ON WITH LIFE
BRAIN INJURY + STROKE + NEURO

On With Life Neuro Rehabilitation Glossary

A

Adaptive equipment: Is typically a piece of equipment that is used to assist in an individual with completing tasks that are difficult to do after an injury. The idea is to use adaptive equipment to increase a person's independence.

ADL: Activities of Daily Living. These are the routine activities that we do to care for ourselves such as: eating, dressing, grooming, shaving, etc. Advocacy: To support; to help, and/or to promote a cause. It's important to advocate for your love ones because you know them best!

AFO: An AFO (ankle foot orthosis) is a brace that is typically made of plastic like material that is formed around the ankle and part of the foot. They are used to help position your ankle and foot, compensate for weakness, or correct deformities.

Agnosia: This is when there is difficulty in recognizing objects that are familiar even though our senses are intact.

Ambulation: To walk, walking. Aneurysm: A balloon-like deformity in the wall of a blood vessel. The wall weakens as the balloon grows larger, and may eventually burst, causing a hemorrhage.

Anoxia: A lack of oxygen. Cells of the brain need oxygen to stay alive. When blood flow to the brain is reduced or when oxygen in the blood is too low, brain cells are damaged.

Anticonvulsant: A medication used to decrease the possibility of a seizure.

Antidepressant: A drug prescribed to treat depression. Side effects include some sedation, dry mouth, and visual problems.

Anxiety: Feelings of apprehension, uneasiness, agitation, uncertainty and fear because of threat or danger.

Apathy: Demonstrates indifference or lack of emotion, concern or interest in something or someone.

Aphasia: The change in an individual's language ability because of an injury to the brain. There can be different types of aphasia – expressive, receptive or global aphasia. With expressive aphasia, individuals have difficulty saying what they want to say – communicating to others. With receptive aphasia, individuals have difficulty understanding what is being said to them – making sense of it all.

Apraxia: The inability to produce voluntary speech due to a deficit in motor (muscle) programming caused by brain damage.

ASIA Score: A tool to assess function after spinal cord injury, on a scale from A (complete, no motor or sensory function) through E (normal motor and sensory).

Assist Levels: This is what is used to 'rate' individuals on the amount of help they need to complete a task, walk, dress, etc. It is used to demonstrate progress by decreasing the amount of assistance needed with a task.

Standby Assist: This is when someone is just 'standing by' in case assistance is needed.

Contact Guard Assist: This is when someone has a hand on the person as an extra safety precaution. The one 'helping' does not really do anything physically but has a hand on the individual or gait belt in case help is needed.

Minimal Assist: 25% help is being provided to an individual to complete a task, activity or transfer.

Moderate Assist: 50% help is being provided to an individual to complete a task, activity or transfer.

Maximum Assist: 75% help is being provided to an individual to complete a task, activity or transfer.

Dependent Assist: 100% help is being provided to an individual to complete a task, activity or transfer. Ataxia: This is when there is a problem with the way the muscles work together or "coordinate." Typically, this is caused when there is a lesion (or injury) on or near the cerebellum or basal ganglia. Sometimes it seems as though the individual is "shaky."

Attention deficits: Individuals who experience difficulty with concentrating on a given task for a period of time. They are easily distracted by internal and external distractors (such as pain, noise, etc.).

Autonomic dysreflexia: A potentially dangerous reaction that includes high blood pressure, sweating, chills, headache, which may occur in persons with spinal cord injury above the sixth thoracic level (T6). Often caused by bladder or bowel issues. Untreated, autonomic dysreflexia can lead to stroke or even death.

Awareness deficits: Impaired insight and understanding of the injury and limitations that are affecting the individual after their injury.

B

Balance: A person's balance is their ability to right themselves and keep themselves upright. The ability to use appropriate righting and equilibrium reactions to maintain an upright position. It is usually tested in sitting and standing positions.

Bowel program: The establishment of a "habit pattern" or a specific time to empty the bowel so that regularity can be achieved.

Brain stem: The brain stem is responsible for vital life activity that includes things such as breathing, heartbeat, and blood pressure. The brain stem is made up of three structures: the midbrain, pons, and medulla.

Brown-Séquard Syndrome: A partial spinal cord injury resulting in hemiplegia, affecting only one side of the body.

