

The Role and Goals of a Neuropsychological evaluation

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Questions under consideration

- Which specialty – when and why?
 - Neurology
 - Psychiatry
 - Neuropsychology
 - Psychology
- School-based or independent evaluation?

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Specific to neuropsychological evaluation

- What comprises a “neuropsychological evaluation”?
- How does one make sense of the information provided in a neuropsychological evaluation?
 - Decoding the information in order to understand and, in turn, present it to relevant professionals
 - Translating findings into practical, effective educational interventions

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And the most important question of all?

- Having spent all that money on a neuropsychological evaluation, is it really the magic key that will open the door to all the services my child needs?

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First: Reader's Digest introduction to the structure and goals of a neuropsychological evaluation

- The differences among the specific evaluations done by different specialists has to do primarily with the model or framework that defines that speciality
- Use model that guides neuropsychological evaluations to illustrate, then compare to implicit model guiding other specialties

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Model that guides structure of and interpretation of findings from neuropsychological evaluation

- Neuro : Brain
- Psychology: Behavior
- The neuropsychological evaluation is structured around a brain-based model


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Three Axes

- Left-Right hemisphere
 - Left hemisphere "language"
 - Right hemisphere "global, visual/spatial"
- Anterior-posterior regions
 - "frontal lobes" (executive skills)
 - "backal lobes" (comprehension, knowledge base)
- Up-Down (Cortical-Subcortical)


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- Left hemisphere
- Right hemisphere




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- Anterior (frontal lobes)
- Posterior (verbal, visual, spatial processing and integration)



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- Up
 - The "left-right" and "anterior-posterior" regions
- Down
 - Regulatory systems
 - Memory systems
 - Connections ("white matter")



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Goal of Neuropsychological Evaluation

- Assess those axes
 - Language-based processes (posterior to anterior)
 - Vocabulary, syntax
 - Linear, analytic, sequential processing
 - Attention to and memory for facts and details
 - Fluency and elaboration
 - Visual-spatial processes (posterior to anterior)
 - Visual perception (orientation, shape, position)
 - Visual production (drawing, construction in 2- and 3-dimensional space)
 - Spatial organization
 - Social intuitions, communication (pragmatics)

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- Regulatory systems ("down", subcortical)
 - Regulation of attention
 - Regulation of behavior
 - Regulation of affect
 - (memory relevant as well)
- Executive control skills ("up", frontal)
 - Working memory (critical to monitoring, planning, reflection)
 - Judgment, perspective taking
 - Goal-directed planning
 - Initiate, monitor progress towards a goal
 - Goal-directed problem solving
 - Cognitive flexibility
 - Alertness and adjustment to feedback

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Tools

- An evaluator uses tools to elicit information, not to get an “answer”
- The information is in the pattern of an individual's performance, not in the details
- What distinguishes among evaluations is the patterns

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And you're style is . . . ?

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Tests typically comprising a neuropsychological evaluation

- Cognitive testing (Wechsler intelligence test)
- Measures of “3 axes”: language, spatial skills, memory, executive control skills
- Achievement skills (important in guiding academic recommendations)

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Ok, so now what

- Identify salient patterns in neuropsychological profile
- Use that profile to characterize
 - student's dominant learning style
 - Areas (if any) of relative and/or significant need
 - Areas of particular talent (both to enhance and to use in mitigating impact of weaknesses)

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For example

- Strengths:
 - Social intuitions
 - Spatial organization, appreciation of global patterns and relations
- Weaknesses
 - Attention to and memory for rote details (e.g. word finding difficulty, trouble remembering facts in math, history, science)
 - Good “sense” of content and concepts, but difficulty “elaborating”
 - Seen as bright but underperforming
- Specific deficits
 - Poor performance on tests (despite studying, though assumed to be spending too little time preparing)
 - Deficit in written production

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Use to identify risk factors, guide recommendations

- Use lots of visual supports and active learning tools
- provide notes, study guides that organize and direct attention to details
- Tutorial support in writing (complementing writing style – use strengths in getting “gist”, guide in adding detail)
- Support with developing study strategies; use to model adjusting strategies based on relative effectiveness

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Back to which specialty

- Guided by referral question
- Medical: if known or suspected medical concerns; and/or if medication appropriate to have under consideration
 - Neurology
 - Psychiatry
- Psychological: if focus is on detailing cognitive, social/emotional, and/or more detailed neuropsychological profile (cognitive and projective testing) and more specific academic recommendations
 - Clinical psychologist
 - Neuropsychologist

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which specialty

- Medical: if known or suspected medical concerns; and/or if medication appropriate to have under consideration
 - Neurology
 - Model: The nervous system as a whole
 - Evaluation: focused on identifying any focal neurological deficits based on behavioral findings
 - » Mental status
 - » Cranial nerves
 - » Motor system
 - » Sensory system
 - » Reflexes
 - » Coordination and gait
- Psychiatry
 - Model: Determine if individual meets criteria for a specific psychiatric disorder based on history, clinical interview, presenting symptoms (social, behavioral, academic)

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which specialty

- Psychological: if focus is on detailing cognitive, social/emotional, and/or more detailed neuropsychological profile (cognitive and projective testing) and more specific academic recommendations
 - Clinical psychologist: emphasis on evaluating social, emotional, behavioral concerns
 - Neuropsychological evaluation: most relevant when there is a known or suspected neurodevelopmental disorder (e.g. epilepsy; metabolic or genetic disorder; neurological insult (e.g. head injury; anoxia)) or a question of a specific learning disability (e.g. executive control deficit (ADHD sort of); language based LD; non-verbal LD)

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Same question, Different approaches

- Referral question: does a student have an attention deficit
- Neurologist:
 - Examine for specific neurological signs
 - If none, consider behavioral symptoms
 - If meets criteria for ADHD, consider medical and behavioral interventions
 - Refer for lab tests (OT, PT, Neuropsych)

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- Psychiatrist
 - Interview, review of history and current symptoms
 - Determine if meets behavioral criteria for ADHD and/or any other psychiatric diagnoses
 - Recommendations for medical and behavioral interventions
 - Refer for lab tests (OT, PT, Neuropsych)

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- Neuropsychologist
 - Ignores reference to ADHD, reframes as executive deficits
 - In evaluation, priorities examination of executive skills and regulatory systems
 - Also consider sensory issues; anxiety; spatial/organizational deficits
 - Refer for projective testing and/or med consult if appropriate

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- Clinical psychologist

- Diagnostic approach similar to psychiatric evaluation with respect to assessing whether behavioral criteria met
- May also do projective testing, assess for other social/emotional concerns that might present as or exacerbate attention symptoms (e.g. anxiety, depression, reality testing)
- Refer to physician if appropriate re med consult

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Other questions to ponder

- School or independent evaluation?
 - depends on the question/concern
- How to translate into practical educational interventions
 - collaboration
- Is a neuropsychological evaluation as powerful as it's made out to be?
 - No; but it should provide the information needed to make informed decisions about whether interventions are warranted, and if so, guide the relevant types of interventions

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