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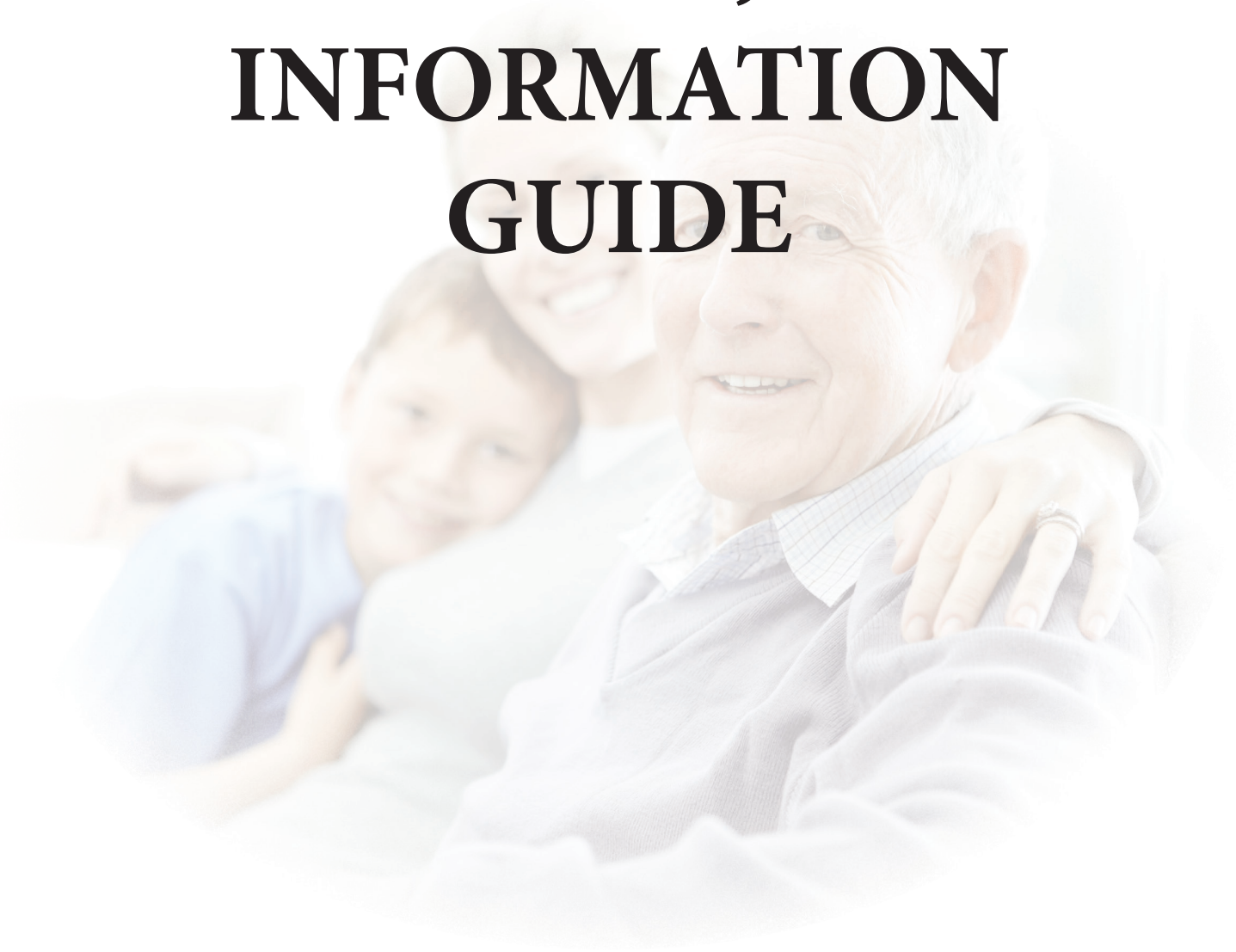
BRAIN INJURY INFORMATION GUIDE



Disclaimer: The information contained in the following pages is not meant to replace the advice from a medical professional. You should consult your health care provider regarding specific medical concerns or treatment. BIANH does not support, endorse or recommend any particular method, treatment or program for individuals living with brain injury. We strive to inform and believe that you have the right to know what help is available.

ABOUT THE BRAIN INJURY ASSOCIATION OF NEW HAMPSHIRE

The Brain Injury Association of New Hampshire is the leading state-wide organization in New Hampshire dedicated to brain injury and stroke support, prevention, education, and advocacy for survivors and caregivers. We are a chartered affiliate of the Brain Injury Association of America (BIAA).

INDIVIDUALS WE SERVE

We serve individuals who have sustained one of the following Acquired Brain Injuries (ABI):

- Traumatic Brain Injury (TBI) - (e.g., physical trauma due to accidents, falls, assaults, etc.)
- Stroke/young stroke
- Coma
- Brain tumors
- Aneurysm and arteriovenous malformation
- Concussion – mild traumatic brain injury
- Surgery
- Poisoning/Neurotoxic injury (includes alcohol, post chemotherapy cognitive impairment, heavy metal exposure, neurotoxins)
- Ischemia (restricted blood flow)
- Pediatric brain injuries (i.e., Shaken Baby Syndrome and lead paint poisoning)
- Anoxic injury to the brain (prolonged lack of oxygen)
- Hypoxia (decreased oxygen flow)
- Epilepsy or other seizure disorders
- Meningitis, encephalitis, and infections of the brain
- Hydrocephalus

WHAT IS THE DIFFERENCE BETWEEN A TRAUMATIC BRAIN INJURY AND AN ACQUIRED BRAIN INJURY?

A **Traumatic Brain Injury (TBI)** is defined as an alteration in brain function or other evidence of brain pathology caused by an external force. A TBI is an injury to the brain caused by an external force after birth. Common causes of a traumatic brain injury include gunshot wounds, motor vehicle crashes, assaults/violence, Shaken Baby Syndrome, falling and striking your head, or explosive blasts (e.g., Improvised Explosive Devices).

An **Acquired Brain Injury (ABI)** is an injury to the brain, which is not hereditary, congenital, degenerative, or induced by birth trauma. An Acquired Brain Injury is an injury to the brain that has occurred after birth, and includes all types of traumatic brain injuries, and also brain injuries caused after birth by cerebral vascular accidents (commonly known as stroke), tumors, seizures, brain aneurysms, toxic exposures, encephalitis/meningitis, and loss of oxygen to the brain (near drowning, anoxia, hypoxic brain injury).

Injuries to the brain present at birth or progressive in nature, such as Alzheimer's or Parkinson's Disease, are not considered a traumatic or acquired brain injury.

FUNCTIONAL CHANGES CAUSED BY BRAIN INJURY

A brain injury may result in mild, moderate, or severe impairments in one or more of the following areas:

Cognitive Functions

- Short-term or long-term memory loss
- Impaired judgment and perception
- Trouble concentrating or paying attention
- Difficulty with language or speech production and thought processing (aphasia, receptive language, dysarthria)
- Spatial disorientation
- Difficulty organizing or problem solving

Physical Functions

- Seizures
- Sleep Difficulties (fatigue or insomnia)
- Sensory loss or impairment (vision, hearing, etc.)
- Headaches or migraines
- Trouble with balance and dizziness
- Difficulty swallowing
- Decreased motor abilities
- Dysfunction of previous abilities to participate in day-to-day activities

Emotional/Behavioral Functions

- Depression, grief over loss of ability or chemical changes caused by injury
- Anxiety, restlessness, agitation, frustration, impatience
- Lack of motivation
- Reduced level of self-esteem
- Mood swings
- Impulsiveness and lack of inhibition
- Personality changes
- Emotional flatness and passivity

BIANH SUPPORT & SERVICES

Specialized Care Coordination
Brain injury specific specialty care coordination/case management for the post acute and chronic stage of brain injury – often requiring life-time coordination of care and services.

Family Support
Family support is the Association's free Neuro-Resource Facilitation (NRF) service; helping families and survivors access needed services and supports in their own home and community.

Financial Assistance
Provide direct financial assistance for special needs not covered by other sources through the Brain Injury Community Support Program.

Community Care Waivers
Choices for Independence (CFI), Acquired Brain Disorder (ABD), Intellectual Developmental Disabilities (IDD), In Home Supports (IHS)
Provides home and community-based services that help people with disability to live independently in their own home and community.

Transition Program
Assisting individuals who have experienced a brain injury or stroke, and are able to transition from a facility back into the community.

Support Groups
Helping people with brain injury and their families to know that they are not alone and that there is a whole network of other families and resources within the New Hampshire brain injury community.

Helpline (800) 773-8400 – Information & Resources (only) (800) 444-6443
Our Helpline is available to persons with a brain injury, family members or friends, professionals, and the public.

Education
We provide a wide variety of educational services for persons affected by brain injury and their family caregivers.

Prevention
Prevention is the only cure for brain injury. Our prevention efforts are geared towards schools, teens, and young adults – those most at risk for traumatic brain injury.

Support for Family Caregivers
The annual Caregivers Conference provides respite, information, and sharing for caregivers statewide.

Advocacy
Individual advocacy for persons with a brain injury to help meet their needs in the community. Statewide advocacy; the brain injury community working together for persons living with a brain injury and their needs.

Veteran Supports
Provides service coordination through our NRF Program, financial support, and website (www.nh-veteran.com).

School Services
Education available to staff and students; assist with development of Individual Educational Plans (IEP).

Provider/Professional Training & Education
Training programs to enhance provider skills and expertise in the brain injury field.

Hospital Clinics
Hospital-based clinics provide outreach to newly injured and give assistance in navigating the system of care in New Hampshire.

UNDERSTANDING BRAIN INJURY

WHAT IS A BRAIN INJURY?

A brain injury refers to damage to the brain caused by an external physical force such as a car accident, a gunshot wound to the head, or a fall. A brain injury is not caused by something internal such as a stroke or tumor, and does not include damage to the brain due to prolonged lack of oxygen (anoxic brain injuries). It is possible to have a brain injury and never lose consciousness.

