

# ***BRAIN INJURY AND THE SCHOOLS***



## ***A GUIDE FOR EDUCATORS***

Brain Injury Association of Virginia

804-355-5748 800-444-6443

[www.biav.net](http://www.biav.net)

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## **PRIMARY CONTRIBUTORS:**

Anne McDonnell, MPA, OTR/L, CBIST, Executive Director, Brain Injury Association of Virginia  
Theresa Alonso, M.Ed., CBIS, Data Coordinator, Brain Injury Association of Virginia  
Christine Baggini, MSW, CBIS, Statewide Resource Coordinator, Brain Injury Association of Virginia  
Michelle Ward, MS, OTR/L, CBIS, Publications Coordinator, Brain Injury Association of Virginia

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Dr. Ann Deaton, Psychologist, Private Practice  
Dr. Donald Fleming, Office of Student Services, Virginia Department of Education  
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Dr. Jeff Kreutzer, Psychologist, VCU Health Systems  
Dr. Lissa Power-deFur, Department Chair, Department of Education, Special Education and Social Work, Longwood University  
Gwen Smith, RN, MSN, Student Health Specialist, Virginia Department of Education  
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# The Student With TBI: An Overview

# The Student With TBI: An Overview

Since the complications resulting from brain injury are so varied and diffuse, it is often difficult to predict a student's recovery or determine exactly what areas of learning will be affected. Depending on the location and severity of the injury, many areas of learning can be impacted (e.g., memory, fine motor skills). The environment in which a student is learning can also have a significant impact. An encouraging environment that is oriented to best utilize the student's strengths will more likely lead to successful learning.

There are numerous evaluations and tests that can be conducted to help determine at what educational level the student is functioning and which areas or skills have been most affected. Neuropsychological tests are often used with students with brain injury because they focus on how the brain's functioning affects the student's behavior and skills. Reports from these evaluations can be especially helpful in determining methods to maximize the student's successes and rate of progress. While many tests may already have been done before the child returns to school, depending on how long ago they were conducted and the rate of progress, the athlete may need to be re-evaluated.

Some students with brain injury may exhibit similar behaviors as those with other disabilities, which can often lead to an incorrect classification. However, it is important to note the differences so that these students can be properly classified and receive the supports and assistance they need.

This section includes a list of areas that may need to be evaluated as well as some examples of how various subject areas (e.g., science, math) can be impacted. Similarities and differences between brain injury and other disabilities are also illustrated. Lastly, a description of neuropsychological testing is included along with a list of standardized tests that are commonly used.

# Determining Present Level of Educational Performance

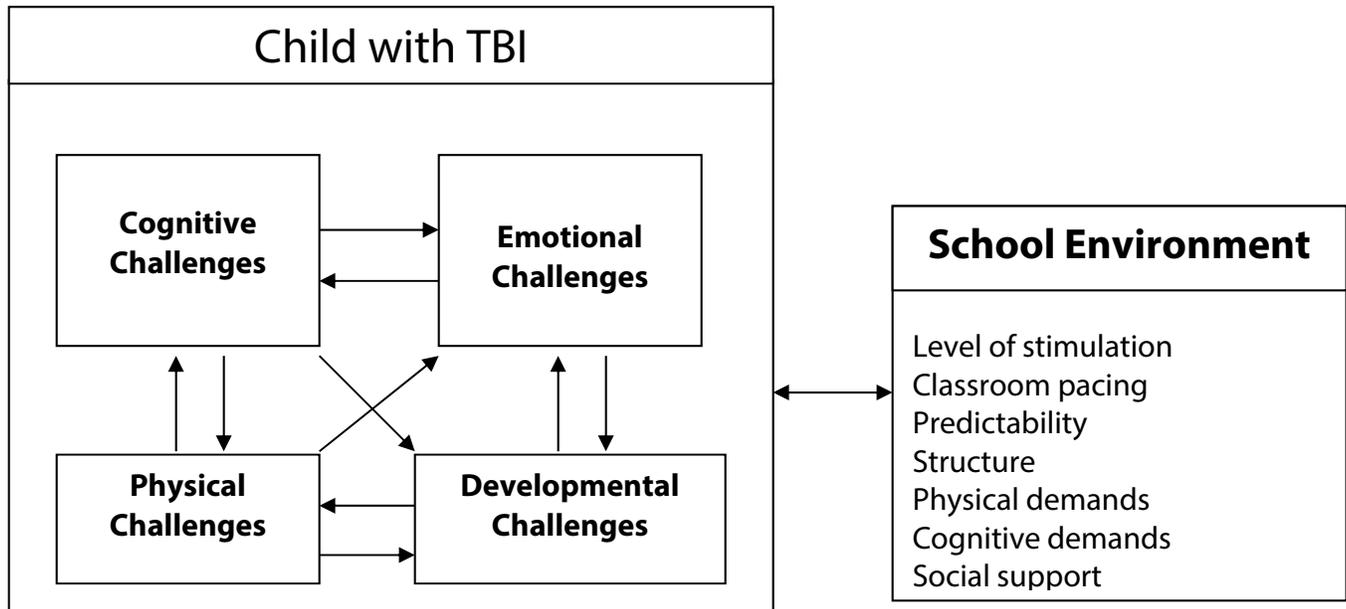
The present level of educational performance indicates how the student functions in all applicable education areas. The following is a sample list in which assessments of the student's functioning may be needed.

