quality of life in childhood epilepsy are co-occurring psychiatric issues.
- Children with epilepsy are at higher risk of experiencing both internalizing and externalizing disorders.
- It has been estimated that up to 50 % of patients with epilepsy also have mood syndromes
- Disturbances in mood may occur as an expression of the seizure itself




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## Risk Factors

- The development of a mood disorder in epilepsy may be due to multiple factors including:
  - Additional brain injury
  - Type and severity of epilepsy syndrome
  - Medication effects
  - Psychosocial factors
  - Cognitive and temperamental attributes




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## How Do We Help?




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