CAUSES OF BRAIN INJURY

Statistics from Centers for Disease Control for 2002-2006 indicate that the leading causes of brain injury are falls (35%) followed by car crashes (17%) and being struck by an object (16%). Emergency room visits have increased for both younger and older people due to the number of brain injuries.

TYPES OF INJURIES

The brain is about 3-4 pounds of extremely delicate soft tissue floating in fluid within the skull. Under the skull there are three layers of membrane that cover and protect the brain. The brain tissue is soft and, therefore, can be compressed, pulled, and stretched. The brain can move around violently inside the skull when there is sudden speeding up and slowing down, such as in a car crash or fall.

CLOSED HEAD INJURY vs. OPEN HEAD INJURY

Closed means the skull and brain contents have not been penetrated (broken into or through), whereas *open* means the skull and other protective layers are penetrated and exposed to air.

In a ***closed head injury***, damage occurs because of a blow to the person's head or having the head stop suddenly after moving at high speed. This causes the brain to move forward and back or from side to side, causing a collision with the bony skull around it. This jarring movement bruises brain tissue, damages axons (part of the nerve cell), and tears blood vessels. After a closed head injury, damage can occur in specific brain areas (localized injury) or throughout the brain (diffuse axonal injury).

Damage following ***open head injury*** tends to be localized and, therefore, corresponding damage is to that specific area of the brain. However, such injuries can be as severe as closed head injuries, depending on the destructive path of the invasive object within the brain.

PRIMARY INJURIES vs. SECONDARY INJURIES

Primary injuries occur at the time of insult to the brain and there is nothing that physicians can do to reverse those injuries. Below are some primary injuries:

- **Skull fracture** occurs when there is a breaking or denting of the skull. Pieces of bone pressing on the brain can cause injury, often referred to as a depressed skull fracture.
- **Localized injury** means that a particular area of the brain is injured. Injuries can involve bruising (contusions) or bleeding (hemorrhages) on the surface of or within any layer of the brain.
- **Diffuse Axonal Injury** (DAI) involves damage throughout the brain and loss of consciousness. DAI is a "stretching" injury to the neurons (the cell bodies of the brain) and axons (fibers that allow for communication from one neuron to another neuron). This type of damage is often difficult to detect with brain scans.

Secondary injuries occur after the initial injury, usually within a few days. Secondary injuries may be caused by lack of oxygen to the brain, which can be the result of continued low blood pressure or increased intracranial pressure (pressure inside the skull) from brain tissue swelling.

MEASURING THE SEVERITY OF A BRAIN INJURY

"Severity of injury" refers to the degree or extent of brain tissue damage. The degree of damage is estimated by measuring the duration of loss of consciousness, the depth of coma and level of amnesia (memory loss), and through brain scans.

The ***Glasgow Coma Scale*** (GCS) is used to measure the depth of coma. The GCS rates three aspects of functioning:

- Eye opening
- Movement
- Verbal response

Individuals in a deep coma score very low on all these aspects of functioning, while those less severely injured or recovering from a coma score higher.

- A GCS score of 3 indicates the deepest level of coma, describing a person who is totally unresponsive.
- A score of 9 or more indicates that the person is no longer in a coma, but is not fully alert.
- The highest score (15) refers to a person who is fully conscious.

A person's first GCS score is often done at the roadside by the emergency response personnel.

Post-traumatic amnesia (PTA) is another good estimate for severity of a brain injury. Anytime a person has a major blow to the head he or she will not remember the injury and related events for sometime afterward.

CT or MRI SCAN RESULTS

The cranial tomography (CT scan) is a type of x-ray that shows problems in the brain such as bruises, blood clots, and swelling. People with a moderate to severe brain injury will have several CT scans while in the hospital to keep track of lesions (damaged areas in the brain). In some cases, a magnetic resonance imaging (MRI) scan may also be performed.

STRUCTURE AND FUNCTION OF THE BRAIN AFTER INJURY

A brain injury can have various affects on an individual's physical, cognitive, and emotional behavior.

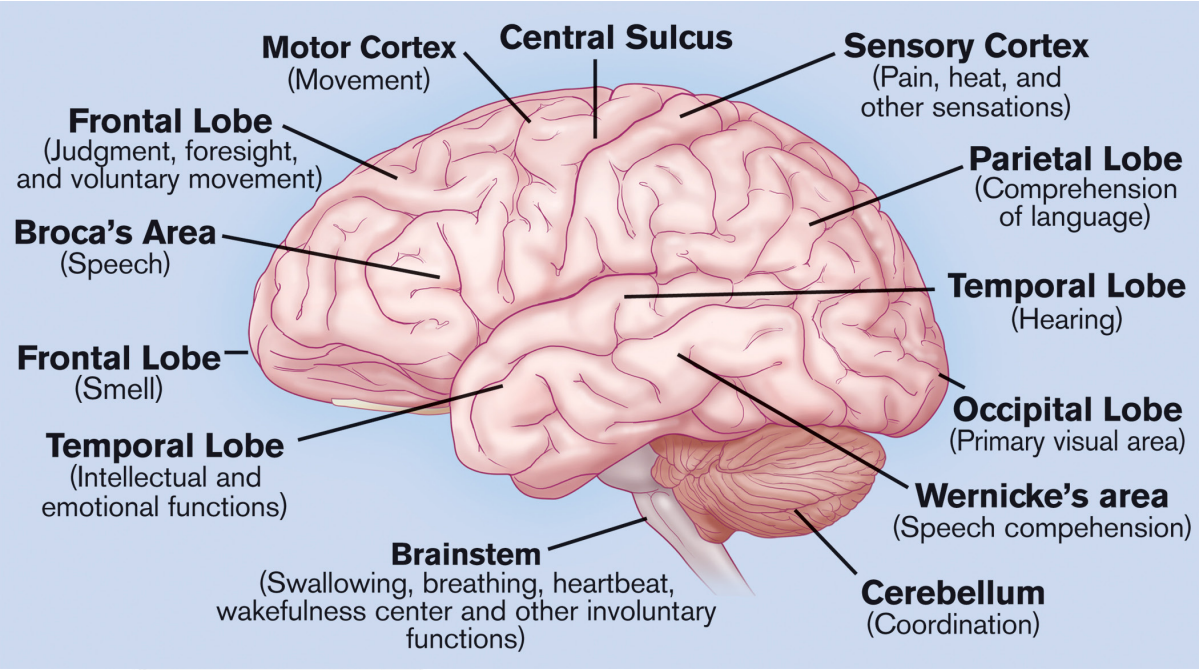
The brain is the control center for all human activity, including vital processes (breathing and moving) as well as thinking, judgment, and emotional reactions. Understanding how different parts of the brain work, helps to understand how injury affects a person's abilities and behaviors.

LEFT vs. RIGHT BRAIN

- The brain is divided into two halves (hemispheres). The left half controls movement and sensation in the right side of the body, and the right half controls movement and sensation in the left side. Thus, damage to the right side of the brain may cause movement problems or weakness on the body's left side.
- For most people, the left half of the brain is responsible for verbal and logical functions including language (listening, reading, speaking, and writing), thought, and memory involving words.
- The right half is responsible for nonverbal and intuitive functions such as putting bits of information together to make up an entire picture, recognizing oral and visual patterns and designs (music and art), expressing, and understanding emotions.

BRAIN AREAS AND ASSOCIATED FUNCTIONS

The brain is made up of six areas that can be affected by a head injury. The result of a brain injury is partially determined by the location of the injury.



PHYSICAL PROBLEMS

Most people living with a brain injury are able to walk and use their hands within 6-12 months after injury. In most cases, the physical difficulties do not prevent a return to independent living, including work and driving.

In the long term the brain injury may reduce coordination or produce weakness and problems with balance. For example, a person with a brain injury may have greater difficulty playing sports as well as they did before their injury. They also may not be able to maintain activity for very long due to fatigue.

COGNITIVE (THINKING) PROBLEMS

Individuals with a moderate-to-severe brain injury often have problems in basic cognitive (thinking) skills such as paying attention, concentrating, and remembering new information and events.

- Slower thinking process; slower speech
- Easily confused when normal routines are changed
- Bothered by noise or busy schedules
- Shorter attention span
- Impatient; too hasty in decisions
- Speech/Language difficulties; difficulty in expressing oneself

EMOTIONAL/BEHAVIORAL PROBLEMS

Brain injury can bring on challenging new behaviors or change an individual's personality. Behavioral and emotional difficulties are common and can be the result of several causes:

- Cognitive issues
- Aggression or strong emotional reactions
- Restlessness or irritability

- Acting more dependently on others
- Emotional or mood swings
- Lack of motivation
- Short-term memory loss
- Lethargy (sluggishness)
- Inappropriate behavior
- Lack of self-awareness. Injured individuals may be unaware that they have changed or have problems.

Rehabilitation training, therapies, and other supports can assist the individual to manage these emotional and behavioral problems.

THE RECOVERY PROCESS

COMMON STAGES

In the first few weeks after a brain injury, swelling, bleeding, or changes in brain chemistry often affect the function of healthy brain tissue. The injured person's eyes may remain closed and the person may not show signs of awareness. As swelling decreases, blood flow and brain chemistry improves, and brain function usually improves. With time, the person's eyes may open, sleep-wake cycles may begin, and the injured person may follow commands, respond to family members, and speak. Some terms that might be used in these early stages of recovery are:

- Coma: a state of unconsciousness that can last for long periods of time, ranging from days to years; a condition caused by a severe brain injury or resulting brain swelling, leaving a patient unaware of their surroundings and unable to respond to even simple commands.
- Persistent vegetative state: after a coma, a low level of consciousness in which a person appears awake but can only perform certain involuntary responses, not the more complex thoughts or actions associated with awareness such as following commands, planning, remembering, and communicating.
- Minimally conscious state: a condition of altered consciousness where the person displays some acknowledgement of self or environment.

