

*"My child is having trouble in school and an assessment has been recommended. How is a pediatric neuropsychological evaluation different from a psychoeducational evaluation?"*

Understanding the distinctions between the training and competencies of clinical child psychologists, neuropsychologists, school psychologists, and other mental health professionals who evaluate children is understandably confusing for the lay public. The distinctions also may not be clear to school personnel and many mental health practitioners. Pediatric neuropsychologists regularly find themselves answering some variant of the question above to nervous parents of a child whose emotional, academic, and/or cognitive problems require diagnostic clarification. Often the referral source - a pediatrician, psychiatrist, psychotherapist, or school counselor - has provided the parent with the names of several professionals from different disciplines. The recommendations may include a neuropsychologist, a clinical child psychologist, and an educational psychologist. How are parents to understand the differences? This article is intended to clarify the distinctions to help parents and professionals make the best choices for their needs.

Neuropsychologists are psychologists first. They collect and consider historical information, observe and interview patients and significant others, administer diagnostic tests, and clarify diagnoses. The difference between a neuropsychologist and another professional who does testing does not lie in the methodologies employed. An assessment is neuropsychological when the person performing it approaches the referral question(s) with an awareness of brain function and its relationship to behavior, chooses tests accordingly, understands the neurocognitive functions required by each test (which may be at variance with, or in addition to, those suggested by the tests' names), observes and understands the implications of strategies the patient uses to perform tasks, values errors and correct answers because of the rich information their qualitative analysis can provide and accordingly, will not base conclusions entirely upon a patient's scores. Additionally, a neuropsychologist is alert to additional problems suggested by a patient's performance or behavior, and will modify or add tests during an evaluation to evaluate those hypotheses. Published neuropsychological tests make this process efficient and systematic, but a well-trained neuropsychologist should be able to glean as much information with a ball and a stick.

While what are referred to as psychoeducational evaluations vary between practitioners, generally they include a clinical interview, an I.Q. test, a figure drawing test, achievement tests of academic subjects, parent/teacher/child checklists, and a projective personality test. Often, if a discrepancy is seen between I.Q. and achievement scores in a subject, a learning disorder is diagnosed. Diagnosing learning disorders with discrepancy models is outdated and problematic, but they are still used in many school districts and by many practitioners. Commonly, of late, a child is described in the report of such an evaluation as having a problem with learning based upon "visual processing" or "auditory processing," but these usually reflect the modality in which "processing" was measured.

These are labels given without an understanding of the underlying anatomical correlates of such difficulties and they are usually inaccurate, though they sound very scientific.

A diagnosis of a learning problem, such as "Reading Disorder", provides a child access to services through the school district, usually consisting of spending a portion of the day in a "resource room" with other children who have been tested and diagnosed with a problem that precludes their meeting school's demands successfully. Children in resource may progress - usually very slowly - or not, because the diagnoses they are given provide no new information about what is causing their problems.

The pediatric neuropsychologist's evaluation of child who has difficulty reading will also include a clinical interview and administration of tests. The tests, however, are selected to provide information about the integrity of underlying systems in the brain that play different roles in reading and in learning to read. The pediatric neuropsychologist evaluates the subcomponents of the child's attentional system, visual-spatial skills, memory, executive/planning abilities that illuminate how a child organizes information, sensory and motor capacities, emotional function, language system, and academic achievement. The child's process of approach to tasks provides information about underlying information processing that is as important as the scores he achieves. After a test has been administered and scored in a conventional manner, it may be readministered with aspects of standard administration modified. This permits the nature of the child's difficulty to be pinpointed to inform the treatment or accommodations that will be necessary for him to achieve success on comparable, real-life tasks. Children may score poorly on reading tests, for example, for a number of reasons, each of which requires different interventions. A seven-year-old who can't easily match letter sounds with letters will not improve reading given extra time in a resource room to practice reading on her own. Intensive phonetic intervention is needed if the underlying problem is to be corrected. The pediatric neuropsychologist can diagnose "Reading Disorder," but more importantly, in illuminating the root cause the problem, allows the child to be directed to the right type of help. The pediatric neuropsychologist is also alert to comorbidities, which are problems that occur together. Just because something was not included in the referral question does not mean that it does not exist. The thoroughness of his evaluation allows these to be brought to light and treated as well.