C

Catheter: A rubber or plastic tube for withdrawing or introducing fluids into a cavity of the body, usually the bladder. Some catheters are enclosed in sterile packaging and are used but once. Some catheters remain in place in the bladder, continuously draining.

Cauda equina: The collection of spinal roots descending from the lower part of the spinal cord (conus medullaris, T11 to L2), occupying the vertebral canal below the spinal cord. These roots have some recovery potential.

Central cord syndrome: The most common form of an incomplete spinal cord injury. It is one in which the spinal cord's ability to transmit some messages to or from the brain is damaged or reduced below the site of injury to the spinal cord. Central nervous system (CNS): the CNS includes the brain and spinal cord.

Cerebrum: The cerebrum is considered to be the largest part of the brain. It consists of four different lobes – the frontal lobe, parietal lobe, occipital lobe, and temporal lobe. Cerebellum: The cerebellum is located in the back of the brain and is what helps coordinate our movement, posture and balance. When there is damage to this area, ataxia often results. The portion of the brain (located in the back) that helps coordinate movement.

Cervical: The upper spine (neck) area of the vertebral column. Cervical injuries often result in tetraplegia.

Clonus: A sustained series of rhythmic jerks following quick stretch of a muscle. Oftentimes, we see it when the leg or arm "bounce's" repetitively. Closed head injury: Trauma to the head regardless of severity. No open wound or fracture is noted. Cognition: The mental process involved in knowing, thinking, learning and judging. Cognitive function: This is often determined as an individual recovers and is based on their response and attention to the environment, learning, memory, comprehension, etc.

Cognitive rehabilitation: Cognitive therapy programs help individuals identify and manage specific problems in thinking and perception. Skills are practiced and strategies are taught to help improve function and/or compensate for remaining deficits. Coma: A state of profound unconsciousness. A state of unconsciousness from which the person is incapable of any conscious action. Typically, they do not respond to powerful stimulation; lack of any response to one's environment.

Complete Lesion: Injury with no motor or sensory function below the zone of cord destruction, at the site of primary trauma. Concussion: A concussion is typically resulting from a violent blow, jarring, shaking or other non-penetrating injury to the brain. Frequently, but not always, accompanied by a loss of consciousness.

Confabulation: The fabrication of an experience or situation in a detailed and believable way to cover up gaps in memory.

Confidentiality: A principle which states that personal information about others, particularly patients, should not be revealed to persons not authorized to receive such information.

Contracture: The stiffening of a body joint to the point that it can no longer be moved through its normal range. When contractures occur over a long period of time, there is little that can be done to counteract it. Contusion: A bruising of the brain.

Coup: A blow to the head at the site of impact.

Contra coup: Injury to the brain from a blow to the opposite side of the head (often seen in car accidents).

D

Decerebrate posture (Decerebrate Rigidity): This is when an individual presents in significant extension after an injury to the brainstem.

Decorticate posture (Decorticate Rigidity): This is when an individual presents with their upper body flexing and their lower body extending after an injury to brain.

Deficit: An area that has been affected by the injury to the brain that does not work or function as it normally should.

Depression: This is an emotional state where individuals sometimes experience feelings of sadness, worthlessness, hopelessness, etc.

Dermatome: Map of the body that shows typical function for various levels of spinal cord injury.

Diffuse Axonal Injury (DAI): This is a shearing injury of large nerve fibers (axons covered with myelin) in many areas of the brain. It appears to be one of the two primary lesions of brain injury, the other being stretching or shearing of blood vessels from the same forces, producing hemorrhage. Diplopia: Seeing two images of a single object; double vision.

Disability: The loss, absence, or impairment of physical or mental fitness that can be seen or measured.

Disinhibition: This is usually seen as impaired ability to restrain from acting on an impulse or desire.

Disorientation: Confusion with regard to time, place, personal identity and relationships.

Distractibility: This typically is seen when an individual has difficulty maintaining their attention to a task.

Dura mater: The outermost of three membranes protecting the brain and spinal cord, it is tough and leather like.

Dysarthria: Difficulty with forming words or speaking them because of weakness of muscles used in speaking.

Dysphagia: Difficulty with swallowing. It also includes difficulty in moving material from the mouth to the stomach.

E

Edema: Collection of fluid in the tissue causing swelling.

Emotional lability: An individual that demonstrates rapid and drastic changes in emotional state (laughing, crying, anger) inappropriately without apparent reason.