<p><b><u>Academic</u></b></p> <p>Pre-academic readiness skills Reading Writing Mathematics Career technical education Other academic subject areas</p>	<p><b><u>Social/Emotional</u></b></p> <p>Distractibility, impulsivity, attention span Aggression, withdrawal Acting out Immaturity, inadequacy Social development Relationship with others</p>
<p><b><u>Intellectual</u></b></p> <p>Intelligence Learning process Learning style Learning ability</p>	<p><b><u>Adaptive Behavior</u></b></p> <p>History of developmental milestones Dressing Eating Personal hygiene Independent living</p>
<p><b><u>Motor</u></b></p> <p>Fine motor Gross motor Sensory-motor integration Mobility Muscular control</p>	<p><b><u>Communication</u></b></p> <p>Language development Pragmatic language Speech production Articulation</p>
<p><b><u>Sensory</u></b></p> <p>Vision Hearing</p>	<p><b><u>Vocational</u></b></p> <p>Criterion referenced skill assessments specific to vocational curriculum</p>
<p><b><u>Pre-Vocational</u></b></p> <p>Entry level work skills Occupational interest Work attitudes Job seeking skills Job keeping skills</p>	<p><b><u>Other</u></b></p> <p>Medical considerations Unanswered questions</p>

Note. Adapted from Developing Effective IEPs, Mountain Plains Regional Resource Center, Logan, UT.

# Simple Math

A child's behavior post-TBI (Traumatic Brain Injury) is determined by a number of factors and includes the interaction between the child and the school environment.



### ***A child who:***

- ❑ Easily **fatigues** and has **headaches**
- ❑ Struggles with **depression, anxiety, or emotional dyscontrol**
- ❑ **Struggles to remember** what he is learning
- ❑ Finds himself **developmentally "stuck"** behind his peers

+

### ***A school environment that is:***

- ❑ Loud and overstimulating
- ❑ Without clear structure
- ❑ Unpredictable
- ❑ **Full of information being presented too quickly**
- ❑ Demanding
- ❑ Without **social support or understanding**

= 0

Note. Adapted from Students with Traumatic Brain Injury: Identification, Assessment and Classroom Accommodations by M. Hibbard, W. Gordon, T. Martin, B. Raskin, & M. Brown, (2001), New York: Research and Training Center on Community Integration of Individuals with Traumatic Brain Injury.

