

**LANGUAGE-BASED LEARNING
DISABILITIES
AND THE
NEURO-PSYCHOLOGICAL
EVALUATION**

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OVERVIEW

- When is a neuropsychological evaluation recommended?
 - Signs/red flags
- Understanding the evaluations
 - Cognitive/IQ testing
 - Memory testing
 - Language & Literacy testing
- Specific Disorders and Intervention
 - Language-Based Learning Disabilities
 - Non-Verbal Learning Disabilities
- Remediation Programs and accommodations



When is a neuropsychological evaluation recommended?

- Notice a difficulty or behavior and...
 - You don't know what is causing it
 - Don't know if services are warranted
 - Don't know what could help
 - Don't know how to deal with it



Risk Factors

- Family history
- Injuries/illnesses affecting neurological development
- Chronic ear infections
- Parental substance abuse
- Poor prenatal medical care and nutrition
- Prenatal injury or delivery complications
- Exposure to environmental toxins such as lead or toxic mold
- Poverty
- Abuse and neglect
- Exposure to trauma



Understanding the Evaluation

- Neuropsychological Evaluation
 - Can establish a diagnosis (differential diagnosis, rule out certain conditions)
 - Determines if other evaluations are needed
 - Looks at the process in addition to scores
 - Guides interventions/accommodations



Understanding the Evaluation

- Neuropsychological Evaluation
 - History (medical, developmental, school, social, behavior)
 - Review of records
 - Behavior during testing/observations
 - Cognition/Intellectual skills
 - Sensorimotor and Visuospatial skills
 - Attention, Executive functioning, Memory
 - Language skills (screening and qualitative)
 - Educational evaluation (achievement)
 - Psycho-social screening



Understanding the Evaluation

- Cognitive testing (IQ)

- What does it mean?

Look for discrepancies among Index scores
(differences greater than 10 to 15 points)



Understanding the Evaluation

- Wechsler Intelligence Scale for Children:
WISC V (WAIS IV ages 16+)
- 5 indexes, including:
 - Verbal Comprehension Index (VCI)
 - Visual-Spatial Index (VSI)
 - Fluid Reasoning Index (FRI)
 - Working Memory Index (WMI)
 - Processing Speed Index (PSI)



Understanding the Evaluations

- Cognitive testing (IQ), WISC-V
 - FSIQ made up of five INDEXES
 - 1. **VCI**: measures verbal abilities utilizing reasoning and conceptualization
 - Subtests: Similarities and Vocabulary
(Comprehension & Information, optional subtests)
 - 2. **VSI**: measures manipulation of visual-spatial information
 - Subtests: Block Design and Visual Puzzles



Understanding the Evaluations

- **WISC-V, Indexes**

- **3. FRI:** measures inductive and deductive reasoning of nonverbal patterns
 - Subtests: Matrix Reasoning and Figure Weights (Picture Concepts & Arithmetic, optional subtests)
- **4. WMI:** measures attention, concentration and the ability to actively maintain information in conscious awareness, perform some operation or manipulation with it and produce a result
 - Subtests: Digit Span and Picture Span (Letter-Number Sequencing, optional subtest)



Understanding the Evaluations

- **WISC-V, Indexes**
 - **5. PSI:** measures speed of mental and grapho-motor processing
 - Subtests: Coding and Symbol Search (Cancellation, optional subtest)



Understanding the Evaluation

- **Other Cognitive batteries:**
 - Differential Ability Scales (DAS)
 - Reynolds IQ test
 - Stanford Binet
 - Woodcock-Johnson cognitive battery
 - Kaufman Assessment battery for children
 - Cognitive Assessment System (CAS)
 - Test of Nonverbal Intelligence (TONI)



Understanding the Evaluation

- Visual-spatial Measures:
 - Motor Free Visual Perception
 - WISC picture completion
 - Hooper Visual Organization test
 - Block Design from WISC
 - Coding & Cancellation from WISC
 - Beery Visual Motor Integration test
 - Rey–Osterrieth Complex Figure Test (ROCF)



Understanding the Evaluation

- Assessing Memory:

