

## Glossary

**Acoustic nerve:** the nerve that is responsible for hearing.

**Activities of Daily Living (ADL):** routine daily self care skills, including dressing, bathing, toileting, and feeding.

**Adaptive physical education:** a modified regular physical education program to meet the needs of students.

**Anoxia:** lack of oxygen to the brain.

**Anterograde amnesia:** lost recall of information from the time of the accident to the present.

**Anticonvulsants:** medications to prevent seizures.

**Apraxia:** difficulty starting, continuing, and stopping movements. May affect speech or the use of arms and legs or both. Also referred to as motor planning problems.

**Assistive technology device:** any item, piece of equipment, or product system, whether acquired commercially off the shelf, modified, or customized, that is used to increase, maintain, or improve the functional capabilities of children with disabilities.

**Assistive technology service:** any service that directly assists a child with a disability in selecting, acquiring, or using an assistive technology device, including evaluation of needs; purchasing, leasing, or providing a device; selecting, designing, fitting, customizing, adapting, applying, retaining, repairing or replacing a device; coordinating other activities with the use of the device; training or technical assistance for the child or the family and for professionals, employers, or other individuals involved with a child using a device.

**Ataxia:** movements characterized by incoordination, tremor, or both.

**Audiology:** the study of hearing and hearing disorders.

**Axons:** the usually long and straight part of a neuron or nerve cell that conducts impulses away from the cell body.

**Basal level:** the level on a test at which all previous items are assumed passed.

**Behavioral records:** student records that include psychological tests, personality evaluations, records of conversations, any written statement concerning a student's behavior, achievement and ability tests, health records, and any other student records that are not progress records.

**Brainstem:** The lower extension of the brain where it connects to the spinal cord. Survival (breathing, heart rate) and arousal (being awake and alert) functions are located in the brainstem.

## Traumatic Brain Injury

**Case manager:** the person designated to coordinate the services for an individual within an agency and to collaborate with other agency providers.

**Ceiling level:** the level on a test at which all following items are assumed failed.

**Central nervous system (CNS):** the brain and spinal cord.

**Cerebral cortex:** the outer layer of the brain, made up of two hemispheres with four lobes each (frontal, temporal, parietal, occipital).

**Cerebrospinal fluid (CSF):** a colorless fluid that is produced in the brain and fills the space in the brain called the ventricles. It circulates around the brain and spinal cord.

**Closed head/brain injury:** one of the two types of brain injuries. In this type of injury, the skull is not penetrated. It is the most common type of injury and often occurs from motor vehicle accidents or falls.

**Cognitive rehabilitation:** a program or specific group of activities designed to remediate disorders of memory, language, problem solving, or social skills.

**Coma:** unconsciousness lasting for more than a brief period of time. A state of unconsciousness from which the person cannot be aroused.

**Compensatory strategies:** alternate techniques or procedures used to accomplish an activity that is difficult to perform in a typical fashion.

**Computerized axial tomography scan (CT or CAT scan):** a series of radiographic pictures taken at different levels of the body or the brain. A scan is often done soon after a brain injury to determine whether surgery is needed. Repeat scans are done later to see how the brain is recovering.

**Congenital injuries:** injuries that are present since birth.

**Contralateral control:** left hemisphere of the brain controls movement on the right (contralateral) side of the body and the right hemisphere controls movement on the left side of the body.

**Coup/Contrecoup:** coup is a French word meaning strike or blow; it refers to the area of initial impact to the brain. Contrecoup refers to the area of the brain opposite the original injury; this site is often injured when the brain rebounds within the skull.

**Contusion:** a bruise.

**Cooperative Educational Service Agency (CESA):** a service unit which serves as a link between school districts and between the local school district and the state superintendent.

## Traumatic Brain Injury

**Corpus callosum:** a band of fibers that connects the two hemispheres of the brain and allows for rapid interhemisphere communication.

**Cortical blindness:** damage to the brain, typically in the parietal or occipital regions, resulting in the inability to interpret visual information. The eye and nerve pathways may be normal, but the brain cannot process the visual information. Children with cortical blindness that is due to a traumatic brain injury may recover some ability to interpret visual information.

**Criterion-referenced assessments:** testing that compares an individual's performance to an established measure, rather than to a normative group.

**Department of Public Instruction (DPI):** Wisconsin's state education agency (SEA).

**Diencephalon:** the lower part of the forebrain.

**Diffuse axonal injury:** a more generalized injury to the brain (versus focal) which is caused by the shearing or stretching of axons (nerve fibers) caused by acceleration or deceleration injuries, such as a motor vehicle accident.

**Diplopia:** seeing two images of a single object (double vision).

**Dysarthria:** a motor speech disorder caused by weakness, slowness, or incoordination of the muscles involved in speech. The severity can range from no ability to produce intelligible speech to mild articulation distortions.