## Mathematics

<b>Demands of Curriculum</b>	<b>Challenge to Student with Traumatic Brain Injury (TBI)</b>	<b>Possible Solutions</b>
Ability to use syntactic and semantic components of language to solve verbal math problems.	Difficulty with semantic aspects of word problems.	Aid in finding the main idea of the verbal math problem and what information is needed to solve the problem.
Recall and use "math language" when needed. Many complex concepts are carried in a few words (e.g., divide, multiply, add).	Unable to recall the concept associated with a single word. Misses the instruction to "add".	Teach the meaning of single words that carry considerable intent. Aid in recall of the concepts and processes underlying the single word.
Employ sequencing skills to complete a process.	Sequencing skills are often impaired.	Work on meaningful, functional sequencing skills.
Use language to understand the word problem and then complete the math to solve the problem.	Poor recall, inability to find relevance within the word problem. Oftentimes the student can do the math if he/she can understand the words that formulate the problem.	Develop ability to find the main question within the problem and associate the concepts necessary to solve it.
Ability to perform basic handwriting skills to integrate the visual images of numbers and shapes.	Poor fine motor ability and inability to integrate visual-motor and visual-cognitive processes.	Work with student to proofread own work; provide concrete cues for abstract math concepts.
Ability to align rows and columns of math problems.	Visual-perceptual problems may inhibit student's ability to align columns and rows.	Utilize visual aids, such as colored lines/rows, templates with windows, graph paper, etc.
Use calculator to complete math calculations.	Students with poor visual memory have difficulty using a calculator.	Utilize repetition and organize information into small units; list steps of process.

## Science

<b>Demands of Curriculum</b>	<b>Challenge to Student with Traumatic Brain Injury (TBI)</b>	<b>Possible Solutions</b>
Ability to handle and manipulate small objects.	Decreased ability to pick up or manipulate small objects.	Build up handles, smaller objects with tape/padding; make handles/knobs longer for easier handling.
Awareness of safety concepts.	Inability to recognize safety issues.	Draw attention to safety issues with bold colors/signs, pair student with a partner to increase awareness.
Ability to maintain attention.	Decreased attention span.	Break projects into smaller steps to hold attention.
Demonstration of sequencing skills.	Difficulty sequencing.	Utilize memory aids (e.g., written cues) to assist with sequencing multiple steps.
Ability to remember instructions.	Decreased short term memory.	Repeat steps often; provide written instructions.
Knowledge of concepts such as more than/less than; before/after; when/then.	Inability to recognize relationships and concepts that are not concrete in nature.	Use visual aids and concrete objects to demonstrate relationships.
Recognition of cause and effect.	Inability to understand the relevance of cause and effects.	Devise activities which utilize concrete objects to assist in the understanding of abstract concepts.
Recall of specific terms and processes.	Difficulty recalling newly learned words.	Devise memory strategies and compensatory aids for new vocabulary.

## Reading

<b>Demands of Curriculum</b>	<b>Challenge to Student with Traumatic Brain Injury (TBI)</b>	<b>Possible Solutions</b>
Ability to understand the sound and meaning of words and letters.	Problems remembering the shape of letters and words; unable to recall sounds and/or meanings associated with letters/words.	Incorporate memory games.
Ability to discriminate between letters and numbers.	Confusion between visually similar letters and numbers may lead to delays of sight vocabulary.	Utilize different colors and repetition.
Ability to understand context and syntax of written words.	Visual perceptual problems, problems decoding and processing words.	Utilize books on tape and read along.
Ability to understand the spatial characteristics of words.	Visual spatial problems, delays in sight vocabulary; words need to be analyzed each time they appear; problems reading graphs, charts and diagrams.	Utilize repetition with visual/spatial tasks.
Ability to comprehend what is read.	Problems recalling the beginning of a sentence while reading the end of the sentence.	Use shorter sentences and stop to summarize what was just read.
Visual discrimination.	Difficulty distinguishing words from page.	Reduce the amount of print on a page; color paper or ink; increase contrast.
Ability to read aloud.	Speech and processing difficulties.	Read alone or in small group; read shorter portions at a given time.