A period of confusion and disorientation often follows a brain injury. A person's ability to pay attention and their ability to learn declines -- agitation, nervousness, restlessness or frustration may appear. Sleeping patterns may be disrupted. The person may overreact to stimulation and become physically aggressive.

Inconsistent behavior is also common. For example, a person may begin to follow a command (lift the leg, squeeze a finger) and then not be able to do so do again for some time. This stage of recovery may last days or even weeks. Later stages of recovery can bring increased brain and physical functioning. The person's ability to respond may improve gradually.

The fastest improvement happens in about the first six months after injury. During this time, the injured person will likely show many improvements and may seem to be steadily getting better. The person continues to improve between six months and two years after injury, but this varies and may not happen as fast as the first six months. Improvements slow down substantially after two years but may still occur many years after injury. These slower periods of improvement are called "a plateau" which vary in length and it is as though the brain is resting or healing during this time.

LONG-TERM IMPACTS

Brain injury is a relatively new area for treatment and research. Medical professions have only begun to understand the long-term effects in patients one, five, and ten years after injury. Brain scans and other tests are not always able to show the extent of the injury. It is sometimes difficult early on to fully understand how serious the injury is. The type of brain injury and extent of secondary problems such as brain swelling varies a great deal from person to person. Age and pre-injury abilities also affect how well a person will recover.

The Rancho Los Amigos Levels of Cognitive Functioning (RLCF) is one of the best and most widely used ways of describing recovery from brain injury. The RLCF describes to levels of cognitive (thinking) recovery. Research has shown that the speed at which a person progresses through the levels of the RLCF can predict how fully a person will recover.

THE RANCHO LOS AMIGOS LEVELS OF COGNITIVE FUNCTIONING

Level 1 – No Response: Person appears to be in a deep sleep.
Level 2 – Generalized Response: Person reacts inconsistently and not directly in response to stimuli.
Level 3 – Localized Response: Person reacts inconsistently and directly to stimuli.
Level 4 – Confused/Agitated: Person is extremely agitated and confused.
Level 5 – Confused-Inappropriate/Non-agitated: Person is confused and responses to commands are inaccurate.
Level 6 – Confused-Appropriate: Person is confused and responds accurately to commands.
Level 7 – Automatic-Appropriate: Person can go through daily routine with minimal to no confusion
Level 8 – Purposeful-Appropriate: Person has functioning memory, is aware of and responsive to their environment.
Level 9 – Purposeful-Appropriate: Person can through daily routine while aware of need of stand-by assistance.
Level 10 – Purposeful-Appropriate/Modified Independent: Person can go through daily routine but may require more time or compensatory strategies.

HOW DOES BRAIN INJURY AFFECT FAMILY MEMBERS?

For most family members, life is not the same after a brain injury. You are not alone in what you are feeling. While everyone's situation is a bit different, there are some common problems that many family members experience: less time for yourself, financial difficulties, role changes of family members, problems with communication, and lack of support from other family members and friends. Additionally, family members have commonly reported feeling sad, anxious, angry, frustrated, and guilty.

WAYS TO REDUCE STRESS

A little stress is part of life, but stress that goes on for a long time can have a negative effect on the mind and body. Stress is related to medical problems such as heart disease, cancer, and stroke. Stress can:

- Cause mistakes to happen -- it affects the ability to concentrate, to be organized, and to think less clearly.
- Have a negative effect on relationships, causing irritability, impatience, and lashing outbursts.
- Lead to depression and/or anxiety.

Learn to:

- Relax
- Find good coping strategies
- Take time for yourself
- Keep a regular schedule
- Get regular exercise (walk each day)
- Participate in support groups
- Maintain a sense of humor
- Reward yourself

PROBLEM SOLVING FOR CAREGIVERS

- Identify the problem: define it as clearly and specifically as possible.
- Brainstorm solutions: what can be done? Think of as many possibilities as possible.
- Evaluate the alternatives.
- Choose a solution: pick the solution with the best consequences.
- Try the solution; give it more than one chance to work.

WAYS FAMILY MEMBERS CAN HELP THE INJURED PERSON

- Establish and maintain a daily routine – this helps the person feel more secure in their environment.
- Provide structure and normalcy to daily life.
- Place objects the person needs within easy reach.
- Have the person rest frequently in a quiet place. Don't let the person get fatigued.
- Be natural with the person and help them to maintain their former status in the family. Communication is important to the person's recovery. Although they may not be able to speak, they should be involved in as normal a social world as possible.
- Include the person in family activities and conversations.
- Keep a calendar of activities visible on the wall. Cross off days as they pass.
- Maintain a photo album with labeled pictures of family members, friends, and familiar places.

PROVIDE SUPPORT IN A RESPECTFUL WAY

- Try not to overwhelm the person with false optimism by saying statements like "You will be alright," or "You will be back to work in no time."
- Point out every gain the person has made since the onset of the injury. Avoid comparing speech, language, or physical abilities prior to the injury with how they are now. Look ahead and help the person to do the same.
- Treat the person as an adult by not talking down to them.
- Respect the person's likes and dislikes regarding food, dress, entertainment, music, etc.
- Avoid making the person feel guilty for mistakes and accidents such as spilling something.
- If the person has memory problems, explain an activity as simply as possible before you begin. Then as you do the activity, review with the person each step in more detail.

AVOID OVER-STIMULATION

- Agitation can be heightened by too much activity and stimulation.
- Restrict the number of visitors (1 or 2 at a time).
- Not more than one person should speak at a time.
- Use short sentences and simple words.
- Present only one thought or command at a time and provide extra response time.
- Use a calm, soft voice when speaking with the person.
- Keep stimulation to one sense (hearing, visual or touch) at a time.
- Avoid crowded places such as shopping malls and stadiums.

SAFETY TIPS

- Keep clutter out of the hallway and off stairs or anywhere the person is likely to walk. Remove small rugs that could cause tripping or falls.
- Remove breakables and dangerous objects (keys to a car, matches, knives, guns, etc.).
- Keep medications in a locked cabinet or drawer.
- Get the doctor's consent before giving the person over-the-counter medication.
- Limit access to potentially dangerous areas (bathrooms, basement) by locking doors if the person tends to wander. Have the person wear an identification bracelet in case he or she wanders outside.
- Keep the person's bed low. If they fall out of the bed, install side rails.
- Make sure rooms are well lit, especially in the evening. Night-lights can help prevent falls.
- Have someone stay with the person who is severely confused or agitated.
- Keep exit doors locked. Consider some type of exit alarm, such as a bell attached to the door.
- Consider a mat alarm under a bedside rug to alert others if the person gets up during the night.

ALCOHOL USE AFTER BRAIN INJURY

Alcohol use and brain injuries are closely related. Up to two thirds of people living with a brain injury have a history of alcohol abuse or risky drinking. Between 30% - 50% of individuals living with a brain injury were injured while they were drunk and about one-third were under the influence of other drugs. Around half of those who have a brain injury cut down on their drinking or stop altogether after the injury, but some living with a brain injury continue to drink heavily, which increases the risk of having negative outcomes or acquiring another brain injury.

After a brain injury, many individuals notice their brains are more sensitive to the alcohol. Drinking increases the chances of getting injured again, makes cognitive (thinking) problems worse, and increases chances of having emotional problems such as depression. In addition, drinking can reduce brain injury recovery. For those reasons, staying away from alcohol is strongly recommended to avoid further injury to the brain and to promote as much healing as possible.

ALCOHOL AND BRAIN INJURY RECOVERY

- Recovery from brain injury continues for much longer than we used to think possible. Many notice continued improvements for many years after injury.
- Alcohol slows down or stops brain injury recovery.
- Avoiding alcohol is one way to give the brain the best chance to heal.

ALCOHOL, BRAIN INJURY, AND SEIZURES

- Traumatic brain injury puts survivors at risk for developing seizures (epilepsy).
- Alcohol lowers the seizure threshold and may trigger seizures.
- Avoiding alcohol can reduce the risk of developing seizures.

ALCOHOL AND THE RISK OF HAVING ANOTHER BRAIN INJURY

- Drinking alcohol puts survivors at an even higher risk of having a second brain injury. (Coordination and balance are affected by both.)
- Avoiding alcohol can reduce the risk of having another brain injury.

ALCOHOL AND MENTAL FUNCTIONING

- Alcohol magnifies some of the cognitive problems caused by brain injury.
- The negative mental effects of alcohol can last from days to weeks after drinking stops.

ALCOHOL AND MOODS

- Depression is about 8 times more common in the first year after a brain injury than in the general population.
- Alcohol is a "depressant" drug, and using alcohol can cause or worsen depression.
- Alcohol can reduce the effectiveness of antidepressant medications. People who are taking antidepressants should not drink alcohol.

HOW MUCH ALCOHOL IS "SAFE" AFTER A BRAIN INJURY?

After injury, the brain is more sensitive to alcohol. This means that even one or two drinks may not be safe, especially when you need to do things that require balance, coordination, and quick reactions such as walking on uneven surfaces, riding a bicycle or driving a car. The fact is, there is no safe level of alcohol use after a brain injury.

ALCOHOL AND MEDICATIONS

Alcohol is especially dangerous after a brain injury, if taking prescription medications. Alcohol can make some medicines less effective and can greatly increase the effects of others, potentially leading to overdose and death. Using alcohol along with anti-anxiety medications or pain medications can be highly dangerous because of the possible multiplying effect.

WHAT ABOUT USING OTHER DRUGS?

Alcohol is a drug. Almost everything mentioned above about alcohol applies equally to other drugs. If the choice of drug(s) is something other than alcohol – such as marijuana, cocaine, methamphetamine or prescription drugs, anti-anxiety medications or pain medication – many of the same principles apply. In addition, use of illegal drugs or misuse of prescription drugs can lead to legal problems.

There is a higher risk of addiction and overdose if one is using multiple drugs such as alcohol and marijuana or alcohol and pain pills. The combination of alcohol and pain medications may be life threatening; contact a doctor if the individual is using prescription drugs and drinking.

