Epilepsy and Learning Challenges

Most children with epilepsy have similar intellectual abilities to children without epilepsy. However, children with epilepsy have a greater chance of experiencing learning challenges than their peers.

- **Common Learning Challenges for Children with Epilepsy**
  - Paying attention and concentrating
  - Understanding instructions
  - Using information
  - Describing things to other people
  - Remembering things
  - Working out how to do something new
  - Organizing thoughts or tasks
  - Feeling you have no energy to do things
  - Feeling muddled or confused
  - Feeling sad or tearful
  - Feeling short tempered or grumpy
  - Working out sums
  - Writing or copying figures
  - Developmental delays

- **Causes**
  - Frequency of seizures
    - A child who is experiencing frequent seizures, may not fully recover between seizures.
  - Location of seizure activity in the brain
  - When seizures are focused in a particular area of the brain, they may also affect functions controlled in that part of the brain.
  - Type of seizures
    - When a child loses consciousness during a seizure, their mental functioning can be disrupted for up to several days.
    - Absence seizures appear to disrupt short-term memory for information presented immediately before the seizure.
    - Tonic-clonic seizures are followed by a period of drowsiness or inattentiveness.
    - Research has shown a correlation between cognitive/behavioural problems and focal dyscognitive seizures (previously called complex partial seizures).
  - Medication side effects
    - Some anti-seizure medications may make some children tired, less alert, or hyperactive.
    - Someone taking more than one anti-seizure medication is more likely to experience negative side effects than someone taking a single anti-seizure medication.
    - Herbal remedies can interact with prescribed medications in ways that will disrupt learning.
  - Age of onset
    - When a child begins to have seizures while their brain is still developing, the seizures can interrupt that stage of development.
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- Type of epilepsy syndrome
  - Some epilepsy syndromes (e.g. Lennox-Gastaut Syndrome) involve learning and thinking difficulties.

- Epileptic (interictal) discharges
  - Some children appear to be seizure-free but may be experiencing epileptic discharges in the brain, called interictal discharges or sub-clinical seizures
  - Interictal discharges may produce restlessness, distractibility, inability to focus, decreased capacity for taking in new information, and behavioural disturbances.

- The underlying neurological problem causing the seizures can also impact learning and behaviour.

- Other related conditions
  - There are a number of other conditions that are more likely to occur in people with epilepsy than the general population, including Attention-Deficit Hyperactivity Disorder (ADHD), Learning Disabilities, and Autism Spectrum Disorders.

* For strategies to help a child with attention deficits, memory problems, or trouble with organization and planning, see our Spark sheets: Epilepsy and ADHD, Epilepsy and Memory (Children), and Helping Children with Organization and Planning.

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Adapted from Children and Learning (Epilepsy Toronto) and Cognitive, Behavioural and Social Co-Morbidities in Children with Medically Refractory Epilepsy (Mary Lou Smith).

Additional Sources:
Canadian Epilepsy Alliance. Learning through Storms: Epilepsy and Learning.

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