The Role of Neuropsychological Assessment in the Evaluation and Treatment of ADHD: Careful Considerations

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Overview

**WHAT** is a neuropsychological evaluation?

What is the **PROCESS**? What is involved in the assessment?

**WHO** do you go to for neuropsychological assessment?

**WHEN** is a neuropsychological evaluation helpful?
1. Help identify associated impairments and strengths
2. Help identify co-occurring disorders
3. Help identify appropriate recommendations

**FUTURE** Directions

**QUESTIONS?**
WHAT is a Neuropsychological Evaluation?
Neuropsychological Evaluations ≠ School Assessments

Neuropsychological Assessment
• Purpose: assess learning and behavior in relation to an individual’s brain processes
  • Subspecialty of psychology
  • Integration of information and identification of cognitive strengths and weaknesses

School Assessments (Psychological, Psychoeducational, Speech and Language, Occupational Therapy Evaluations)
• Purpose: identify need for school services through the IEP or 504 process
• No diagnoses
• Often conducted by a team
Neuropsychological Evaluations

Referral Sources:
- Referred by healthcare professionals, schools, parents, or self-referrals
- Common concerns:
  - Difficulty in learning, attention, behavior, socialization, or emotional control
  - Disease or developmental problem that affects the brain in some way
  - Brain injury from an accident, birth trauma, or other physical stress

Evaluation PROCESS
Information Gathering and Sharing

- History and Clinical Interview
- Record Review
- Parent and Teacher Forms
- Standardized Testing and Observations
- Verbal Feedback
- Written Report
- Additional Consultation
## Domains Assessed

<table>
<thead>
<tr>
<th>Domain</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>Intellectual</td>
<td>Ability to problem-solve</td>
</tr>
<tr>
<td>Language</td>
<td>Structural and functional</td>
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<tr>
<td>Memory and Learning</td>
<td>Verbal and visual</td>
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<tr>
<td>Attention and Executive Functions</td>
<td>Regulation of all actions: attention control, inhibition, planning, time management, mental flexibility, and mental control, especially working memory</td>
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<tr>
<td>Visual-spatial Skills</td>
<td>Perceptual reasoning, spatial knowledge</td>
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<tr>
<td>Motor Coordination</td>
<td>Fine and gross motor</td>
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<tr>
<td>Academic Skills</td>
<td>Reading, writing, math</td>
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<tr>
<td>Emotional</td>
<td>Emotional regulation, awareness, clinical symptoms</td>
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<tr>
<td>Social</td>
<td>Interpersonal relationships, social skills, adaptive skills</td>
</tr>
</tbody>
</table>
WHO do you go to for an evaluation?
Points to Consider

- Qualifications
  - Ph.D. or Psy.D. in Psychology?
- Level of Training in Specialization
  - Graduate Coursework and Clinical Experiences?
  - Postdoctoral Fellowship?
- Areas of Expertise?
- Board Certified
  - Met criteria set forth by field
When do I get an evaluation?

- Look, it's almost 11 o'clock!
- Wow, the last two hours really flew by!
- I hope the teacher didn't say anything important.
Next Steps?

Calvin is an 8 year-old third grader. Concerns were noted by his teacher about his inability to focus during class. His teacher can’t tell whether it is a behavior problem or out of his control. He rushes through classwork.

If concerns about attention or behavior are present, seek evaluation (primary care physician or mental health professional)

Neuropsychological assessment may be helpful but not necessary at this point
Diagnosis of ADHD: Guidelines

American Academy of Pediatrics (AAP):

1. Documentation of DSM-IV criteria
2. Evidence of core symptoms at home and school
3. Evaluation of possible coexisting conditions

American Academy of Child and Adolescent Psychiatry (AACAP):

1. Clinical interviews with parent and patient
2. Review of information about child’s functioning in school
3. Evaluation of comorbid psychiatric disorders
4. Review of medical, social, and family history
Testing is Not Needed

- Diagnosis of ADHD depends upon:
  - Historical review of behaviors
  - Review of developmental course and events that have occurred in that course
  - Family history
  - Observations
    - Direct or
    - Indirect

- There is no test for ADHD:
  - Children with ADHD are variable in their responses to tests
  - Children can do well on tests
  - Executive function testing does not provide definitive information
  - ADHD and executive function deficits may reflect different problems
But, when can a neuropsychological assessment be helpful?
What about now?

Calvin is an 8 year-old third grader. Concerns were noted by his teacher about his inability to focus during class. He often makes careless mistakes. Although he is a good reader, he is still having trouble with writing in school. Also, he often acts out when required to read out loud.

Calvin is an 8 year-old third grader with a diagnosis of ADHD. His attention and behavior seem to be well controlled with medication and behavioral interventions. He is still having trouble with writing in school, in terms of both handwriting and composition.
Neuropsychological assessment is helpful when...

• There is suspicion of low cognitive abilities (e.g., intellectual skills, executive functions, language skills, motor coordination, visual-spatial skills, memory and learning)

• There is low academic achievement

• In order to differentiate among coexisting disorders (i.e., is inattention due to anxiety or ADHD or both?)

• In order to describe an individual’s strengths and weaknesses to tailor recommendations and help with treatment and educational planning

• In order to increase validity of diagnostic impressions

• There are coexisting medical conditions (e.g., epilepsy)
Associated Impairments in Executive Functions in Children with ADHD

- Attention Control, Hyperactivity, and Impulsivity are the Main Components of ADHD

- These components hinder effective execution of tasks

- Attention control problems are prominent – they hinder the capacity to determine what elements of the environment should be attended to

- Behavior control problems in the form of hyperactivity can be present as well – they hinder the capacity to sustain action and stay in one place

- Impulsivity – trouble inhibiting actions makes smooth execution of actions difficult, the goal may not be able to be reached

- Other mental actions can be problematic which hinder behavior regulation
  - Critical ones include: working memory and manipulation of mental content, planning a course of action, engaging in alternative thinking or mental flexibility, and time management
  - All of these can negatively impact organization, school performance, and social interactions
Help to Identify Cognitive Strengths

• A neuropsychological assessment provides a profile of STRENGTHS and weaknesses

• Heterogeneous disorder

• Variability in cognitive profile

• More accurate cognitive profile helps in treatment and educational planning
Co-occurring Disorders

Rule rather than exception

OF children and adolescents diagnosed with ADHD,
50% Developmental Coordination Disorder
35-40% Dyslexia
60% Specific Learning Disability

Risk for anxiety disorder is approximately 7x greater
Risk for depression is approximately 8x greater
Risk for Tourette syndrome is approximately 10x greater

Tailoring Recommendations

• Educational Placement
  • Type of educational setting
  • Special educational instruction or interventions

• Treatment Planning
  • Related Services
  • Psychological or psychopharmacological interventions

• Accommodations
  • Testing
  • Classroom
  • Assistive Technology

• Strategies
  • Individual
  • Teacher
  • Parent
Future Directions

Response to Treatment

Increase positive outcomes

Identifying various endophenotypes
Questions?

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