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(17) Parents: Epilepsy and learning

In general, epilepsy does not cause a learning disability. However, some types of epilepsy and syndromes are associated with learning difficulties or loss of abilities. Having an early diagnosis coupled with effective treatment to control seizures may reduce the chance of other problems.

What is a learning disability?

Children with a learning disability find it more difficult to learn and understand than other children. You may come across descriptions such as mild, moderate, severe or profound learning disability. Every child has their own individual strengths and weaknesses. It is important to understand this so that the right kind of support can be given to a child. There is no cure for a learning disability.

What is a learning difficulty?

You may also come across the term learning difficulty. This term is often used in the same way as a learning disability. However, particularly in the UK, a learning difficulty usually refers to a specific learning problem, such as dyslexia or dyspraxia.

Causes of a learning disability or difficulty

Learning disabilities / difficulties are caused by an underlying neurological problem. This may affect the structure or the function of the brain and how it has developed. We often do not know the exact cause for a learning disability / difficulty but it is increasingly thought to be due to genetic changes, which affect how neurons (brain cells) signal each other and transmit messages.

A learning disability / difficulty can also be the result of damage to the brain, caused by an infection during pregnancy or a lack of oxygen during birth. Sometimes a child develops a learning disability following an infection of the brain (encephalitis) or meningitis.

Any damage to the brain can be the cause for seizures, although seizures do not necessarily show straightaway after the damage has occurred. It is therefore sometimes difficult to make a connection between the two events.

Epilepsy's effect on learning

Whether a child's learning is affected will depend on the type of epilepsy. Learning is a result of connections being created between neurons via electric signals. Abnormal electrical activity during a seizure can disrupt these connections. These disruptions can make it difficult for a child to retrieve and remember information given at the time. Frequent seizures or abnormal electrical activity in the brain may also affect how many new connections the brain can make. As a result, a child may find it difficult to learn new skills or gain knowledge.

Our brain, however, has an amazing capacity to constantly make new connections and re-learn information or behaviour lost because of seizures. The brain can even transfer functions that are normally controlled by one half of the brain to the opposite side. However, this process takes time and the older the child is, the more difficult this re-learning process becomes.

Some children with epilepsy will have problems with learning. This can vary from very mild to profound difficulties:

Attention and concentration

Seizure activity can affect a child's attention and concentration. A proportion of children with epilepsy will have concentration difficulties. A clinical psychologist or educational psychologist can help a child explore this difficulty in more detail so that the school can provide extra support if necessary.

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Memory

Memory problems are more common in children with epilepsy, and this can affect school work. A full assessment by an educational psychologist will identify any memory problems allowing the school to put appropriate support in place.

Executive functioning / organisation

These cognitive functions are associated with the frontal lobes of the brain and mature across the first 20 years of life. They allow us to understand cause and effect, be self-aware and monitor our own performance of tasks. They also allows us to organise our time.

Executive functions help us to communicate and manage our activities effectively. Any problems with these functions usually become more apparent as the child gets older and can, for example, affect how a child communicates with others or manages independence.

Reading, writing, spelling and / or maths

These specific difficulties are generally common learning difficulties in children. They occur slightly more often in children with epilepsy. Anti-epileptic drugs can also occasionally cause problems with attention and hyperactivity. If you notice these problems, contact your child's doctor or epilepsy specialist nurse.

Identifying causes of learning issues

To find out possible cause(s) of a child's learning issues, it helps to keep an open mind. There could be reasons not connected with seizure activity, such as bullying at school. A child's epilepsy specialist nurse will often work directly with teachers to get to the root of the problem and uncover any previously unknown learning difficulties. This may also be a good time to make a request for an assessment for additional support needs. You can ask your child's teachers directly for this assessment who often will involve an educational psychologist. An epilepsy specialist nurse may also be able to refer to a psychologist for an assessment.

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Forgetfulness

This is common for anyone with epilepsy. Short-term memory tends to be more affected than long-term memory. Forgetfulness could have the following causes:

- Whatever is causing a child's seizures may also be causing forgetfulness. The cause may be scarring on the brain, maybe as a result of a head injury, previous infection (encephalitis) or meningitis. Researchers increasingly think that genetic changes, which affect signalling between neurons, may be a more common cause of memory disruption. If these changes occur in an area of the brain that deals with making and storing memories, this may particularly affect memory.

- Short-term memory is commonly affected before, during and after a seizure. As the brain builds up to a seizure, information may not be processed well enough to pass to the long-term memory. A child may, therefore, not remember anything that happened in the run-up to a seizure.

- Frequent seizures can have a big impact on memory. Normal brain activity can also be interrupted between seizures. A child's memory may improve once seizures are better controlled.

- Anti-epileptic drugs can have side effects such as poor concentration or drowsiness, which in turn can affect memory. A change or withdrawal of medication can sometimes improve the memory. This should never be done without careful medical supervision and may not be an appropriate measure for the type of epilepsy the child has.