**Emotional lability:** a sudden change or rapid cycling of emotional state.

**Executive functions:** include the ability to set goals, develop a plan to reach those goals, initiate necessary activity, inhibit responses, and monitor progress toward the goals. The frontal lobe is the lobe responsible for executive functions.

**Frontal lobe:** the area of the brain located at the front on both the left and right sides. This area plays a role in controlling emotions, motivation, social skills, expressive language, inhibition of impulses, planning, organizing, problem solving, and higher level cognitive functions.

**Focal brain injury:** an injury limited to a certain area of the brain.

**Free appropriate public education (FAPE):** specific education and related services at public expense, under public supervision and direction, and without charge.

**Gait:** walking pattern.

**Glasgow Coma Scale (GCS):** a measurement to estimate the severity of a coma. Used by physicians to rate levels of consciousness by assessing motor response, verbal response, and eye movement. Scores range from 15 (normal) to 3.

## Traumatic Brain Injury

**Gross motor skills:** activity performed by large muscle groups such as those in the shoulders and hip region.

**Hematoma:** condition when an area of tissue fills with blood.

**Hemiparesis:** a weakness of one side of the body.

**Hemiplegia:** paralysis of one side of the body.

**Hemisphere:** either half of the brain; right hemisphere or left hemisphere.

**Herniation:** movement of the brain through an opening in the lining of the brain due to increased intracranial pressure. This can cause injury to the brain because the herniated portion may not receive an adequate blood supply.

**Hydrocephalus:** increased fluid in the ventricles of the brain which can cause injury to the brain because of increased pressure.

**Individualized education program (IEP):** a plan that establishes the education program to be provided to a child with exceptional educational needs.

**Individuals with Disabilities Education Act (IDEA):** formerly known as the Education of the Handicapped Act and as PL 94-142, this federal special education law provides funding to states and sets procedural requirements for educational agencies.

**Intracranial hemorrhage:** significant bleeding in the brain.

**Intracranial pressure (ICP):** increased pressure within the skull, which can cause the displacement of or damage to brain tissue.

**Least restrictive environment (LRE):** refers to the principle that to the maximum extent appropriate, a child with a disability should be educated in an environment with nondisabled peers; separate schooling and other removal from the regular environment should occur only when the nature or severity of the disability prevents education in the regular educational environment.

**Left hemisphere:** left half of the brain.

**Limbic system:** area at the upper end of the brain which contains centers for emotional behavior and basic motivational urges.

**Lobes of the brain:** four sections of the cerebral cortex (frontal, temporal, parietal, occipital).

**Local education agency (LEA):** a district or CESA that is responsible for the delivery of educational services and programs operated by public schools.

## Traumatic Brain Injury

**Long-Term Memory:** Long term memory stores information that your brain retains because it is important to you.

**Magnetic resonance imaging (MRI):** a diagnostic technique that produces sectional images of the human body or brain.

**Medulla:** area of the brain stem responsible for controlling repetitive processes such as breathing and heartbeat.

**Memory:** Memory is the ability to store, retain, and subsequently recall information. It is the process of organizing and storing representations of events and recalling these representations to consciousness at a later date.

**Memory Encoding:** translating incoming information into a mental image that can be stored in memory

**Memory Retrieval:** Remembering something when you need it

**Meninges:** three protective layers covering the brain (dura mater, arachnoid, and pia mater).

**Midbrain:** upper section of the brainstem.

**Mnemonics:** technique of improving memory by using a formula such as a rhyme.

**Monoparesis:** weakness of one limb.

**Monoplegia:** paralysis of one limb.

**Morbidity:** the sequelae (aftereffects) of a traumatic brain injury.

**Mortality:** death or rate of death.

**Motor strip:** controls movement and motor integration. The motor strip runs along the posterior (back) of the frontal lobe.

**Neuron:** a nerve cell specialized to provide rapid communication within and between adjacent cells.

**Neuroplasticity:** the ability of the brain to lay new or alternative pathways.

**Neuropsychological assessment:** testing that evaluates thinking and behavioral function.

**Norm-referenced assessments:** tests that are standardized on a defined group. An individual's performance on the test is compared to the normative group.

## Traumatic Brain Injury

**Occipital lobe:** the posterior (back) of each side of the brain. Involved in perceiving and understanding visual information.

**Occupational therapy (OT):** services to individuals to improve, develop, or restore functions lost or impaired through illness, injury or deprivation, including tasks for independent functioning. Occupational therapy in schools is directed toward helping students achieve educationally related outcomes by developing underlying sensory motor, cognitive, and psychosocial skills and by collaborating on compensatory strategies and environmental adaptations when necessary.

**Open head/brain injury:** one of two types of brain injuries (open and closed). In this type of injury the skull is penetrated, often by an object such as a bullet or skate.

**Outcome:** functional condition following an accident or injury.

**Parietal lobe:** the upper middle lobe of each side of the brain. Involved in perceiving and understanding sensation and closely linked to speech fluency and writing.