Wide Range Assessment of Memory and Learning (WRAML-2)

California Verbal Learning Test (CVLT)

Children's Memory Scale (CMS)

Child & Adolescent Memory Profile
(CHAMP)

Working Memory from WISC (WMI)



Understanding the Evaluation

- Executive Function:

Observations

Timed tests (WISC)

Concentration tests on WISC (Arithmetic, L/N)

Trail making B

Matrices

Similarities, Block Design, Picture Concept (WISC)

Wisconsin Card Sorting Test

Complex Figure



Understanding the Evaluation

- Attentional Measures:
 - Computerized sustained attention
 - Visual (Coding, Symbol Search, Cancellation from WISC)
 - Letter cancellation
 - Trail Making
 - Fluency
 - Auditory (some memory tests including working memory)



Understanding the Evaluation

- Speech and Language:

- Receptive

- Understanding words, sentences, and/or multiple meanings

- Auditory comprehension (simple and complex, following directions etc.)



Understanding the Evaluation

- Speech and Language

- Expressive

Vocabulary, verb tense use, word recall, production of sentences of appropriate length, organization and sequencing of thoughts in a logical manner for oral output



Understanding the Evaluation

- Typical Speech and Language tests:
 - CELF (Clinical Evaluation of Language Fundamentals)
 - TOLD (Test of Language Development)
 - PPVT (Peabody Picture Vocabulary Test)
 - EVT (Expressive Vocabulary Test)
 - CASL (Comprehensive Assessment of Spoken Language)
 - TOAL (Test of Adolescent Language)
 - OWLS (Oral and Written Language Scales)
 - TILLS (Test of Integrated Language and Literacy Skills)



Understanding the Evaluation

- Educational Measures:
 - Woodcock Johnson IV achievement (WJ-IV)
 - Wechsler Individual Achievement Test III (WIAT-III)
 - Kaufman Test of Educational Achievement (KTEA-3)
 - Comprehensive Test of Phonological Processing (CTOPP)



Understanding the Evaluation

- Reading
 - Phonological processing
 - Decoding (real words, nonsense words)
 - Fluency (rate and accuracy)
 - Comprehension



Understanding the Evaluation

- Written Expression
 - Spelling
 - Fluency
 - Text generation



Understanding the Evaluation

- Mathematics
 - Calculations
 - Fluency
 - Reasoning (word problems)



Understanding the Evaluation

- A battery usually needs to be supplemented by other tests
 - Reading Comprehension
 - Gates Maginitie
 - Nelson Denny
 - TORC-4
 - Reading (decoding and fluency)
 - GORT-5
 - CTOPP-2
 - WRMT-III
 - TOWRE



Understanding the Evaluation

- Psychosocial Measures:

History

Behavior Rating Scales, including:

Behavior Assessment Scale for Children
(BASC-2)

Child Behavior Checklist (CBCL)

Connors Rating Scales



Characteristics of Learning Disabilities

Problems with:

- Reading (decoding, fluency, and/or comprehension)
- Spoken language
- Written language
- Reasoning abilities (some aspects)
- Visual-spatial processing/ visual-motor integration
- Auditory processing
- Hyperactivity and/or attention
- Organizational skills



Types of Learning Disabilities

- Language-Based LD (LBLD) VS Non-Verbal LD (NVLD):

LBLD: Refers to a spectrum of difficulties related to the understanding of both spoken and written language. The number and severity of language difficulties individuals with LBLD experience vary widely.



Types of Learning Disabilities

- Typical areas of difficulty for individuals with LBLD:
 - Listening
 - Oral expression
 - Reading
 - Comprehension
 - Spelling
 - Written expression
 - Mathematics



Types of Learning Disabilities

- Specific diagnoses or “labels” for individuals with a LBLD may include:
 - Dyslexia
 - Reading Disability
 - Receptive/Expressive Language Disorder
 - Language Processing Disorder
 - Auditory Processing Disorder
 - Phonological Processing Disorder
 - Disorder of Written Language



Types of Learning Disabilities

- Language-Based LD (LBLD) VS Non-Verbal LD (NVLD):

NVLD: Refers to a spectrum of difficulties related to the processing of visual-spatial information, intuitive, evaluative, organization and global reasoning. The number and severity of difficulties individuals with NVLD experience vary.