## Writing

<b>Demands of Curriculum</b>	<b>Challenge to Student with Traumatic Brain Injury (TBI)</b>	<b>Possible Solutions</b>
Ability to maintain attention.	Difficulty with correct letter formation, spelling and punctuation; also difficulty with proper sequence of written ideas.	Eliminate as much environmental stimuli as possible; use cues such as a finger to point or marker to underline the important information.
Ability to remember the shapes of letters and numbers.	Difficulty with forming letters and numbers, mixing small and capital letters, and difficulty printing the alphabet from memory.	Constant repetition at home and in the classroom; tracing; breaking units into small "chunks"; use songs or rhymes to help with information retrieval.
Ability to discriminate letters and numbers in various forms.	Difficulty recognizing errors in own handwriting; difficulty recognizing letters or numbers that appear in a different print.	Reduce the amount of print on a page; cover the area of the paper that is not being worked on; utilize color contrasts.
Ability to distinguish between right and left.	Problems with progression of formation of words and/or sentences; student may show reversal of letter formation.	Use green lines on the left side of the paper for "go" and red lines on the right for "stop"; student can utilize cue cards for common reversal letters.
Ability to use appropriate spacing and size with letter and number formation.	Difficulty placing letters on a line or adapting the letter size to the space provided.	Use colored lines on the paper; various size templates with windows for various size letters can also be used.
Ability to manipulate small objects (e.g., pencils, erasers).	Difficulty holding writing utensil and stabilizing paper.	Use grips, paperweights, clipboards, oversized writing utensils.

# Traumatic Brain Injury (TBI) vs. Specific Learning Disability (SLD)

## Similarities

Both may demonstrate:

- Difficulties with impulse control.
- Difficulties with generalizing and integrating skills.
- Inappropriate behavior due to poor social judgment.
- Difficulty with sustained attention.
- A need for memory aids due to difficulties with short term memory.

## Students with TBI:

- May have problems that are more exaggerated and severe.
- May demonstrate more extreme discrepancies among abilities.
- May demonstrate more uneven and unpredictable progress.
- Have been conditioned to rely on old strategies for learning.
- Have ability to relearn old material therefore they may learn faster at times.
- Have potential to improve and regain function.
- Have deficits that are not developmental.

## Distinguishing Traumatic Brain Injury (TBI) from Specific Learning Disability (SLD)

TBI	SLD
Onset sudden due to external event; precipitated by period of normal, uncompromised development.	Congenital or early onset.
Follows loss of consciousness, hence, clear evidence of neurological damage.	No coma.
Marked pre-post-injury contrast in cognitive, behavioral, physical capabilities.	Intrinsic to individual.
Requires emergency medical care or extended hospitalization.	Hospitalization not required.
Paresis, paralysis, spasticity may result requiring specialized treatment.	Physical problems generally limited to poor coordination.
Distractibility is provoked by internal and external stimuli.	Distractibility provoked by external stimuli.
Moderate to severe problems with memory and new learning.	Mild memory problems.
Mild to severe speech/language problems.	Mild to moderate speech/language problems.
Difficulty with peer relationships due to behavioral changes and/or social withdrawal.	Difficulty with peer relationships due to "odd" behavior and poor academic and/or athletic performance.
Complex array of neurobehavioral complications require modified and intensive application of instructional and management techniques.	Responsive to traditional instructional techniques and behavioral management strategies.
Pronounced problems with reasoning, organization of thoughts, cause-effect relationships, and problem solving.	Capable of independent thinking.

<b>TBI (continued)</b>	<b>SLD (continued)</b>
Prone to fatigue and overstimulation; may require shortened school day or modified schedule.	Capable of withstanding facets of typical school day and full course load.
May require intensive vocational training program and supervised employment, particularly those with an injury before 8 years of age.	Capable of achieving vocational self-sufficiency, especially with early career education and intervention.