WHAT SHOULD BE DONE?

The stakes are higher when people choose to use alcohol after having a brain injury. Some people continue drinking after a brain injury and don't have any desire to change that behavior. Others know they should stop or reduce alcohol use, but don't know how, or have not been successful.

There are many ways to stop using alcohol or other drugs and many ways to reduce the potential for harm. The great majority of people who have stopped having alcohol problems did it on their own. They didn't get professional help or counseling and did not use Alcoholics Anonymous (AA). Don't underestimate the ability to change.

THERE ARE MANY WAYS TO CHANGE, CUT DOWN OR STOP DRINKING

The key ingredients to changing drinking are: (1) find people who will support these efforts to change this lifestyle; (2) set a specific goal: (3) make clear how to meet the goal; (4) identify situations or emotions that can trigger drinking, and figure out ways to cope with those triggers ahead of time, and (5) find ways to reward yourself for sticking to the plans and meeting goals.

Other helpful information:

- Take a confidential on-line drinking assessment: http://www.alcoholscreening.org
- Talk to a physician and ask about medications that can help to resist relapse or reduce cravings for alcohol.
- Psychologists or other counselors who are knowledgeable with brain injury rehabilitation programs can help to get the right kind of treatment program.
- Alcoholics Anonymous (AA) has helped millions of people. There are meetings in most towns and cities – http://www.aa.org.
- Moderation management (http://www.moderation.org) and Smart Recovery (http://www.smartrecovery.org) are alternatives to AA that do not use the 12-step model.
- Substance Abuse and Mental Health Services Administration (SAMHSA) is a federal program that can help to find a treatment facility (http://findtreatment.samhsa.gov. (800) 662-4357).
- Private treatment: seek a counselor for substance abuse, chemical dependency counselor, or addiction treatment.

For those who don't want to stop drinking, it is still possible to reduce some harm from drinking:

- Eat food and drink water before drinking alcohol. This helps reduce the sharp spike in blood alcohol level that can cause nausea, vomiting, falls, blackouts, and alcohol poisoning.
- Have a non-drinking designated driver. Avoid drinking and driving.
- Sip drinks slowly (no more than one per hour). Drinking too fast can make the pleasant feelings of alcohol go away.
- Limit drinking to no more than two drinks per day; or cut back on certain days of the week, such as weeknights.
- Take a drinking "holiday" (for days, weeks, or decide to not drink at all).

HOW FAMILY MEMBERS CAN HELP

No one can force another person to stop using alcohol or drugs, but can have an influence. Attending Al Anon meetings can be good source of support for a friend or family member of someone who abuses alcohol or drugs, and it can help promote change. Planning an "intervention" where family and friends confront the person may also help.

BALANCE PROBLEMS AFTER BRAIN INJURY

Individuals living with a brain injury commonly report problems with balance. Between 30% and 65% of people living with a brain injury suffer from dizziness and disequilibrium (lack of balance while sitting or standing) at some point in their recovery. Dizziness includes symptoms such as lightheadedness, vertigo (the sensation that you or your surroundings are moving), and imbalance.

How difficult those balance problems are depends on several factors of the injury:

- How serious the brain injury is.
- The area of the brain that was injured.
- Other injuries involved – broken bones, cervical spine injury, and rib/leg fractures.
- Medications prescribed from the injury(ies) .

BALANCE
Balance is the ability to keep the body centered while sitting/standing. The ability to maintain balance is determined by many factors, including physical strength, coordination, senses, and cognitive (thinking) ability.

Most people can control their body movement within certain limits before losing their balance and needing to adjust their posture or take a step to keep from falling.

THE IMPORTANCE OF BALANCE
Poor balance causes a high risk of falling and having another brain injury or broken bone. Maintaining balance while sitting and standing is important for all daily activities, including self care and walking. Poor balance can prevent someone from taking part in many types of activities such as sports, driving, and work.

DIAGNOSING BALANCE PROBLEMS
Many different kinds of health care providers may be involved in diagnosing and treating balance problems, including physiatrist (physical medicine or rehabilitation doctor), neurologists, otolaryngologists (ENT), and neuro-ophthamologists. The first place to start is by having a physician review medications, since this is a common cause of balance problems. Physical and occupational therapists may also help identify and treat balance problems.

COMMON CAUSES OF BALANCE PROBLEMS AFTER TRAUMATIC BRAIN INJURY
Medications: A number of commonly used medications can cause dizziness, lightheadedness, and decreased balance. These include some blood pressure medications, antibiotics, tranquilizers, heart medications, and anti-seizure medications. Ask the doctor if any of the medications taken can cause dizziness or balance problems. A change in medications or dosages may improve the problem.

- **Postural Hypotension:** A drop in blood pressure when standing or sitting up suddenly causes dizziness or lightheadedness. Be sure to report this to a doctor.

- **Vision Impairments**: Problems with eyesight. Eyesight is one of the key senses needed to keep balance. Eyesight problems such as double vision, visual instability, partial loss of vision, and problems with depth perception can make balance worse.

- **Vestibular Impairments**: Inner ear problems. The inner ear contains many tiny organs that help keep balance (called the vestibular system/labyrinth). The inner ear has three loop-shaped structures (semicircular canals) that contain fluid and have fine, hair-like sensors that monitor the rotation of the head. It also has other structures (otolith organs) that monitor linear movements. These otolith organs contain crystals that create the sensitivity to movement and gravity. If the vestibular system is damaged from a brain injury, it may cause problems with balance, dizziness, or a sudden spinning sensation. Three types of vestibular impairments are:
    - **Benign Paroxysmal Positional Vertigo (BPPV)** is one of the most common causes of vertigo. With trauma, the crystals in the inner ear can be moved out of place, causing sensitivity to changes in gravity. BPPV is characterized by brief episodes of mild to intense vertigo. Symptoms are triggered by specific changes in head position, such as tipping the head up or down, by lying down, turning over or sitting up in bed, standing or walking.
    - **Labyrinthine Concussion** or injuries to the nerve to the vestibular system are also causes of vertigo and imbalance after brain injury.
    - **Traumatic Endolymphatic Hydrops** occurs when there is a disruption of the fluid balance within the inner ear, possibly causing periods of vertigo, imbalance, and/or ringing in the ears that last for hours to days.

- **Sensory Impairments:** For example, nerves send messages to the brain that help keep balance. If these nerves are damaged from a brain injury, the brain may not get the message(s) it needs. The brain may need to rely more on eyesight and inner ear to keep the body in balance.
- **Brainstem injury:** A brain injury to the brainstem and cerebellum (parts of the brain that control movement) can make it hard for walking and maintaining balance.
- **Perilymph Fistula:** leaking of inner ear fluid into the middle ear sometimes occurs after head injury. It can cause dizziness, nausea, and unsteadiness when walking, standing, and when more active.
- **Mental health issues:** Sometimes people with brain injuries have anxiety, depression, or a fear of falling. These conditions can cause or increase balance problems. Doctors call this psychogenic dizziness.

TREATMENT OPTIONS

Balance problems can have many different causes, each one requiring a different treatment. Doctors, physical and occupational therapists, and/or other health care providers will help to provide treatment for these symptoms.

IMPROVING BALANCE

How quickly balance problems improve depends on the extent of injury and the health status before an injury. A condition such as BPPV may be treated effectively in one or two treatment sessions. Injuries that involve many types of impairments can take weeks, months, or years. Research shows:

- Most people living with a brain injury are able to walk independently within three months of injury. Although most can return to walking, many continue to have problems with moving quickly and with balance needed to return to high-level activities such as running or sports.
- With hard work, people living with a brain injury can continue to improve their balance for many years after injury but balance problems are still identified more frequently in individuals living with a brain injury.

COGNITIVE ISSUES AFTER BRAIN INJURY

Cognition is the act of knowing or thinking. It includes the ability to choose, understand, remember, and use information. Cognition includes:

- Attention and concentration
- Processing and understanding information
- Memory
- Communication
- Planning, organizing, and assembling
- Reasoning problem-solving, decision-making, and judgment
- Controlling impulses and desires and being patient

THE EFFECT OF COGNITIVE ISSUES AND WHAT CAN BE DONE
After a brain injury, it is common for people to have issues with attention, concentration, speech and language, learning and memory, reasoning, planning, and problem-solving.

ATTENTION AND CONCENTRATION PROBLEMS
A person living with a brain injury may not be able to focus, pay attention, or attend to more than one thing at a time. This may result in:

- Restlessness and being easily distracted.
- Difficulty finishing a project or working on more than one task at a time.
- Problems carrying on long conversations or sitting still for long periods of time.
- Inappropriate behavior or language.

Since attention skills are considered a "building block" of higher level skills (such as memory and reasoning), people with attention or concentration problems often show signs of other cognitive problems as well.

HOW TO IMPROVE ATTENTION AND CONCENTRATION
Decrease the distractions. For example:

- Work in a quiet room
- Focus on one task at a time
- Begin practicing attention skills on simple, yet practical activities (such as reading a paragraph or adding numbers) in a quiet room. Gradually make the tasks harder (read a short story or balance a checkbook) or work in a more noisy environment.
- Take breaks when tired

PROBLEMS WITH PROCESSING AND UNDERSTANDING INFORMATION

After brain injury, a person's ability to process and understand information often slows down, resulting in the following problems:

- Taking longer to grasp what others are saying.
- Taking more time to understand and follow directions.
- Having trouble following television shows, movies, etc.
- Taking longer to read and understand written information including books, newspapers, or magazines.
- Being slower to react. This is especially important for driving, which may become unsafe if the person cannot react fast enough for stop signs, traffic lights, or other warning signs. Individuals living with a brain injury should not drive until their visual skills and reaction time have been tested by a specialist.
- Being slower to carry out physical tasks, including routine activities like getting dressed or cooking.