Types of Learning Disabilities

- Typical areas of difficulty for individuals with NVLD:
 - Weak visual spatial and visual discrimination abilities (affects spelling)
 - Poorly developed organizational skills (affects written expression)
 - Difficulty making inferences and reasoning abstractly (affects reading comprehension)
 - Significant problems with mathematical reasoning
 - Limited social competence
 - Often lack flexibility in thinking, approach tasks rigidly
 - Visual-motor/integration



Types of Learning Disabilities

- Specific diagnoses or “labels” for individuals with a NVLD may include:
 - Visual Processing Disorder
 - Visual-Spatial Processing Disorder
 - Motor Skills Disorder
 - Visual-Motor Integration Disorder
 - Learning Disability NOS
 - Disorder of Written Language
 - Social Communication Disorder



Language-Based LD:

- Stronger visual-spatial integration
- Higher scores on Fluid Reasoning Index of WISC
- Big picture thinker
- Stronger math reasoning ability
- Phonological based reading disability (Dyslexia)
- Receptive/Expressive Language Disorder
- Stronger reading comprehension vs. decoding ability
- Stronger social/pragmatic language skills
- Benefits from visual aids/templates and graphic organizers
- Does better with visual and kinesthetic domains

Common for both LBLD and NVLD:

- Disorder of written expression
- Math disorder
- Weakness with encoding/spelling
- Grapho-motor issues
- Weaker working memory and/or processing speed
- Executive function disorder
- ADHD

Non-Verbal LD:

- Stronger verbal abilities
- Weaker visual-spatial integration/fluid reasoning abilities
- Lower scores on Visual-Spatial/Fluid Reasoning index of WISC
- Weaker math reasoning ability
- Stronger decoding vs reading comp skills
- Weaker big picture thinking, hyper-focuses on the details
- “Hyper-verbal”, uses verbal mediation
- Weaker social/pragmatic language skills
- Struggles with visual templates that include maps and webs



Remediation and Accommodations for LBLD

- Formal Speech and language therapy
- Formal reading remediation
- For more impaired students, simple and concrete instructions, repetitions and visual cues
- Provide alternative means of expression (artwork)



Remediation/Accommodations

General Strategies/Teaching Methodologies for LBLD:

- Ensure all students have ample and equal opportunities to express their ideas
- Give students time to retrieve words and formulate their sentences without interruptions
- Use sound, letter, gestural, picture and meaning related cues to aid students when they are having word retrieval difficulties



Remediation/Accommodations

General Strategies/Teaching Methodologies for LBLD:

- Encourage students to use cues on their own to retrieve specific words or to learn vocabulary words
- Have students orally syllabicate and articulate unfamiliar multi-syllabic words
- Insist that students spell unfamiliar words phonetically on their own, and ask for correct spelling after



Remediation/Accommodations

General Strategies/Teaching Methodologies for LBLD:

- Simplify the syntax and make explicit the steps when giving directions (especially important when giving homework)
- Ask open-ended questions to encourage elaboration of information from the students



Remediation/Accommodations

General Strategies/Teaching Methodologies for LBLD:

- Use of graphic organizers (e.g., pictures, webs, maps, charts) to enhance reading comprehension, oral expression and writing skills
- Oral rehearsal prior to reading and writing tasks
- Incorporate visual and hands-on materials
- Provide structured study guides
- Provide structured proof-reading guidelines for writing assignments



Remediation

Remedial reading instruction programs may include:

- Decoding/encoding
 - Lindamood Phonemic Sequencing, LiPS
 - Seeing Stars
 - Orton-Gillingham
 - Wilson Reading Program



Remediation

- Fluency
 - Read Naturally
 - Great Leaps
- Comprehension
 - Lindamood Bell Visualizing and Verbalizing



Accommodations

- Extended time
- Class notes
- Assistive technology
- Reader
- Scribe for exams
- Answer in booklet



Questions?



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