Note. Adapted from "Learning Disabilities: Information, Strategies, and Resources", LD Online, Retrieved April 7, 2005 from <http://www.ldonline.org/cldinfo/index.html>; "Specific Learning Disabilities" (pp. 417-442) by Shapiro, B., Church, R., & Lewis, M. in Children with Disabilities, 5<sup>th</sup> ed. (2002), Batshaw, M. (Ed.), Baltimore: Paul H. Brooks Publishing Co; "Traumatic Brain Injury" (pp. 525-545) by Michaud, L. Semul-Concepcion, J., Duhaime, A., & Lazar, M. in Children with Disabilities, 5<sup>th</sup> ed. (2002). Batshaw, M. (Ed.), Baltimore: Paul H. Brooks Publishing Co.

# Traumatic Brain Injury (TBI) vs. Emotional Disability (ED)

## Similarities

Both may demonstrate:

- Inappropriate behaviors in social settings.
- An inability to maintain relationships with peers and teachers.
- A general pervasive mood of unhappiness or depression.
- Difficulties that are sometimes unseen and unanticipated.

## Students with TBI:

- May have a pre-morbid self-concept of being “normal”.
- Have an ability to relearn old information; new learning is more difficult.
- Often have a combination of conditions which do not fall easily into categories of disability.
- Have potential to improve/regain function.

## Distinguishing Traumatic Brain Injury (TBI) from Emotional Disability (ED)

TBI	ED
Sudden onset.	Gradual onset.
Marked contrast between pre-and post-onset capabilities; reduced processing speed, memory loss, impaired executive functions.	Changes emerge slowly and gradually.
May include weakness, loss of balance, paralysis, visual/ sensory changes, headaches.	Physical disabilities unlikely.
Labile mood, depression, and anxiety are common.	Emotional reactions attributable to distortions of reality.
Behavior unpredictable: agitation, aggressiveness, restlessness, impulsivity possible.	Behavior variable, depending on diagnosis.
Limited-to-full awareness of deficits.	Awareness varies.
Pre-injury learning is largely intact.	Acquisition may be limited by emotional difficulties.
Old information is easier to recall than new.	New learning can be linked with past learning.
Peer interactions affected by cognitive difficulties, behavioral difficulties, and reduced social skills.	Peer interactions affected by behavioral difficulties.

Note. Adapted from Students with Traumatic Brain Injury: Identification, Assessment, and Accommodations, by M. Hibbard, W. A. Gordon, T. Martin, B. Raskin, & M. Brown, 2001, New York: Research and Training Center on Community Integration of Individuals with Traumatic Brain Injury.

# Traumatic Brain Injury (TBI) vs. Attention Deficit Disorder (ADD)

## **Similarities**

Both may demonstrate:

- Difficulty with sustained attention.
- Difficulty paying attention to the right thing when in a complex environment.
- Difficulty shifting attentional focus from one task to the next.
- A need for additional structure and cues in the environment.
- A need for self monitoring of on-task behavior and task completion.
- A need for classroom placement in the least distracting area.

## **Students with TBI**

- May pay attention easily when well rested but may lose this ability when fatigued.
- May be extremely aware of the change in ability to pay attention.
- May be emotionally overwhelmed by the awareness of being unable to do something that was once second nature.
- May be able to improve attention problem over a very short period of time.
- May require frequent adaptation in school based expectations and programming.

(Adapted from submission by Ann Deaton, Ph.D.)

## Distinguishing Traumatic Brain Injury (TBI) from Attention Deficit Disorder (ADD)

TBI	ADD
Onset sudden due to external event.	Symptoms gradually begin to appear prior to age 7.
Follows loss of consciousness, hence, clear evidence of neurological damage.	No coma or loss of consciousness.
Marked pre/post injury contrast in cognitive, behavioral, physical capabilities.	Gradual onset, therefore no dramatic before/after contrast.
Requires emergency medical care or extended hospitalization.	Hospitalization not required.
Paresis, paralysis, spasticity may result requiring specialized treatment.	Significant physical deficits not typical, may demonstrate lack of coordination or clumsiness.
Mild to severe sensory perceptual impairment.	Sensory deficits not typical.
May require intensive vocational training program and supervised employment.	Capable of achieving vocational self-sufficiency.
Deficits may not able to be controlled with medication.	Medication can often control many symptoms.
Environmental supports can be gradually withdrawn and off-medication trials instituted to evaluate whether these are still needed.	Typically need to maintain environmental supports and medication regimen.
Degree of impairment dependent on severity and location of injury.	Not associated with injury or isolated to particular part of the brain.

