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Professional Certificate in Neuropsychological Testing

## Unit 3: Neuropsychological Assessment Tools

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**ADHD Rating Scale** – a standardized questionnaire used to assess attention-deficit/hyperactivity disorder symptoms in children and adults. Related terms: Conners' Rating Scales, DSM-5 criteria. The scale quantifies inattention, hyperactivity, and impulsivity, allowing clinicians to track symptom severity over time. Practical application includes monitoring treatment response; a challenge is distinguishing ADHD from comorbid conditions such as anxiety or learning disorders.

**Addenbrooke's Cognitive Examination-III (ACE-III)** – a brief screening tool that evaluates attention, memory, fluency, language, and visuospatial abilities. Related terms: Mini-Mental State Examination (MMSE), Montreal Cognitive Assessment (MoCA). Example: a 68-year-old with suspected dementia scores 65/100, indicating moderate impairment. Challenges involve cultural and educational bias, requiring norm-adjusted scores.

**Boston Naming Test (BNT)** – a confrontation naming task assessing lexical retrieval and language function. Related terms: Controlled Oral Word Association Test (COWAT), Semantic Fluency. The examiner presents 60 line drawings; errors suggest aphasia or semantic memory loss. Practical use includes tracking recovery after stroke; difficulty arises when patients have visual impairments affecting picture recognition.

**Cambridge Neuropsychological Test Automated Battery (CANTAB)** – a computer-based suite measuring memory, attention, executive function, and decision-making. Related terms: Neuropsychological software, computerized testing. Example: the Paired Associates Learning task reveals deficits in visual episodic memory in early Alzheimer's disease. Limitations include the need for technical expertise and potential motor skill confounds.

**Controlled Oral Word Association Test (COWAT)** – a verbal fluency task where participants generate words beginning with a specified letter within 60 seconds. Related terms: Semantic Fluency, Letter Fluency. Performance reflects executive control and lexical access; low scores may indicate frontal lobe dysfunction. Challenges include variability due to education level and language proficiency.

**Digit Span (Wechsler Adult Intelligence Scale)** – a subtest measuring short-term auditory memory and attention. Related terms: Working Memory Index, Forward and Backward Span. The examiner reads a series of numbers; the participant repeats them forward and backward. Practical use includes diagnosing attention deficits; however, anxiety can artificially lower scores.

**Digit Symbol Coding (Wechsler Adult Intelligence Scale)** – assesses processing speed, visual-motor coordination, and sustained attention. Related terms: Symbol Search, Trail Making Test. Participants match symbols to numbers under a time constraint. It is sensitive to white-matter changes; motor impairments may confound interpretation.

**Delis-Kaplan Executive Function System (D-KEFS)** – a battery of tests evaluating flexibility, inhibition,

problem-solving, and planning. Related terms: Wisconsin Card Sorting Test, Tower Test. Example: the Color-Word Interference Test isolates inhibitory control deficits in traumatic brain injury. Challenges include lengthy administration time and the need for specialized training.

Dominance Index (Handedness Questionnaire) – a self-report measure determining cerebral lateralization based on hand preference for everyday tasks. Related terms: Edinburgh Handedness Inventory, Laterality. Knowledge of handedness aids interpretation of language lateralization in neuroimaging studies. Limitations involve ambidextrous individuals and cultural influences on hand use.

Ecological Momentary Assessment (EMA) – a method of collecting real-time data on cognition, mood, and behavior via mobile devices. Related terms: Experience Sampling, Digital Phenotyping. EMA captures fluctuations in attention or memory during daily activities, enhancing ecological validity. Barriers include participant compliance and data privacy concerns.

Executive Function Index (EFI) – a self-report questionnaire assessing planning, organization, impulse control, and strategic thinking. Related terms: Behavioral Rating Inventory of Executive Function (BRIEF), Frontal Assessment Battery. Useful for screening executive deficits in mild traumatic brain injury; self-awareness deficits may reduce reliability.

Figure Copy Task (Rey–Osterrieth Complex Figure) – a visuoconstructional test requiring accurate reproduction of a complex geometric figure. Related terms: Clock Drawing Test, Block Design. Errors indicate visuospatial or executive dysfunction; scoring includes organization and accuracy. Practice effects and motor dexterity can affect results.

Fletcher-Reid Profile – a comprehensive battery evaluating attention, memory, language, and executive processes across multiple subtests. Related terms: Neuropsychological Profile, Cognitive Assessment. Often used in forensic settings to document deficits. The extensive nature may cause fatigue, impacting performance.