WAYS TO IMPROVE THE ABILITY TO PROCESS AND UNDERSTAND INFORMATION

- Place full attention on trying to understand. Decrease distractions.
- Allow more time to think about the information before moving on.
- Re-read information as needed. Take notes and summarize.
- If needed, ask people to repeat themselves, to say something in a different way, or to speak slower. Repeat back what was just said to understand correctly.

LANGUAGE AND COMMUNICATION PROBLEMS

Communication problems can cause persons living with a brain injury to have difficulty understanding and expressing information in some of the following ways:

- Difficulty thinking of the right word.
- Trouble starting or following conversations or understanding what others say.
- Rambling or getting off topic easily; repeating conversations.
- Difficulty with more complex language skills, such as expressing thoughts in an organized manner.
- Trouble communicating thoughts and feelings using facial expressions, tone of voice and body language (non-verbal communication).
- Having problems reading others' emotions and not responding appropriately to another person's feelings or to the social situation.
- Misunderstanding jokes or sarcasm.
- Inappropriate comments, monopolizing conversations, or interrupting.
- Work with a speech therapist to identify areas that need improvement.
- Communication problems can improve with time.

HOW FAMILY MEMBERS CAN HELP

- Use kind words and a gentle tone of voice. Be careful not to "talk down" to the person.
- When talking with the injured person, ask if he or she understands what is being communicated or ask a question to determine if he/she understood what was said.
- Do not speak too fast or say too much at once.
- Develop a signal (like raising a finger) that will let the injured person know when he or she has gotten off topic. Practice this ahead of time. If signals don't work, try saying "We were talking about…."
- Limit conversations to one person at a time.

PROBLEMS LEARNING AND DETERMINING NEW INFORMATION

- Persons living with a brain injury may have trouble learning and remembering new information and events.
- They may have difficulty remembering events that happened several weeks or months before the injury (although this often comes back over time). Individuals living with a brain injury are usually able to remember events that happened long ago.
- They may have problems remembering entire events or conversations. Therefore, the mind tries to "fill in the gaps" of missing information and recalls things that did not actually happen. Sometimes bits and pieces from several situations are remembered as one event. These false memories are not lies.

HOW TO IMPROVE MEMORY PROBLEMS

- Put together a structured routine of daily tasks and activities.
- Be organized and have a set location for keeping things.
- Learn to use memory aids (such as memory notebooks, calendars, daily schedules, daily tasks lists, computer reminder programs and cue cards); find what works best and use it.
- Devote time and attention to review and practice new information often.
- Be well rested and try to reduce anxiety as much as possible.
- Speak with a doctor about how medications may affect memory.

PLANNING AND ORGANIZATION PROBLEMS

- Persons living with a brain injury may have difficulty planning their day and scheduling appointments.
- They may have trouble with tasks that require multiple steps done in a particular order, such as laundry or cooking.

HOW TO IMPROVE PLANNING AND ORGANIZATION PROBLEMS

- Make a list of things that need to be done and when. List them in order of what should be done first.
- Break down activities into smaller steps.
- When figuring out what steps are needed to do first to complete an activity, think of the end goal and work backwards.

PROBLEMS WITH REASONING, PROBLEM-SOLVING, AND JUDGMENT

- Individuals living with a brain injury may have difficulty recognizing when there is a problem, which is the first step in problem-solving.
- They may have trouble analyzing information or changing the way they are thinking (being flexible).
- When solving problems, they may have difficulty deciding the best solution or get stuck on one solution and not consider better options.
- They may make quick decisions without thinking about the consequences or not use the best judgment.

HOW TO IMPROVE REASONING AND PROBLEM SOLVING

- A speech therapist or psychologist experienced in cognitive rehabilitation can teach an organized approach for daily problem-solving.
- Work through a step-by-step problem-solving strategy in writing; define the problem; brainstorm possible solutions; list the pros and cons of each solution; pick a solution to try; evaluate the success of the solution; and try another solution if the first one doesn't work.

INAPPROPRIATE, EMBARRASSING, OR IMPULSIVE BEHAVIOR

Individuals living with a brain injury may lack self-control and self-awareness, and as a result they may behave inappropriately or impulsively (without thinking it through) in social situations.

- They may deny they have cognitive problems, even if these are obvious to others.
- They may say hurtful or insensitive things, act out of place, or behave in inconsiderate ways.
- They may lack awareness of social boundaries and others' feelings, such as being too personal with people they don't know well or not realizing when they have made someone uncomfortable.
- They may accept strangers as friends and may get taken advantage of or suffer serious consequences.

THE CAUSES AND HOW TO WORK THROUGH THESE PROBLEMS

- Impulsive and socially inappropriate behavior results from decreased reasoning abilities and lack of control. The injured person may not reason that "if I say or do this, something bad is going to happen."
- Self awareness requires complex thinking skills that are often weakened after brain injury.

Things family members can do:

- Think ahead about situations that might bring about poor judgment.
- Give realistic, supportive feedback while observing inappropriate behavior.
- Provide clear expectations for desirable behavior before events.
- Plan and rehearse social interaction so they will be predictable and consistent.
- Establish verbal and non-verbal cues to signal the person to "stop and think." For example, hold up a hand to signal "stop," shake your head "no" or say a special word that you have both agreed on. Practice this ahead of time.
- If undesired behavior occurs, stop the activity; for example, if shopping at the mall, return home immediately.

COGNITIVE OUTCOME/RECOVERY AND REHABILITATION

Cognition is usually evaluated by a neuropsychologist. Since there are many factors that can affect how someone will improve cognitively, it is very difficult to predict how much someone will recover. With practice, cognitive problems usually improve to some degree.

Cognitive rehabilitation is therapy to improve cognitive skills and has two main approaches: *remediation* and *compensation.*

- *Remediation* focuses on improving skills that have been lost or impaired.
- *Compensation* helps the individual learn to use different ways to achieve a goal.

DISCUSS CONCERNS WITH A PHYSICIAN OR TREATMENT PROVIDER

Discuss any questions or concerns with a physiatrist (rehabilitation specialist) or the rehabilitation team. It is important to mention new problems as they develop. New problems could be the result of medication or require further evaluation.

DEPRESSION ISSUES AFTER BRAIN INJURY

Depression is a feeling of sadness, loss, despair, or hopelessness that does not get better over time and is overwhelming enough to interfere with daily life. There is cause for concern when feeling depressed or losing interest in usual activities occurs at least several days per weeks and lasts for more than two weeks.

SYMPTOMS OF DEPRESSION INCLUDE

- Feeling down, sad , blue or hopeless
- Feeling worthless, guilty, or that you are a failure
- Changes in sleep or appetite
- Difficulty concentrating
- Withdrawing from others
- Tiredness or lack of energy
- Moving or speaking more slowly, feeling restless, or fidgety
- Thoughts of death or suicide

Feeling sad is a normal response to the losses and changes a person must face after a brain injury. However, prolonged feelings of sadness or not enjoying life in general are often key signs of depression, especially if corresponding with symptoms listed above.

HOW COMMON IS DEPRESSION AFTER BRAIN INJURY?

Depression is a common problem. About one-half of the people living with a brain injury are affected by depression within the first year after injury. Even more (nearly two-thirds) are affected within seven years after injury. In the general population, the rate of depression is much lower, affecting less than one person in ten over a one-year period. More than one-half of the people living with a brain injury who are depressed also have significant anxiety.

CAUSES OF DEPRESSION

Many different factors contribute to depression after a brain injury, and these vary a great deal from person to person.

- **Physical changes in the brain due to injury.**

Depression may result from injury to the areas of the brain that control emotions. Changes in the levels of certain natural chemicals in the brain, called neurotransmitters, can cause depression.

- **Emotional response to injury.**

Depression can also arise as a person struggles to adjust to temporary or lasting disability, losses or role changes within the family and society.

- **Factors unrelated to injury.**

Some people have a higher risk for depression due to inherited genes, personal, or family history, and other influences that were present before the brain injury.

HOW TO TREAT DEPRESSION AFTER A BRAIN INJURY

When symptoms of depression are evident, it is important to seek professional help as soon as possible, preferably with a health care provider who is familiar with brain injuries. Depression is not a sign of weakness. Depression can be a medical problem, just like high blood pressure or diabetes. It is best to get treatment early to prevent needless suffering and worsening symptoms. If you have thoughts of suicide, get help right away. **If you have strong thoughts of suicide and a suicide plan, call a local crisis line, the 24-hour National Crisis Hotline at 800-273-8255, or go to an emergency room immediately.**

The good news is that certain anti-depressant medications and psychotherapy (counseling) treatments, or a combination of the two, can help most people who have depression.

MEDICATIONS
Antidepressant medications work by helping to re-balance the natural chemicals (called neurotransmitters) in the brain. Antidepressants are not addictive.

It is also important to know that even if antidepressants help with depression, they usually do not have to be taken forever. Sometimes a medication can help re-balance the brain's chemistry and can eventually be discontinued (for example, after 6-12 months). However, each person's situation is unique, and both taking and discontinuing antidepressants should always be done under a doctor's supervision.

In addition to helping with mood, antidepressants can also help with the other symptoms of depression, such as low energy, poor concentration, poor sleep, and low appetite. Some antidepressants can also help with anxiety symptoms.

There are many different types of "classes" of antidepressant medications. Studies of depression in a brain injury have found that some classes may work better than others. Always consult a doctor before taking medications.

PSYCHOTHERAPEUTIC (COUNSELING) APPROACHES
There are many different kinds of psychotherapy and counseling. For people with depression, the most effective types of therapy are those that focus on day-to-day behavior and thinking.

- **Cognitive-behavioral therapy or CBT** may help people learn how to change the way they behave, think, and feel about things that happen to them. CBT has reduced depression in the general population and is currently being tested to determine the best ways to adapt it for people who have the types of thinking and memory problems that can happen with brain injury.

- **Behavioral activation therapy** may help people with depression become more active and begin to enjoy doing pleasurable activities again. This increased activity helps to improve mood. A professional counselor can help set up a routine of pleasurable activity and evaluate the effects.

Remember, many people do best with a combination of approaches, such as antidepressant medication plus sessions with a trained counselor, to work on changing behavior. Discuss these options with a doctor.