Epidural space: Outside the brain and its fibrous covering, but under the skull.

Exacerbate: To increase the seriousness of a condition marked by more intense signs or symptoms.

Executive functions: These are the higher-level thinking abilities that we use to form an idea, plan, and carry them out effectively.

Extension: This is the movement which brings the body or limbs into straight position.

Extremity: Another word for arm or leg.

F

Fatigue: A state of exhaustion; the loss of strength or endurance. After brain injury many individuals complain of fatigue – this is not unusual – in fact many people need to take a nap midday to make it through.

Flaccidity: A form of paralysis in which muscles are soft and limp.

Flexion: Movement which brings body or limbs into a bent position.

Foley: A catheter that remains inserted in the bladder, continuously draining to a storage bag.

Frontal lobe: This is the front part of the brain; involved in planning, organizing, problem solving, selective attention, personality, and a variety of "higher cognitive functions."

Functional: The ability to carry out a purposeful activity, purposeful activity being something that is part of “real” life.

Functional Electric Stimulation (FES): The application of low-level computer-controlled electric current to the neuromuscular system, including paralyzed muscles, to enhance or produce function (e.g., walking and bike exercise). FES is commercially available for exercise and for ambulation in paraplegics. Other uses include correction of scoliosis, bladder control, electro-ejaculation, phrenic nerve stimulation, stimulation of cough.

Gait training: This is when a trained therapist gives instruction in walking, with or without equipment.

Grief process: Emotional responses to grief which progress from alarm to disbelief and denial, to anger and guilt, to finding a source of comfort, and finally to adjustment

H

Head injury: Any traumatic injury to the head regardless of severity.

Hematoma: This is the collection of blood in tissues or a space following rupture of a blood vessel.

Hemianopsia: This is considered a visual field cut or blindness for one half of the field of vision. This is not the right or left eye, but the right or left half of vision in each eye.

Hemiplegia: This is paralysis of one side of the body as a result of injury to neurons carrying signals to muscles from the motor areas of the brain.

Hemiparesis: Weakness, paralysis or loss of movement on one side of the body.

Hemianopsia: Loss of part of one's visual field in one or both eyes.

Hemorrhage: Abnormal internal or external discharge of blood. Bleeding that is occurring, in the case of brain injury, in the brain.

Heterotopic ossification (HO): The formation of bone deposits in connective tissue surrounding the major joints, primarily hip and knee. Incidence of 20 percent and as high as 50 percent has been reported in spinal cord injury patients, more commonly in higher level injuries. Cause is unknown.

Treatment prescribes range-of-motion exercises and weight-bearing activity, can involve surgical removal if severe loss of function occurs.

Hypoxia: The lack of blood oxygen due to impaired lung function. A loss of oxygen for a period of time can affect the brain as well, causing damage.

I

Impairment: This is when there is a deficiency in an individual's function that interferes with normal activity.

Impulsivity: A response that is done without thinking, the acting out of a sudden, irresistible and irrational urge or desire. After brain injury it is not unusual to see individuals who have increased impulsivity – making them unsafe in some situations or more increased risk of falls.

Incomplete injury: Some sensation or motor control preserved below a spinal cord lesion.

Indwelling catheter: A flexible tube retained in the bladder, used for continuous urinary drainage to a leg bag or other device. The catheter can enter the bladder via urethra or through an opening in the lower abdomen (suprapubic ostomy).

Intermittent catheterization: Using a catheter for emptying the bladder on a regular schedule.

Intracerebral: In the brain tissue.

Intracranial pressure (ICP): Cerebro-spinal fluid (CSF) pressure measured from a needle or bolt introduced into the CSF space surrounding the brain. It reflects the pressure inside of the skull.

Ischemia: A reduction of blood flow that is thought to be a major cause of secondary injury to the brain, such as with a stroke where a clot is present for instance.

J

Judgment: The ability to form a correct conclusion based on knowledge and experience

K

KUB: An x-ray of the abdomen, showing the kidneys, ureters and bladder.

L

Limbic system: This is often referred to as the "emotional brain," is found buried within the cerebrum.

Long term memory (LTM): The ability to easily recall feelings, events, ideas and other information which may have happened a long time ago.