Note. Adapted from "A Diagnosis of ADHD? Don't Overlook the Probability of Comorbidity!" by A. Adesman, 2003, *Contemporary Pediatrics*, 20 (12), pp. 91-99; "Language Characteristics of Children with ADHD," by O. H. Kim & A. P. Kaiser, 2000, *Communications Disorders Quarterly*, 21 (3), p. 154; "Recognizing LD, ADHD, and TBI in Adults," by C. A. Plotts, 2001, *Adult Learning*, 12 (2), p. 5.

# Neuropsychological Testing

By Ann Deaton, Ph.D.

Neuropsychological testing is a specific type of psychological testing which focuses on the ways in which the brain's functioning impacts behavior or skills. It differs from traditional school psychological evaluations in its complexity and in the training of the evaluator in neurological functioning and brain impairments. Neuropsychological testing is characterized by the depth of attention paid to basic brain functions that may impact more complex skills. Typically, a neuropsychological evaluation includes measures of attention, memory, expressive and receptive language, fine motor skills, perceptual-motor skills, problem solving, and abstract reasoning. A neuropsychological evaluation also includes assessment of a child's non-test specific behavior, approach to testing, and social skills. Each of these areas is evaluated in multiple ways and with attention paid to both the child's strengths and his or her weaknesses. An area such as memory, for example, is broken down into the ability to:

- ❖ Remember visual vs. verbal information.
- ❖ Recall information immediately after it is presented vs. after 30 minutes or more.
- ❖ Remember material presented only once as compared to that presented multiple times.
- ❖ Remember personally relevant information vs. other material.
- ❖ Recall isolated pieces of information (e.g., a list) as compared to material presented in a context (e.g., a story).
- ❖ Remember information without cues vs. with cues.

When a report of neuropsychological testing is made available to the schools, there are several important aspects on which to focus:

- The date of the evaluation
- How long after the brain injury the evaluation occurred
- How long it has been since the testing

Improvements in a child's functioning are typically most rapid in the first weeks and months after an injury. They continue at a slower pace in subsequent months and years. Thus, an evaluation done two weeks after a moderately severe brain injury and received by the school two months later may be a very inaccurate reflection of the child's current capabilities. Consider doing a brief reevaluation of this child or making a referral for reevaluation. The second thing to focus on is the recommendations made and the basis for these recommendations. In many cases, several of the recommendations are readily implemented and of obvious value to the child. This includes suggestions such as providing a lesson outline to the middle-schooler experiencing memory problems. The lesson outline provides an organizational cue to the child and his/her parent in knowing what's important, and being able to listen or read for the essential information. It also enables organized note taking so that the child can review the material more effectively later. Other recommendations may be less easily implemented but nonetheless critical. For example, the child who is unable to write because of severe motor impairment may require specialized software (e.g., Dragon Dictate or IBM Via Voice) to dictate his assignments into the computer rather than

hand writing them or using a standard keyboard. He or she may also require a modified testing format such as oral or multiple-choice exams. Finally, pay attention to recommendations that will maximize a child's feeling of success. Adapting to changes in one's abilities and recovering from a brain injury is extraordinarily difficult. To maintain the child's effort and energy for the recovery process and to prevent depression, it is important to provide daily successes. Repeated failure can result in a child who stops trying and is then incapable of being successful even after his or her abilities have improved.