OTHER TREATMENT APPROACHES
Other approaches such as exercise, acupuncture, and biofeedback have been shown to be helpful in treating depression in the general population. Some people living with a brain injury also find them helpful. A professional specializing in brain injury should be consulted about these treatments. Treating anxiety and pain may also help to reduce depression. Brain injury support groups may be a good source of additional information and support for depression and other challenges following a brain injury.

HOW TO FIND HELP

- Many mental health professionals are qualified to treat depression. Psychiatrists have specialized training in medication management and counseling for depression, and psychologists are training to provide counseling for depression. Some social workers and licensed professional counselors are also training to provide counseling for depression.
- Physicians – such as primary care physicians, neurologist, and physiatrists – and nurse practitioners with experience in treating depression can often get treatment started.
- When available, it is best to get treatment from a comprehensive brain injury rehabilitation program that can address all aspects of brain injury recovery.

DRIVING AFTER BRAIN INJURY

Driving is an important part of a person's independent lifestyle and integration into the community. Many individuals take driving skills for granted. It is easy to forget that driving is one of the most dangerous situations in everyday life. A brain injury can affect the skills needed to drive safely. The ability to drive again should be addressed early in the recovery process if and when an injured person may safely return to driving. The injured person, family members, and health professionals should all be included in this important decision. If anyone has concerns that driving may put the injured person or others in danger, health professionals may recommend pre-driving testing, or have a driver's license revoked, if necessary.

HOW A BRAIN INJURY CAN AFFECT DRIVING ABILITY

A brain injury can disrupt and slow down skills that are essential for good driving, such as

- Ability to maintain a constant position in a lane
- Having accurate vision/peripheral vision/depth perception
- Maintaining concentration over long periods of time
- Memory functioning, such as recalling directions
- Figuring out solutions to problems
- Hand-eye coordination
- Reaction time
- Safety awareness and judgment

Studies indicate that even mild thinking difficulties which may not be recognized by the injured person, may add to increased risks while driving.

WARNING SIGNS OF UNSAFE DRIVING

- Driving too fast/slow
- Not observing signs or signals
- Judging distance inaccurately when stopping or turning
- Slow to make decisions
- Becoming easily frustrated or confused
- Having accidents or near misses
- Drifting across lane markings into other lanes
- Getting lost easily, even in a familiar area

INDIVIDUALS LIVING WITH A BRAIN INJURY AND THEIR RETURN TO DRIVING

Between 40 – 60% percent of people with moderate to severe brain injuries return to driving after their injury. To lessen the risk of crashes, people living with a brain injury may place limitations on their driving habits. They may drive less frequently than they did before the injury or drive only at certain times (such as during daylight), on familiar routes, or when there is less traffic. Having experienced a seizure after a brain injury may be a barrier to driving. States often require that a person be free of seizures for a period of time before resuming driving. People who want to return to driving need to check with the laws in their state.

DRIVING EVALUATION AND TRAINING

A driving evaluation is a crucial step in determining a person's ability to drive following recovery from a brain injury. Research studies indicate that most brain injured survivors are not thoroughly evaluated for driving skills before they begin driving again and this may put survivors at risk for a crash.

While there is no standardized assessment test or process, a typical driving evaluation has two parts:

- **Preliminary Evaluation:** A review of cognitive (thinking) abilities, including reaction time, judgment, reasoning, and visual spatial skills. Recommendations regarding the need for adaptive equipment and additional skills training are based on the results of the evaluation.
- **On-the-Road:** This evaluation is used to assess safe driving skills in various traffic environments, as well as basic driving skills while a client uses the appropriate driving equipment.

Current research indicates that many individuals living with brain injury can become competent, safe drivers when given the proper training. Training serves to improve specific driving skills. Sometimes this involves practicing driving under the supervision of a driving evaluator. In some cases a training program might focus on specific skills such as rapid understanding of visual information.

Evaluations and training are often provided by professionals –

- HealthSouth Rehabilitation Hospital, Concord, New Hampshire
- DriveAbility Services at Exeter Healthcare, Exeter, New Hampshire
- Northeast Rehabilitation Hospital, Salem and Portsmouth, New Hampshire
- Or certified through the Association for Driver Rehabilitation (ADED). A list of certified professionals may be found on the ADED website www.driver-ed.org.

VEHICLE MODIFICATIONS

If an individual living with brain injury has physical disabilities but has well-preserved cognitive functions, the individual may be able to resume driving with adaptive equipment and/or other modifications to the vehicle.

Adaptive equipment and modifications for driving with a disability may include:

- Hand-controlled gas and brake systems
- Spinner knobs for steering
- Left foot accelerator
- Lifts for entering and exiting the vehicle

LEGAL AND INSURANCE CONSIDERATION

A person who wishes to resume driving must have a valid driver's license. In some states there must be a formal evaluation performed by a licensing bureau before resuming driving after a brain injury. Insurance may also be required. The person should check local regulations relating to licenses and insurance.

OTHER TRANSPORTATION OPTIONS

Accessible and reliable transportation is the most critical part of community integration following a brain injury. If a person is not able to drive, there may be other options for transportation – whether by family members or public transit. Some communities provide public transportation specifically for disabled riders.

STEP-BY-STEP: SHOULD YOU BE DRIVING?

1. Discuss the ability to drive with a doctor and/or health professionals, family members.
2. Get a professional evaluation to determine driving ability.
3. Based on the evaluation, you may be allowed to drive, need training, possible vehicle modifications need to be made before returning to driving, or you may need to use other transportation options.

EMOTIONAL CHALLENGES AFTER BRAIN INJURY

A brain injury can change the way people feel or express emotions. An individual living with a brain injury can have several types of emotional concerns.

Some people may experience emotions very quickly and intensely without lasting effect. For example, they may get angry easily but get over it quickly. Or they may seem to be "on an emotional roller coaster" in which they are happy one moment, sad the next, and then angry. This is called "*emotional lability.*"

CAUSES OF EMOTIONS/MOOD SWINGS

- Mood swings and emotional lability are often caused by damage to the part of the brain that controls emotions and behavior.
- Often there is no specific event that triggers a sudden emotional response. This may be confusing for family members who may think they accidently did something that upset the injured person.
- In some cases, the brain injury can cause sudden episodes of crying or laughing. These emotional expressions or outbursts may not have any relationship to the way the persons feels (in other words, they may cry without feeling sad or laugh without feeling happy). In some cases the emotional expression may not match the situation (such as laughing at a sad story). Usually the person cannot control these expressions of emotion.

TREATMENT

- Fortunately, this situation often improves in the first few months after injury, and people often return to a more normal emotional balance and expression.
- If you are having problems controlling your emotions, it is important to talk to a physician or psychologist to find out the cause and get help with treatment.
- Counseling for the family can be reassuring and allow them to cope better on a daily basis.
- Several medications may help improve or stabilize the mood. Consult a physician familiar with the emotional problems caused by brain injury.

HOW FAMILY MEMBERS/OTHERS CAN HELP

- Remain calm if an emotional outburst occurs and avoid reacting emotionally yourself.
- Take the person to a quiet area to help him or her calm down and regain control.
- Acknowledge feelings and give the person a chance to talk about feelings.
- Provide feedback gently and supportively after the person gains control.
- Gently redirect attention to a different topic or activity.

ANXIETY

Anxiety is a feeling of fear or nervousness that is out of proportion to the situation. People living with a brain injury may feel anxious without exactly knowing why. They may worry and become anxious about making too many mistakes or "failing" at a task. Criticism from others may cause anxiety. Many situations can be harder to handle after brain injury and cause anxiety: being in crowds, feeling rushed, or adjusting to sudden changes in plan.

Some people may have sudden onset of anxiety known as "panic attacks." The injury gets "replayed" in the person's mind over and over and interferes with sleep -- "post traumatic stress disorder" (PTSD). Since each form of anxiety calls for a different treatment, anxiety should always be diagnosed by a mental health professional or physician.

CAUSES OF ANXIETY AFTER BRAIN INJURY

- Difficulty reasoning and concentrating can make it hard for the person living with a brain injury to solve problems. This can make the person feel overwhelmed, especially if he/she is being asked to make decisions.
- Anxiety often happens when there are too many demands on the injured person, such as returning to employment too soon after injury. Time pressure can also heighten anxiety.
- Situations that require a lot of attention and information processing can make people living with a brain injury anxious.

TREATING ANXIETY

- Try to reduce the environmental demands and unnecessary stresses.
- Provide reassurance to help calm the person.
- Add structured activities into the daily routine.
- Anxiety can be helped by certain medications, by psychotherapy (counseling) from a mental health professional familiar with a brain injury, or a combination of medications and counseling.

TEMPER OUTBURSTS/IRRITABILITY

Family members of individuals living with a brain injury often describe the injured person as having a "short fuse," "flying off the handle" easily, being irritable, or having a quick temper. Studies show that up to 71% of people living with a brain injury are frequently irritable. The injured person may yell, use bad language, throw objects, slam fists into things, slam doors, or threaten/hurt family members or others.

CAUSES OF OUTBURSTS/IRRITABILITY

Temper outbursts after a brain injury are likely caused by several factors, including:

- Injury to the parts of the brain that control emotional expression.
- Frustration and dissatisfaction with the changes in life brought on by the injury, such as loss of one's job and independence.
- Feeling isolated, depressed, or misunderstood.
- Difficulty concentrating, remembering, expressing oneself or following conversations, all of which can lead to frustration.
- Tiring easily
- Pain
- Withdrawal from drugs/medications, alcohol or smoking.

TREATMENT FOR TEMPERS/OUTBURSTS

- Reducing stress and decreasing irritating situations can remove some of the triggers for temper outbursts and irritability.
- People with brain injury can learn some basic anger management skills such as self-calming strategies, relaxation, and better communication methods. A psychologist or other mental health professional familiar with a brain injury can help.
- Certain medications can be prescribed to help control temper outbursts.