Frontal Assessment Battery (FAB) – a brief set of six tasks measuring conceptualization, mental flexibility, motor programming, inhibition, and lexical fluency. Related terms: D-KEFS, Stroop Test. Scores below 12 suggest frontal lobe pathology; limited depth restricts detection of subtle deficits.

Geriatric Depression Scale (GDS) – a self-report inventory screening for depressive symptoms in older adults. Related terms: Beck Depression Inventory, Hamilton Rating Scale for Depression. Cognitive impairments can mimic depressive symptoms; thus, concurrent neuropsychological testing is recommended.

Grooved Pegboard Test – a fine-motor dexterity assessment requiring placement of pegs into slotted holes with varying orientations. Related terms: Purdue Pegboard, Finger Tapping. Sensitive to basal ganglia dysfunction in Parkinson's disease. Motor speed limitations may confound interpretation of cognitive components.

Halstead-Reitan Neuropsychological Battery – a classic battery covering attention, memory, language, visuospatial ability, and executive function. Related terms: Luria–Nichols, Luria-Neuropsychological

Assessment. Provides a comprehensive profile but is time-intensive; modern clinicians may prefer modular approaches.

Hayling Sentence Completion Test – assesses response inhibition and verbal initiation by requiring participants to complete sentences with either sensible or unrelated words. Related terms: Stroop, Go/No-Go. High error rates indicate impaired inhibitory control, common after frontal lesions. Test-retest reliability can be modest.

Hopkins Verbal Learning Test-Revised (HVLT-R) – a brief list-learning task measuring immediate recall, delayed recall, and recognition. Related terms: California Verbal Learning Test, Logical Memory. Frequently employed in dementia screening; practice effects are minimal due to alternate forms.

International Aphasia Screening Test (IAST) – a rapid bedside tool for detecting aphasia across language domains. Related terms: Western Aphasia Battery, Boston Diagnostic Aphasia Examination. Provides a global severity rating; limited granularity for subtype classification.

Kaufman Assessment Battery for Children (K-ABC) – a cognitive assessment emphasizing processing and achievement rather than raw IQ. Related terms: WISC-V, Woodcock-Johnson. Useful for identifying learning disabilities; cultural fairness is enhanced but normative data may be outdated for some populations.

Letter-Number Sequencing (Wechsler Scales) – a working memory subtest where participants reorder mixed letters and numbers. Related terms: Digit Span, Spatial Span. Performance reflects the ability to manipulate information; low scores may signal frontal or parietal compromise.

Logical Memory (Wechsler Memory Scale) – a story-recall test evaluating immediate and delayed verbal episodic memory. Related terms: Narrative Memory, Verbal Learning. Impairments are characteristic of hippocampal injury; confounding factors include attention deficits during encoding.

Mini-Mental State Examination (MMSE) – a widely used 30-point screen for global cognitive function. Related terms: MoCA, ACE-III. Scores below 24 suggest cognitive impairment; ceiling effects limit sensitivity in highly educated individuals.

Montreal Cognitive Assessment (MoCA) – a 30-point screening instrument covering attention, executive function, memory, language, visuospatial skills, and orientation. Related terms: MMSE, ACE-III. More sensitive than MMSE for mild cognitive impairment; requires proper training to administer consistently.

Neuropsychological Assessment Battery (NAB) – a modular collection of tests for cognition, memory, language, and affective functioning. Related terms: Halstead-Reitan, D-KEFS. Allows targeted evaluation based on referral question; licensing fees and software requirements may be barriers.

Neuropsychological Interview (NP-Interview) – a semi-structured interview gathering background, medical history, functional concerns, and symptom chronology. Related terms: Clinical History, Diagnostic Interview. Essential for contextualizing test results; interviewer bias can influence data quality.

Neuropsychological Screening Battery for Children (NSBC) – a brief set of age-appropriate tasks assessing

attention, memory, language, and executive function. Related terms: Bender-Gestalt, NEPSY. Useful for school-based evaluations; limited depth may miss subtle deficits.

Neuropsychological Test of Attention (NTA) – a computerized paradigm measuring sustained and selective attention via reaction time and accuracy. Related terms: Continuous Performance Test, PVT. Provides millisecond-level data; susceptibility to environmental distractions can affect reliability.