### **Specific Tests**

Child neuropsychological testing has received increasing attention in recent years and, as such, there are new instruments and measures being created all the time. One of the most impressive areas of development is with respect to assessing a child's memory functioning. There are several excellent measures available that provide multiple subtests to differentiate the various components of memory. These include the Wide Range Assessment of Memory and Learning, the Children's Memory Scale, and the Test of Memory and Learning. In addition, more comprehensive tests such as the NEPSY (Neuropsychological) include several subtests specific to memory. When choosing a measure, consider the following:

- Do staff have the necessary training and credentials to do a valid administration? This can be answered by the test manufacturer via phone, catalog, or web site.
- How long will it take to administer? Be careful not to overwhelm the child with too many hours of testing by limiting the measures in areas that are less critical.
- Is the child able to complete this measure? Be aware of a child's strengths and impairments and choose measures where he/she will experience some success. Do not give a measure at which the child cannot even begin to succeed (e.g., don't do tests like finger tapping or completing a paper and pencil maze with a child who is unable to move his dominant hand).
- Is this the most recent revision of the measure? How dated are the norms provided? If dated measures are used, the results will not reflect how the child compares to his peer group. Most well-used, standardized measures are revised every several years.
- What is the age range covered by the test? Is it appropriate for this child's cognitive level? If needed, will it be able to be readministered in a year's time to evaluate changes in his or her capabilities? Consider how the test is being used and what information is needed. If a test that is appropriate for 6-16 year olds is used with a 6 year old with a severe brain injury, it's possible he/she will be unable to complete enough items to get a reliable score. By the same token, try not to use measures that will be unavailable for retesting such as the above 6-16 year old measure with a 16 year old who may need reevaluation in a year.

While neuropsychological testing differs from the typical school psychological evaluation, it should be noted that school-based testing can often serve a function in providing a foundation for the neuropsychological evaluation. Tests such as the WISC-III (Wechsler Intelligence Scale for Children) administered by the school can be used by the neuropsychologist to establish a baseline and to assist in test selection. The availability of previous, recent testing can also enable a neuropsychologist to answer more specific questions posed by the school or the parent.

# Standardized Evaluations Appropriate for Children with Traumatic Brain Injury

## ACHIEVEMENT

- Differential Abilities Scale (DAS, The Psychological Corporation, 1990)
  - Wechsler Individual Achievement Test, 2<sup>nd</sup> ed. (WAIT, The Psychological Corp. 2001)
  - Wide Range Achievement Test-Revised (WRAT, Riverside Publishing, 1993)
  - Woodcock-Johnson Test of Academic Achievement-Revised (Riverside Publishing, 1977)
- These tests can be complimented by an instruction-based assessment that focuses on identifying what skills in the curriculum have been mastered by the student.**

## ADAPTIVE BEHAVIOR

- Adaptive Behavior Assessment System, 2<sup>nd</sup> ed. (ABAS, The Psychological Corp. 2003)
- Vineland Adaptive Behavior Scale (American Guidance Service, 1984)

## ATTENTION

- Connors Parent Rating Scale (Western Psychological Services, 1997)
- Connors Teacher Rating Scale (Western Psychological Services, 1997)
- Continuous Performance Test (The Psychological Corporation, 1995)
- Test of Variables of Attention, Version 7.03 (TOVA, Universal Attention Disorders, 2004)

## INTELLIGENCE

- Differential Ability Scales (The Psychological Corporation, 1990)
- Kaufman Adolescent & Adult Intelligence Test (KAIT, American Guidance Service, 1993)
- Stanford-Binet, 5<sup>th</sup> Edition (Riverside Publishing, 2003)
- Test of Nonverbal Intelligence, 3<sup>rd</sup> ed. (TONI-3, American Guidance Service, 1997)
- Wechsler Intelligence Scale for Children, 4<sup>th</sup> ed (WISC-IV; The Psychological Corporation)
- Woodcock-Johnson Tests of Cognitive Ability (Riverside Publishing)