HOW FAMILY MEMBERS CAN HELP WITH TEMPER OUTBURSTS

- Understand that being irritable and getting angry easily may be due to the brain injury.
- Do not try to argue with the injured person during an outburst. Instead, let him or her cool down for a few minutes first.
- Do not try to calm the person down by giving in to his/her demands.
- Set some rules for communication. Let the injured person know that it is not acceptable to yell at, threaten, or hurt others. Refuse to talk to the injured person when he/she is yelling or throwing a temper tantrum.
- After the outburst is over, talk about what might have led to the outburst. Encourage the injured person to discuss the problem in a calm way. Suggest other outlets, such as leaving the room and taking a walk when the person feels anger coming on.

QUESTIONS TO ASK TO BETTER UNDERSTAND EMOTIONAL CHALLENGES

If you or a family member are experiencing anxiety, feelings of sadness, or depression, irritability or mood swings, consider asking a doctor:

- Would psychological counseling be helpful?
- Would an evaluation by a psychiatrist be helpful?
- Natural remedies/Supplements
- Are there medications that can help?

MORE ABOUT MEDICATIONS

If you or a family member tries the medication for one of these problems, it is very important to work closely with the physician or other health care provider who prescribes them. Always make a follow-up appointment to let him/her know how the medication is working and report any unusual reactions between appointments. Remember that:

- There can be a delay until the beneficial effects of medications are felt.
- Doses might need to be adjusted by a doctor for maximum benefit.
- You may need to try one or more different medications to find the one that works best.
- Except in an emergency, do not stop taking a prescribed medication without consultation.

PEER AND OTHER SUPPORT

Remember that not all help comes from professionals! Other beneficial supports:

- Attending a brain injury support group meeting – some are specialized for the person with a brain injury or stroke, others are for family members, and others are open to everyone affected by the brain injury. (See www.bianh.org).
- Peer mentoring in which a person who has coped with brain injury for a long time gives support and suggestions to someone who is struggling with similar problems.
- Check with the Brain Injury Association of New Hampshire to find out more about these resources. Go to www.bianh.org to find brain injury resources.
- Talk to a friend, family member, clergyman, or someone who is a good listener.

EMPLOYMENT & EDUCATION AFTER BRAIN INJURY

RETURNING TO WORK AND CONTINUING EDUCATION

An individual living with a brain injury may have to decide if and when he/she can return to work or college. This section addresses options for continuing employment or education and describes employment training and education programs available in New Hampshire for people with disabilities, including brain injury.

Depending on the nature and severity of the brain injury, the individual may or may not be able to return to the same job as before the brain injury. Before attempting to return to work, the individual should take extra care in assessing his/her job skills and abilities, as well as any changes experienced after injury. It is also helpful to get professional feedback from a doctor, rehabilitation therapists, or a vocational rehabilitation counselor.

WORKING WITH YOUR CURRENT EMPLOYER

If the nature of your brain injury allows you to return to work at your current job, you will want to discuss the timing of your return to work with your doctor and rehabilitation team. Sometimes, people living with brain injuries return to work full time sooner than they should, which can negatively impact rehabilitation and a successful return to work. Follow doctor's instructions and take the time necessary to heal before returning to work. Recovery often takes much longer than expected.

It is very possible that employers do not have the knowledge about brain injuries that is needed to assist an individual living with a brain injury to return to work. Provide information in writing to a supervisor and human resource representative for better understanding of how your brain injury has affected you and how he or she can help you return to work successfully. If you need assistance communicating with an employer, the Brain Injury Association of New Hampshire can answer questions or provide you with educational materials to share.

When returning to work, under the Americans with Disabilities Act (ADA), one must still be able to perform the essential functions of the job with or without reasonable accommodations. Reasonable accommodations to help perform the job might include:

- Making work areas accessible
- Allowing flexible work schedules
- Reassigning some tasks to others
- Using a job coach

Some people rely on accommodations to do their job, others use organizational tools on their own. To request workplace accommodations, it is necessary to disclose your disability as a result of your brain injury. Disclosing the disability is a very personal decision, but choosing to disclose gives legal protection under the law. Connect with professionals who are disability advocates and employment specialists to consider all options. See the sample letter at the end of this section to get guidance on how to request job accommodations.

If an individual living with a brain injury is not able to return to the previous place of employment, several options are available. He/She could prepare for and seek new work, volunteer, or go back to school to learn and/or relearn skills.

LOOKING FOR NEW EMPLOYMENT

When looking for a new job, seeking and finding work that best meets your interests, needs and ambitions while using your skills can be challenging. A brain injury can change a person's abilities, greatly influencing work life. Be reasonable and realistic in self-assessment and expectations. Some people living with brain injuries have trouble with organization, distractions, decision-making, impulsivity, fatigue, stamina, learning difficulties and relationships with co-workers. For many people, general resources may suffice. For people who have significant changes due to brain injury, applying for Department of Vocational Rehabilitation services may be necessary.

VOCATIONAL REHABILITATION SERVICES (VOC REHAB)

The Department of Voc Rehab can help analyze skills and interests by providing a vocational evaluation consisting of testing and a series of work and task assessments. Voc Rehab works with people who have disabilities to establish employment goals, find and keep meaningful employment, and – when appropriate – identify assistive technology that can help maximize job performance.

After contacting Voc Rehab, an application and intake process will occur:

- Explain to the person who answers the phone that you have sustained a brain injury and would like to apply for services.
- Always keep track of the name of the person spoken to, the date, and the time of each contact made to Voc Rehab.
- Ask how the application process works.
- Find out when the next orientation will be held for people with disabilities.
- Ask what costs might be involved. Although many services are free, they may ask for a contribution, if your financial situation allows.

Eligibility for Voc Rehab is based mostly on whether the individual applying has a disability that makes it difficult to prepare for, look for, or maintain employment. Voc Rehab will look at medical reports and consider such factors as the ability to:

- Get from one place to another
- Communication/listening skills
- Care for oneself
- Manage routines/carry out plans
- Associate/socialize with others

Once qualified with Voc Rehab, a counselor will be assigned. Occasionally, the counselor assigned to you may not be a good match for you. You have the right to address this issue and ask to be transferred to another counselor.

If you are denied services but you think you should be eligible, you can call the intake number to appeal the decision.

Even if denied services, other resources such as classes, workshops or networking opportunity, and job clubs may still be available.

After the application process and the individual living with a brain injury finds successful employment, Voc Rehab will close the case. If necessary, Voc Rehab can reopen the case should additional services be needed.

Services available through the Department of Vocational Rehabilitation include:

Vocational Rehabilitation counselors can work with the individual and employer to help everyone understand brain injury and how the workplace may be adjusted to make accommodations on the job.

Placement services are available to eligible individuals who would like assistance establishing vocational goals, preparing for work, practicing interview skills, finding a job, or making appropriate accommodations in the workplace. These specialists bring their expertise in disability services and knowledge of employers looking for qualified employees to the job search.

Supported employment job coaches provide on-the-job training and support for a limited time once employment is secured. The job coach works side-by-side the individual in the workplace to help learn job responsibilities and adjust to the environment.

Transitional employment helps an individual build skills and endurance or to identify on-the-job accommodation needs. Usually, people in transitional employment work part-time with the assistance of the employer and/or job coach contracted through Voc Rehab. Transitional employment may be for a limited period of time, generally no longer than six months.

Assistive technology devices and services can help people living with a brain injury be independent and successful in the workplace. A person can use assistive technology to help him or her with communication, moving around, sitting/standing at a desk, working with computers, taking notes and many other job responsibilities.

Extended Employment - the mission of extended employment is to provide the ongoing employment support services necessary to maintain and advance the employment of persons with a severe disability.

The Voc Rehab intake process may seem daunting. Please contact the Brain injury Association of New Hampshire (603) 225-8400, if additional assistance is needed in navigating any part of the process.

VOLUNTEERING

One excellent way to restore stamina, endurance and explore job skills, interests and work ethics is through volunteering. Volunteer work can provide valuable experience and be extremely rewarding. Volunteering can build your resume and connect you with others while you make a significant contribution in the community. Towns and communities rely on volunteers for a wide variety of projects. Many faith-based institutions, schools and human service organizations also rely on a large pool of valuable volunteers. Try to find one of nonprofit organizations in New Hampshire that suits your interests and abilities.

RETURNING TO COLLEGE OR PARTICIPATING IN ADULT/COMMUNITY EDUCATION SERVICES

For individuals living with a brain injury who desire to return to college or plan to attend college for the first time, call the main telephone number of the institution and ask for the office or person in charge of working with students with disabilities (often called the Disability Services Office). These offices have support staff that coordinate services and accommodations for people with disabilities.

Under the ADA, post-secondary institutions are required by law to provide any reasonable accommodation or modification necessary for students with disabilities to have equal access to educational opportunities and services as those of non-disabled students. Examples of available accommodations may include alternative format testing, note taking, priority registration, or accessible housing. It is necessary to provide recent medical documentation of the brain injury in order to request reasonable accommodations. Students should expect to self-advocate for their needs with individual instructors.

Sample Letter: Job Accommodation Request

Date (include month, day and year)

Name of Supervisor or Human Resources Officer
Name of Employer
Street Address
City, State, Zip Code

Dear (name of Supervisor, Manager, Human Resources, Personnel):

I am writing to inform you that I have sustained a brain injury and am requesting workplace accommodations under the Americans with Disabilities Act (ADA). On (date of injury), I sustained a brain injury when (explain how the brain injury occurred). I have enclosed information from my doctor (physician name) at (hospital or doctor office) that documents my injury and explains my symptoms.

Due to my brain injury, I believe that I may have a disability according to the ADA Guidelines. I do not know for certain how my injury will affect me at work, but I believe that I may experience difficulties with the following job tasks:
(Describe the difficulties you believe you may experience on the job, e.g., attention, memory, planning, fatigue, decision-making, etc.)

