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PARENTS' / CARERS GUIDE TO PAEDIATRIC NEUROPSYCHOLOGICAL ASSESSMENT

What is Clinical Neuropsychology?

Clinical neuropsychology is focused on understanding the link between the brain and behaviour. Neuropsychological assessment involves determining how well the brain is working when it is disrupted by a brain injury or psychological disorder. For example, how changes in the health of the brain may affect the ability to pay attention, remember, or solve problems. This understanding between how someone thinks and acts and how the brain works is used to diagnosis and treat brain disorders.

What is Paediatric Neuropsychology?

Paediatric neuropsychology is a medical related specialty concerned with the study of brain-behaviour relationships in children and adolescents.

Who Practices Paediatric Neuropsychology?

A paediatric neuropsychologist is a D.Psych or Ph.D. fellowship–trained psychologist with expertise in how learning and behaviour are associated with the development of brain structures and systems. They have special training in how the brain develops. They use this training to evaluate and provide recommendations / strategies to help manage children with brain disorders.

A paediatric neuropsychologist uses standardized tests and observes behaviour to define a child's pattern of cognitive development and to compare performance with other children at the same developmental stage.

The paediatric neuropsychologist may work in many different settings and may have different roles in the care of the child:

- Help those working with the student to understand how problems with the brain may relate to problems seen at school, home, or with peers
- Understand how a student learns best
- Understand why a child / adolescent may have behaviour problems and provide strategies / recommendations for how to help the child deal with thinking or behaviour problems
- Help match expectations to a child's specific strengths and weaknesses
- May act as a case manager who follows the child over time to adjust recommendation for the child's changing needs.
- May work closely with the physician to manage the child's problems and / or assist with treatment planning
- Some paediatric neuropsychologists also work closely with the schools to help provide appropriate educational programs for the child and to assist with developing the best treatment / school plan for a child

How Does a Neuropsychological Assessment Differ from an Evaluation Conducted by the School?

School assessments are usually performed to determine if a child qualifies for special services to optimize school-related functioning. School psychologists are not generally trained to diagnose learning or behaviour disorders caused by altered brain functioning.

The clinical or school psychologist is primarily interested in the score that the child obtains and how the score relates to academic functioning. The paediatric neuropsychologist is interested in "how" and "why" the child obtains a specific test score as well as in the pattern of scores across different tests. The paediatric neuropsychologist examines academic skills in addition to a range of thinking skills needed to perform well in and outside of school – skills like memory, attention, and problem-solving. Skills are broken down into component parts, attempting to define a pattern of strengths and weaknesses.

Understanding a child's specific thinking strengths and weaknesses helps to better focus school plans and medical treatment and understand potential areas of future difficulty. Because most neuropsychologists have also have training in clinical psychology, they are also able to diagnosis emotional problems like depression and anxiety.

When are Children Referred for Neuropsychological Assessment?

Not every child experiencing school problems or behaviour problems needs a neuropsychological assessment. Neuropsychological assessment can help if a child has:

- A neurological condition such as a brain tumour, epilepsy (seizures), cerebral palsy, traumatic brain injury, neurofibromatosis, tuberous sclerosis, sleep disorders, etc.
- Pervasive developmental disorders such as autism, Asperger's syndrome, etc.
- Acquired disorders as a result of teratogenic substances such as alcohol, illegal drugs, radiation, etc.
- Other medical conditions that may affect brain functioning, such as severe prematurity, diabetes, chronic heart and respiratory problems, certain genetic disorders, or treatment of childhood cancer.
- Learning problems that failed to be remediated by interventions implemented by the school.

Your physician may recommend a neuropsychological assessment to:

- Assist in establishing a diagnosis or to confirm a diagnosis.
- Document your child's current skills prior to a planned medical intervention such as surgery or change in medication regimen prior to chemotherapy or radiotherapy, etc. This initial testing is often referred as "baseline testing". After the medical intervention, testing can be repeated to determine how treatment affected physical and brain functioning.
- Document your child's cognitive developmental pattern over time so that medical treatments, family expectations, and school programming can be adjusted to the child's changing needs.

What Functions Are Assessed?

A neuropsychological evaluation involves examining thinking, behaviour, and social-emotional functioning. The evaluation uses standardized tests and procedures. The Neuropsychologist and examiners work directly with your child. They also talk to you and teachers and other doctors. Tests may be performed using paper and pencil or on the computer. Your child will be asked many questions and to solve different types of problems. Neuropsychological evaluations typically include tests that measure the following:

- Intellectual abilities
- Achievement skills such as reading comprehension, mathematics and spelling
- Sensory and motor functioning
- Attention
- Learning and memory
- Language
- Visual-spatial skills
- Executive skills such as problem-solving, planning, organization, mental and behavioural control and cognitive flexibility
- Behavioural and emotional functioning
- Social skills

Emerging skills can be assessed in very young children, also. However, the evaluation of toddlers and young children is usually shorter in duration because the child has not developed a wide variety of skills.

What Will the Results Tell Me About My Child?

By comparing your child's test scores to scores of children of similar ages, the paediatric neuropsychologist can create a profile of your child's strengths and weaknesses. The results help those involved in your child's care in number of ways.

- Testing can explain why your child is having problems in school. Testing also guides the paediatric neuropsychologist's design interventions to draw upon your child's strengths. The results identify what skills to work on, as well as which strategies to use to help your child.

- Testing can help detect the effects of developmental, neurological, and medical problems such as epilepsy, autism, attention-deficit/hyperactivity disorder (ADHD), dyslexia or genetic disorder. Testing may be done to obtain a baseline against which to measure the outcome of treatment in the child's development over time.

- Different childhood disorders may result in specific patterns of strengths and weaknesses. These profiles of abilities can help identify a child's disorder and the brain areas that are involved. For example, testing can help differentiate between an attention-deficit and depression or determine whether a language delay is due to a problem in producing speech, understanding or expressing language, social shyness, autism, or cognitive delay. The paediatric neuropsychologist may work with the physician to combine results from medical tests, such as brain imaging or blood tests to diagnose your child's problem.

- Most importantly, testing provides a better understanding of a child's behaviour and learning in school, at home, and in the community. The evaluation can guide teachers and therapists as well as parents to better help a child achieve his or her potential.