Referrals to determine whether a child has ADHD are common in private pediatric neuropsychology, but ADHD is not a complicated diagnosis to make. Pediatricians make it regularly on the basis of checklists and a short observation. A psychoeducational evaluation of ADHD usually includes a clinical interview, an I.Q. test, a continuous performance test (CPT), a drawing task, projective personality measures, and parent/teacher/child checklists. If clinical index scores on the latter are high, the child does poorly on attention span subtests of the I.Q. battery, and something looks fishy on the CPT, a diagnosis is made. From a neuropsychological point of view, such a diagnostic process is not complete.

The pediatric neuropsychologist looks at attention as a behavioral concept that can be observed and rated, but also considers attention as a cognitive construct with several dimensions, which are supported by different areas and systems in the brain. These support a child in making adaptive, effective responses to demands. Attention is considered from the perspective of a child's thinking as well as from the point of view of problematic behaviors. Assessing attention in this systematic manner allows the particular characteristics of a given child's attentional disorder to be known - her unique thumbprint of the disorder. An underaroused child whose cognitive tempo is sluggish will benefit from different

interventions than the child whose arousal is adequate, but who is impulsive. Also, different presentations of attentional problems often co-occur with other problems. An underaroused child for example, can be predicted to have trouble with automating days of the week, math facts, punctuation marks, and the physical act of writing individual letters, which are all tasks mediated by the same brain regions that mediate arousal. These may not be mentioned as problems when parents bring a child. Indeed, the child may be brought to evaluation by proactive parents at the age of five or six - too young to have had these demands made of him in an academic setting. Understanding the functions subserved by different areas and systems of the brain allows such predictions to be made and pre-emptive interventions to be initiated. A neuropsychologist who sees a child with disordered attention will also be alert for tics, compulsive behaviors, or obsessive thoughts because these disorders arise from pathology in brain areas near and overlapping those that mediate aspects of the attentional system. If these aspects of attention are problematic, the functions that share the same anatomical real estate, so to speak, may be affected too. If these other problems are present, they need to be considered when treatment strategies are developed to insure they are addressed, and to insure they are not exacerbated by treatment for the presenting problem(s).

Assessment of a child's emotional function is another component of a thorough neuropsychological assessment for a number of reasons. A child's thinking and behavior are affected by her emotional concerns. A child who is depressed, for example, may look inattentive, or a child who is anxious may look hyperactive. Knowing what is causing the behavior is essential if it is to be treated effectively. In some cases, misconstruing the cause of the problem can lead to treatments that make the emotional problem worse while the real underlying problem goes unaddressed. And just as a child's thinking can be affected by how she feels, so can a child's thinking affect how she sees and feels about the world. If a child has difficulty with the subcomponent of the attention that facilitates the ability to shift from one way of looking at something to another, for example, it is likely that the child is seen as stubborn and oppositional when in fact, the problem is not one of willfulness at all. These types of behaviors and attributions - of which this is one example - affect how a child feels about the world and how others respond to her. The longer she has struggled with unrecognized or misunderstood cognitive problems, and the more these have interfered with her ability to be successful in school, with friends and with family, the greater the impact is likely to be on her view of herself and her expectations of herself and those around her. A competent neuropsychologist should be able to illuminate emotional phenomena - those that underlie what appear to be cognitive problems and those that are caused by them - so treatment can be informed accordingly.

There is substantial variability in the quality of work done by different clinical psychologists who evaluate children. Some are more experienced and are able to diagnose and to describe in varying levels of detail the underlying dynamics contributing to problems. Similarly, there is variability in the quality of work done by psychologists who have trained in neuropsychology. Board certification is one means of assuring a measure of quality control for a public uneducated in making such distinctions that usually have to be made under some measure of duress. The scope of the properly performed pediatric neuropsychological evaluation allows presenting problems to be diagnosed, allows the dynamics that underlie them to be understood and explained, facilitates the identification of co-occurring problems, and allows explicit and productive recommendations for treatment to be made.