NIH Toolbox Cognition Battery – a standardized, tablet-based suite assessing executive function, episodic memory, processing speed, and language. Related terms: PROMIS, Computerized Neuropsychology. Norms are available across the lifespan; learning effects across repeated administrations require alternate forms.

North American Adult Reading Test (NAART) – an estimate of premorbid intelligence based on irregular word pronunciation. Related terms: WRAT-4, Vocabulary Subtest. Useful for adjusting cognitive scores; dyslexia or speech disorders can reduce accuracy.

Oral Trail Making Test (OTMT) – an auditory version of the visual Trail Making Test, requiring sequential naming of numbers and letters. Related terms: Trail Making Test, Symbol Search. Beneficial for individuals with visual impairments; auditory processing deficits may confound results.

Patient Health Questionnaire-9 (PHQ-9) – a self-report inventory screening for depressive symptoms. Related terms: GDS, Beck Depression Inventory. Scores influence interpretation of cognitive test performance, as depression can mimic attentional deficits. Cultural stigma may lead to under-reporting.

Phonemic Fluency Test – a verbal fluency task where participants generate words beginning with a specific phoneme (e.g., “F”) within a minute. Related terms: COWAT, Semantic Fluency. Sensitive to frontal-subcortical circuitry; educational level heavily influences output.

Premorbid Functioning Estimates – methods such as the Barona Index or demographic regression formulas used to approximate baseline intelligence before injury. Related terms: NAART, Vocabulary Subtest. Accurate estimates aid in quantifying decline; inaccurate demographic data can skew predictions.

Rey Auditory Verbal Learning Test (RAVLT) – a list-learning task delivering five learning trials, an interference list, and delayed recall. Related terms: HVLT-R, CVLT-II. Provides indices of learning rate, retention, and recognition; proactive interference can mask true memory capacity.

Rey–Osterrieth Complex Figure Test (RCFT) – a dual task assessing visuoconstructive ability, organizational strategy, and visual memory. Related terms: Figure Copy, Delayed Recall. Scoring includes accuracy and process; deficits are common in right-hemisphere lesions. Time constraints may affect individuals with slowed processing.

Ruff 2 & 7 Selective Attention Test – a paper-pencil task measuring sustained attention and speed of information processing. Related terms: Continuous Performance Test, Symbol Search. Participants cross out target digits within a matrix; errors indicate lapses in vigilance. Test-retest reliability is moderate.

Stroop Color-Word Test – a classic interference task where participants name ink colors of incongruent color

words. Related terms: Hayling Test, Go/No-Go. Longer reaction times reflect reduced inhibitory control; practice effects necessitate alternate versions.

Trail Making Test (TMT) Part A & B – a timed visual scanning task; Part A connects numbered circles, Part B alternates numbers and letters. Related terms: OTMT, Symbol Search. The difference score (B-A) isolates executive set-shifting. Motor speed deficits can inflate completion times.

Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV) – a comprehensive intelligence test providing indices for verbal comprehension, perceptual reasoning, working memory, and processing speed. Related terms: WISC-V, K-ABC. Subtest selection can tailor assessment to clinical needs; cultural bias remains a concern.

Wechsler Memory Scale-Fourth Edition (WMS-IV) – a battery evaluating auditory, visual, and working memory, as well as delayed recall. Related terms: Logical Memory, Visual Reproduction. Useful for delineating memory profiles in dementia; lengthy administration may be taxing for severely impaired patients.

Wisconsin Card Sorting Test (WCST) – a set-shifting task requiring participants to match cards according to changing rules. Related terms: D-KEFS, Trail Making Test. Perseverative errors indicate frontal lobe dysfunction; computerised versions can capture response latency.

Woodcock-Johnson Tests of Cognitive Abilities (WJ-COG) – a multidimensional assessment of cognitive processes, including processing speed, auditory processing, and visual-spatial thinking. Related terms: WAIS-IV, K-ABC. Norms are stratified by age; extensive administration time may limit feasibility in acute settings.

Yale-Brown Obsessive Compulsive Scale (Y-BOCS) – a clinician-rated instrument measuring severity of obsessive-compulsive symptoms. Related terms: OCI-R, Anxiety Scales. High scores can affect attentional performance on neuropsychological tasks; comorbid anxiety may confound interpretation.

Zigzag Trail Test – a simplified version of the Trail Making Test used in pediatric or low-education populations. Related terms: TMT, Simple Motor Sequencing. Provides an estimate of processing speed and visual scanning; limited sensitivity to executive deficits.