Lower motor neurons: These nerve fibers originate in the spinal cord and travel out of the central nervous system to muscles in the body. An injury to these nerve cells can destroy reflexes and may also affect bowel, bladder and sexual functions.

M

Memory: The ability of the brain to retain and recall information.

Mental inflexibility: This is rigidity in thinking which impairs the individual's ability to be objective and process new information; inability to appreciate alternatives.

Mental status: The degree of competency an individual displays when given standardized tests to determine intellectual, emotional, psychological and personality functions.

Modified Ashworth Scale: A qualitative scale for the assessment of spasticity; measures resistance to passive stretch

N

Neologism: Nonsense or made-up word used when speaking. The person often does not realize that the word makes no sense.

Neuro-IFRAH: Neuro-Integrative Functional Rehabilitation and Habilitation is a treatment technique wherein the therapist guides the person served through the most accurate and natural movements of daily activities to restore normal function. The goal is to restore the most “normal and healthy” movement patterns possible to the person served rather than using compensatory / unhealthy movement patterns.

Neurogenic bladder: Any bladder disturbance due to an injury of the nervous system.

Neurogenic bowel: Loss of normal bowel function due to a nerve problem. It causes constipation and bowel accidents.

Neurological examination: An examination of the nervous system which includes an evaluation of mental competency.

Neurologist: A physician who specializes in the nervous system and its disorders.

O

Occupational Therapist (OT): A member of the rehabilitation team who helps maximize a person's independence. OTs teach daily living activities, health maintenance and self-care, and consult on equipment choices.

Optometrist: A key member of the rehab team uniquely qualified to diagnose and treat visual disorders resulting from brain injury or defect.

Orthostatic hypotension: Related to pooling of blood in lower extremities in combination with lower blood pressure in people with spinal cord injury. Elastic binders and compression hosiery are often used to avoid lightheadedness.

P

Paraplegia: Loss of function below the cervical spinal cord segments; upper body usually retains full function and sensation.

Parietal lobe: There are two parietal lobes in the brain, located behind the frontal lobe at the top of the brain. If the right is damaged it can cause visual-spatial deficits and if the left is damaged than the individual can have difficulty understanding spoken or written language.

Perceptual deficits: Impaired abilities with things such as cognitive processing, emotional response, attention or memory. May result from diffuse brain injury.

Perseveration: Repetition of the same verbal response or motor activity regardless of the stimuli or its duration.

Physiatrist: This is a doctor whose specialty is physical medicine and rehabilitation.

Physical Therapist (PT): A member of the rehabilitation team. The Physical Therapist examines, tests and treats persons to enhance their maximum physical activity.

Post traumatic amnesia: This is memory loss caused by brain damage or severe emotional injury.

Pressure injury: also known as decubitus ulcer and pressure sore; potentially dangerous skin breakdown due to pressure on skin resulting in infection, tissue death. Skin sores are preventable.

Prone: This is another word for lying on stomach.

Proprioception: The sensory awareness of the position of body parts with or without movement.

Proximal: Next to, or nearest, the point of attachment.

Ptosis: Drooping of a body part, such as the upper eyelid, from paralysis.

Q

Quad-coughing: Also known as assisted coughing; a caregiver assists the person with spinal cord injury to clear his or her airways by applying pressure below the ribs over the diaphragm while pushing upward. Quadriparesis: Partial loss of function all four extremities of the body.

Quadriplegia: Loss of function of any injured or diseased cervical spinal cord segment, affecting all four body limbs. (The term “tetraplegia” is etymologically more accurate, combining “tetra” and “plegia,” both from the Greek, rather than “quadri” and “plegia,” a Latin-Greek amalgam.)

R

Range of motion (ROM): This is the normal range of movement of anybody joint. Range of Motion also refers to exercises designed to maintain this range and prevent contractures.

Reasoning: Is the ability to think out logically.

Reflex: An involuntary response to a stimulus involving nerves not under control of the brain. Rehabilitation: A sequence of services built around the needs of an impaired/injured individual and designed to restore optimum physical, psychological, social and vocational levels of function.

Residual urine: Urine that remains in the bladder after voiding; too much can lead to a bladder infection.

Respite care: Taking over the care of a person temporarily (for a few hours to a few days) to provide a period of relief for the primary caregiver.