**Peripheral nerve injury:** injury to nerves outside of the central nervous system.

**Perserveration:** continued or repetitive actions, or being "stuck" on an idea.

**Physical therapy (PT):** services to individuals to prevent or minimize disability, develop and improve sensory and motor function, control postural deviations, and establish and maintain motor performance within the individual's capabilities. School physical therapy encompasses developing the child's gross motor and mobility skills, providing positioning and handling techniques within the educational environment, and utilizing adaptive equipment and assistive devices for the student.

**Placement offer:** placement of a child with exceptional educational needs in a delivery model that will carry out the child's individualized education program.

**Post-traumatic amnesia (PTA):** a loss of memory that occurs immediately after injury and may continue for weeks or months. During this time many patients are unable to organize or retrieve information.

**Praxis:** ability to perform a purposeful movement.

**Premorbid status:** condition prior to injury or illness.

**Primary brain injury:** the brain injury that occurred at the time of the accident. It may be focal, diffuse axonal, or a contracoup injury.

**Quadripareisis:** weakness of all four limbs.

**Quadriplegia:** paralysis of all four limbs.

**Rancho Los Amigos Scale of Cognitive Functions:** One of the measures of stages of recovery following a traumatic brain injury.

**Range of motion:** amount of movement available at a joint. Active range of motion is performed by the individual. Passive range of motion is performed with assistance.

**Related services:** transportation and such developmental, corrective, and other supportive services required to assist a child with a disability to benefit from special education, and as specifically stated in the child's IEP, and includes audiology, interpreting services, psychological services, physical and occupational therapy, recreation including therapeutic recreation, early identification and assessment of disabilities in children, counseling services including rehabilitation counseling, and medical services for diagnostic or evaluation purposes. The term also includes school nursing services, social work services in schools, and parent counseling and training.

**Re-evaluation:** a multidisciplinary team evaluation conducted every three years (or sooner if a parent or teacher requests) for each student receiving special education.

**Remote memory:** events prior to the injury and early in life.

**Retrograde amnesia:** the inability to recall information prior to an accident that causes a brain injury. It may cover minutes, hours, weeks, months, or longer.

**Right hemisphere:** right half of the brain.

**Secondary brain injury:** secondary injuries to the brain may occur due to low blood pressure, insufficient oxygen to the brain, or elevated ICP.

**Section 504 of the Rehabilitation Act of 1973 (PL 93-112):** a federal statute dealing with nondiscrimination based on a handicap.

**Sensory Memory:** Sensory memory is the immediate, very brief (less than one second) automatic perception of information. This information is obtained through our senses – vision, hearing, smell, taste, and touch.

**Sensory strip:** responsible for sensory processing. Located behind the central sulcus in front of the parietal lobes in each hemisphere.

**Sequelae:** outcome or behaviors that result from an accident or injury.

**Short-Term Memory:** Short-term memory, also known as working memory, is temporary storage – less than a minute – of information may be needed and used later.

**Shunting:** turning away, diverting, or rerouting excess fluid. A shunt may be placed to prevent brain injury from hydrocephalus.

## Traumatic Brain Injury

**Spasticity:** increased muscle tone resulting in resistance to movement.

**Special education.** Specially designed instruction at no additional cost to parents to meet unique individual needs of children with disabilities.

**Specially designed physical education:** specially designed instruction to meet the unique individual needs of a child with a disability in the area of physical

**Swallow studies:** video of fluroscopic studies that allow the team to determine if the patient is able to swallow material safely. In moderate or severe injury, the child may have trouble coordinating a swallow, which may lead to material going into the lungs (aspiration), which can cause pneumonia.

**Tactile defensiveness:** being overly sensitive to touch; withdrawing, crying, yelling, or striking out when touched.

**Temporal lobe:** the lower middle part of each side of the brain. Involved in processing information from the auditory system, processing language, and involved in memory.

**Traumatic brain injury:** an acquired injury to the brain caused by an external physical force, resulting in total or partial functional disability or psychosocial impairment, or both, that adversely affects a child's educational performance. The- term applies to open or closed head injuries resulting in impairments in one or more areas, such as cognition; speech and language; memory; attention; reasoning; abstract thinking; judgment; problem-solving; sensory, perceptual, and motor abilities; psychosocial behavior; physical functions; information processing; and executive functions, such as organizing, evaluating, and carrying out goal-directed activities. The term does not apply to brain injuries that are congenital or degenerative, or brain injuries induced by birth trauma.

**Vertigo:** the subjective sensation of moving around in space or of having objects move.

**Visually handicapped:** students who have visual deficiencies that, even with correction, adversely affect their educational performance.

**Word retrieval:** the ability to name objects or concepts.

**Working Memory** – Working memory, also known as short-term memory, is temporary storage – less than a minute – of information may be needed and used later.

Adapted from Corbett and Ross-Thomson (1996) Educating Students with Traumatic Brain Injuries: A Resource and Planning Guide. Wisconsin Department of Public Instruction.