## LANGUAGE ABILITIES

- Aphasia Screening Test (The Psychological Corporation, 1996)
- Boston Diagnostic Aphasia Examination (The Psychological Corporation, 2000)
- Clinical Evaluation of Language Fundamentals (CELF; The Psychological Corp., 2000)
- Comprehensive Test of Phonological Processing (CTOPP; Pro-Ed., Inc., 1999)
- Detroit Tests of Learning Aptitude (The Psychological Corporation, 1998)
- Expressive One Word Vocabulary Test (EOWVT, Western Psychological Services, 2000)
- NEPSY Language subtests (The Psychological Corporation, 1998)
- Peabody Picture Vocabulary Test-Revised (American Guidance Services, 1997)
- Test of Auditory Comprehension of Language (TACL; Western Psychological Services, 1985)
- Test of Language Competence-Expanded Edition (The Psychological Corporation, 1989)
- Token Test for Children (Western Psychological Services, 1978)

## **MEMORY**

- California Verbal Learning Tests (CVLT; The Psychological Corporation, 1994)
- Children's Auditory Verbal Learning Test-2 (CAVLT; Psychological Assessment Resources, 1993)
- Children's Memory Scale (1997)
- NEPSY Memory subtests (The Psychological Corporation, 1998)
- Rivermead Behavioral Memory Test (Western Psychological Services, 1985)
- Test of Memory and Learning (TOMAL; Western Psychological Services, 1994)
- Wide Range Assessment of Memory and Learning, 2<sup>nd</sup> ed. (WRAML-2; Western Psychological Services, 2003)

## **PROBLEM SOLVING and ABSTRACT REASONING**

- Behavior Rating Inventory of Executive Function (BRIEF, Psychological Assessment Resources)
- British Ability Scales (Nfer Nelson, 1996)
- Children's Category Test (The Psychological Corporation, 1993)
- Delis Kaplan Executive Functions System (D-KEFS, The Psychological Corp., 2001)
- NEPSY Executive Function subtests (The Psychological Corporation, 1998)
- Tactual Performance Test (Psychological Assessment Resources, 1984)
- Trail Making Test (Psychological Assessment Resources, 1992)
- Wisconsin Card Sorting Test (Psychological Assessment Resources, Inc, 1993)

## **SOCIAL-EMOTIONAL FUNCTIONING**

- Achenbach Child Behavior Checklist (Research Center for Children, Youth, & Families 1991)
- Beck Youth Inventories (The Psychological Corporation, 2001)
- Behavior Assessment System for Children (BASC; American Guidance Service, 2002)
- Children's Depression Inventory (The Psychological Corporation, 1992)
- Connors Parent Rating Scale (Western Psychological Services, 1997)
- Connors Teacher Rating Scales (Western Psychological Services, 1997)
- Devereux Scales of Mental Disorders (DSMD; The Psychological Corporation. 1994)
- Multi-Dimensional Self-Concept Scale (Educational Testing Service, 1992)
- Personality Inventory for Children-Revised (Western Psychological Services, 1977)
- Personality Inventory for Youth (Western Psychological Services, 1995)
- Piers-Harris Children's Self-Concept Scale (Western Psychological Services, 1984)

## **SOMATOSENSORY and MOTOR FUNCTIONS**

- Bruininks-Osteretsky Test of Motor Proficiency (American Guidance Services, 1978)
- Digital Finger Tapping Test Western Psychological Services, 1995)
- Grooved Pegboard (Psychological Assessment Resources, 1989)
- Grip Strength (Dynamometer, Pro-Med Products)
- NEPSY Sensorimotor subtests (The Psychological Corporation, 1998)
- Purdue Pegboard (Psychological Assessment Resources, 1987)

**VISUAL-SPATIAL and CONSTRUCTIONAL PERFORMANCE**

- Bender Visual Motor Gestalt (The Psychological Corporation, 1978)
- Developmental Test of Visual-Motor Integration (Western Psychological Services, 1997)
- Hooper Visual Organization Test (Western Psychological Services, 1983)
- Motor-Free Visual Perceptual Test-Revised (Western Psychological Services, 2003)
- NEPSY Visuospatial subtests (The Psychological Corporation, 1998)
- Rey-Osterrieth Complex Figure Test (The Psychological Corporation, 1995)
- Visual-Motor Integration Test (Psychological Assessment Resources, 1989)