S

Sacral: Refers to fused segments of lower vertebrae or lowest spinal cord segments below lumbar level. Seizure: This is an uncontrolled discharge of nerve cells which may spread to other cells nearby or throughout the entire brain. It usually lasts only a few minutes. It may be associated with loss of consciousness, loss of bowel and bladder control and tremors. May also cause aggression, and other behavioral changes.

Self-awareness: This is the ability to know and understand oneself.

Self-catheterization: Intermittent catheterization, the goal of which is to empty the bladder as needed, on one's own, minimizing risk of infection. Some may need assistance if hand function is impaired. Self-monitoring: This is the ability to regulate, control and keep track of oneself.

Sensation: Feeling stimuli which activate sensory organs of the body such as touch, temperature, pressure or pain. Also seeing hearing, smelling and tasting.

Sensory stimulation: Arousing the brain through any of the senses.

Sequencing: Reading, listening, expressing thoughts, describing events in an orderly and meaningful manner.

Shearing: Microscopic lesions in the brain caused when the movement of the brain within the skull puts strain on delicate nerve fibers and blood vessels causing them to stretch to the point of breaking. Shunt: A tube that is used to drain a cavity. In the brain it is typically used to reduce pressure from hydrocephalus.

Situational anxiety: A feeling of apprehension, discomfort and dread which is precipitated by a new experience, or a change of situation or events.

Situational depression: An episode of emotional and psychological depression that occurs in response to a specific set of circumstances.

Spasticity: Hyperactive muscles that move or jerk involuntarily. If severe, spasms can interfere with normal activities, and can hasten contractions as muscles shorten. Speech dysfunction: A defect or abnormality of speech.

Speech pathologist: A key member of the rehab team. Directs, diagnoses, and conducts programs to improve communicative skills related to speech and language problems.

Subcortical: The region beneath the cerebral cortex.

Subdural space: Between the brain and its fibrous covering of the brain.

Subluxation: A complete or partial dislocation of the shoulder area.

Suprapubic cystostomy: A small opening made in the bladder and through the abdomen, sometimes to remove large stones, more commonly to establish a catheter urinary drain.

T

Temporal lobes: There are two temporal lobes, one on each side of the brain, at about the level of the ears. These lobes allow a person to tell one smell from another and one sound from another. They also help in sorting out new information and are believed to be responsible for short-term memory.

Tendon lengthening: A procedure, usually involving the Achilles tendon, to treat contractures caused by spasms.

Tenodesis (hand splint): Metal or plastic support for hand, wrist, or fingers. Used to facilitate greater function by transferring wrist extension into grip and finger control.

Thoracic: Pertaining to the chest, vertebrae or spinal cord segments between the cervical and lumbar area.

Tilt table: A motorized table which is used to gradually increase tolerance to being in a standing position. Also used to teach partial weight bearing and to give prolonged stretch in each position. Traumatic brain injury (TBI): An injury to the brain regardless of severity.

U

Unilateral: Pertaining to only one side.

Upper motor neurons: Long nerve cells that originate in the brain and travel in tracts through the spinal cord. Injury to these nerves cuts off contact between brain and muscle.

Urinary tract infection (UTI): Bacteria that cause symptoms (cloudy, strong-smelling urine, blood in the urine or sudden increase in spasticity) in the urethra (urethritis), bladder (cystitis) or kidney (pyelonephritis). Bacteria that do not cause symptoms usually does not need treatment.

Urodynamics: A test that involves filling the bladder through a catheter to determine how well the bladder and sphincter are working.

V

Vegetative state: A condition in which the person utters no words and does not follow commands or make any response that is psychologically meaningful.

Ventricles, brain: four natural cavities in the brain which are filled with cerebrospinal fluid (CSF). The outline of one or more of these cavities may change when a space-occupying lesion (hemorrhage, tumor) has developed in a lobe of the brain.

Vertebrae: The bones that make up the spinal column. Vision therapy: Specific therapies and corrective lenses designed to treat visual disorders resulting from brain injury or defect.

W

Whiplash injury: An injury to the neck that causes violent back and forth movement of the head and neck such as in a rear end car collision. Such injuries have been known to cause brain damage even though there was no direct injury to the head.

Information obtained from:

1. http://www.headinjury.com/tbiglossary2.html#b

2. Maddox, S. (2020). Paralysis Resource Guide. (5th ed.). Christopher & Dana Reeve Foundation.