I believe the following accommodations would help me to continue to perform the essential functions of my job:
(Describe examples of accommodations you believe might help you succeed in your job, e.g., making work areas accessible, using computer assistive technology, permitting a flexible work schedule, number of hours/day and days/week able to work, using a job coach, providing instructions in different formats, using memory aids or checklists, etc.)

If you have any additional accommodation recommendations, I would appreciate your input. Please let me know what process I should follow to pursue my request for accommodations.

I look forward to you contacting me within five business days from the date you receive this letter. Thank you for your help and support.

Sincerely,

Your Signature
Your Printed Name
Street Address
City, State, Zip Code
Telephone Number
Email Address

Cc: Additional Individuals not included above (Supervisor, Manager, etc.)

FATIGUE AND BRAIN INJURY

Fatigue is a feeling of exhaustion, tiredness, weariness or lack of energy.

- Physical fatigue: "I'm tired and I need to rest. I'm dragging today."
- Psychological fatigue: "I just can't get motivated to do anything. I just don't feel like doing anything."
- Mental fatigue: "After a while, I just can't concentrate any more. It's hard to stay focused. My mind goes blank."

Fatigue causes one to think less clearly, creates less energy to care for oneself, to be involved in physical activities, or to participate in enjoyable things. Fatigue creates a negative effect on moods, physical functioning, attention, concentration, memory and communication. It can interfere with work schedules and leisure activities.

Fatigue is one of the most common problems people have after a traumatic brain injury. Up to 70% of brain-injured survivors will complain of mental fatigue.

CAUSES OF FATIGUE

Fatigue is normal for anyone after hard work or a long day. In persons living with a brain injury, fatigue often occurs more quickly and frequently than it does in the general populations. The cause of fatigue after a brain injury is not clear but may be due to the extra effort and attention it takes to do simple activities such as walking or talking clearly. Brain function may be less "efficient" than before the injury.

- **Personal fatigue** can come from muscle weakness. The body needs to work harder to do things that were easy before the brain injury. Physical fatigue gets worse in the evening and is better after a good night's sleep. Often this kind of fatigue will lessen as the individual gets stronger, more active, and back to his/her old life.
- **Psychological fatigue** is associated with depression, anxiety, and other psychological conditions. This type of fatigue gets worse with stress. Sleep may not help at all, and the fatigue is often at its worst when waking in the morning.
- **Mental fatigue** comes from the extra effort it takes to think after the brain has been injured. Many common tasks take much more concentration than they did before. Working harder to think and stay focused can make one mentally tired.
- **Certain conditions are known to cause or increase fatigue:**
    - Depression
    - Sleep issues
    - Hypothyroidism or other endocrine gland disorders
    - Respiratory or cardiac problems
    - Headaches
    - Lack of physical exercise
    - Vitamin deficiency/poor nutrition
    - Stress
    - Anemia
    - Medications commonly used after a brain injury, such as muscle relaxers and pain medication

HOW TO DECREASE FATIGUE

- **Pay attention to what triggers the fatigue** and learn to identify the early signs of fatigue such as becoming more irritable or distracted. Stop an activity before getting tired.
- **Get more sleep and rest**. There may be a medical condition or there may be useful treatments.
- **Set a regular schedule** of going to bed and awakening the same time every day. Include some regular rest breaks or naps. Be careful to limit naps to 30 minutes and avoid evening naps.
- **Alcohol and marijuana** will generally make fatigue worse.
- **Caffeine** (coffee, cola products) should be avoided after lunch if sleeping is a problem.
- **Resume activities gradually** over weeks or even months.
- **Start with familiar tasks** at home or work that you can complete without fatigue. Gradually increase the complexity of each task, taking breaks as needed.
- **Improve time management:**
  Plan and follow a daily schedule. Using a calendar or planner can help manage mental fatigue.
  - Prioritize activities. Finish what is most important first.
  - Do things that require the most physical or mental effort earlier in the day when refreshed.
  - Avoid over-scheduling.
  - Limit visitors.
- **Exercise daily**. Research has shown that people living with a brain injury who exercise have better mental function and alertness. Over time, exercise and being more active helps lessen physical and mental fatigue and builds stamina. It also may decrease depression and improve speech.
- **Talk to a doctor**
  - Discuss medical or physical problems that may be causing fatigue.
  - Have the doctor review all current medications.
  - Discuss depression with a doctor.
  - Possible blood tests may reveal what is causing the fatigue.

HEADACHES AFTER BRAIN INJURY

Headaches are one of the most common symptoms after a brain injury. Over 30% of people report having headaches that continue long after injury.

Headaches after a brain injury can be long-lasting and can make it hard for one to carry out daily activities or can cause more difficulty thinking and remembering things.

THE CAUSES OF HEADACHES

Headaches can also occur after mild to moderate injury or in the case of severe brain injury, after the initial healing has taken place. Right after a severe brain injury, people may have headaches because of the surgery on their skulls or because of collections of blood or fluid inside the skull. These headaches can be caused by a variety of conditions, including a change in the brain caused by the injury, neck, and skull injuries that have not yet fully healed. Tension and stress or side effects from medication may cause headaches.

TYPE OF HEADACHES

Migraine headaches: happen because an area of the brain becomes hypersensitive and can trigger a pain signal that spreads out to other parts of the brain. These headaches typically have the following features:

- Dull, throbbing sensation, usually on one side of the head
- Nausea or vomiting
- Light and sound sensitivity
- Pain level rated as moderate to severe
- A "warning" signal that a migraine is coming on -- seeing spots or bright lights (called an "aura")

Tension-type headaches: are associated with muscle tension or muscle spasms and stress. They usually have the following features:

- Tight, squeezing sensation, often around the entire head or on both sides
- Pain level rated as mild to moderate
- Occur later in the day

Cervicogenic headaches: can occur when there has been some injury to the muscles and soft tissues in the neck and the back of the head. Many nerves that are located in the tissues and bones of the neck have branches that travel to the skull and scalp and can result in head pain. This type of headache usually has three features:

- Often start in the neck, shoulders, and back of the head; sometimes travel over the top of the head.
- Neck movement or positioning can make the pain worse.
- These headaches are not usually associated with nausea and can range from mild to severe.

Rebound headaches: medicines used to treat headaches can actually cause headaches. When pain medicines are taken daily on a regular schedule, missing one or two doses can result in a headache. A rebound headache may also develop when caffeine is decreased.

OTHER FACTS ABOUT HEADACHES

Although there are many other types of headaches, these listed above are the most frequent. It is not unusual for someone to have two different types of headaches. Migraines are commonly reported from a family history of migraine headaches.

PRECAUTIONARY MATTERS

Most headaches are not dangerous. In the first few days after a concussion or head injury, a person should see a health care professional experienced in treating persons with brain injuries If the following occurs:

- The headache gets worse
- Nausea and/or vomiting with a headache
- Developing arm/leg weaknesses or problems speaking along with a headache
- Increased sleepiness with headaches

DIAGNOSIS OF HEADACHES

In the first few days after a head injury, doctors will often order a CT scan to make sure there is no internal bleeding in the brain. After that, a brain scan or other test is rarely needed in order to diagnose a headache accurately.

Usually, the health care provider will rely on history and symptoms to sort out the kind of headache and proper treatment.

TREATMENTS FOR HEADACHES AFTER BRAIN INJURY

Individuals should work with a doctor for a treatment that is right for their specific headache symptoms.

LIFESTYLE CHANGES TO HELP PREVENT HEADACHES

Making simple changes in lifestyle can often make a big difference in whether or not headaches occur.

- Get enough sleep.
- Get daily exercise, if able. Aerobic exercise such as walking and stretching often help to prevent headaches. If a headache is worsened by any particular exercise, check with a health care provider before continuing to exercise.
- Identify other headache triggers and avoid them.
- Avoid taking pain medicines on a daily basis unless a health care provider prescribes it.

COMMON TYPES OF TREATMENT FOR OCCASIONAL HEADACHES

- Over-the-counter pain medications
- Prescription medicines for migraine headache
- Stretching and self-massage
- Acupuncture
- Therapeutic massage
- Heat or ice packs

IMPACT OF BRAIN INJURY ON CHILDREN AND TEENS

Brain injury is the leading cause of injury and death of children in New Hampshire. The most common way children and teens sustain a brain injury is through falls, motor vehicle crashes, sports concussions, and abuse. New Hampshire strives to reduce and prevent brain injuries in children and teens through changes to legislation and collaborative work with statewide injury prevention specialists.

IMPACT OF BRAIN INJURY ON CHILDREN

When children are hospitalized after brain injury, a family meeting or discharge planning meeting is often held before they are discharged back into their parent's/guardian's care. These meetings include many members of the child's medical care team, the child's parents/guardians and potentially a school representative. This meeting is to plan a smooth transition and to ensure that communication paths are established with the school, parents, and medical team. Inpatient rehabilitation is just the beginning of the healing and recovery process for a child. Many children will continue their rehabilitation after returning to school with the support of school professionals.

It can be difficult to know how a brain injury is affecting infants and very young children as they are still developing. Professionals say children grow into their injuries as the impact of brain injury can be seen as the child struggles to meet developmental milestones. For these reasons it can be very helpful to use all of your community resources. For more information about community resources, contact the Brain Injury Association of New Hampshire (603) 225-8000.

Children who have had mild brain injuries may be seen in urgent care or the emergency room and then sent home. It is important to note repeated mild brain injuries occurring over an extended period of time can result in more severe injuries.

Children may experience cognitive, emotional, or physical change; they may experience a change in one or more areas. As the child grows and expectations of greater independence emerge in school, symptoms of brain injury may become more evident. Sometimes it will take a child longer to learn a new skill or to reach a developmental milestone. It is critical that parents and guardians speak with their primary care doctor and school team about any concerns regarding development. It is also important to remember the brain injury may be impacting a child's ability to learn new information at the same rate as their peers. When children experience a significant change in social relationships or academic performance after a brain injury it is important to know how to ask for support for the child.

IMPACT OF BRAIN INJURY ON TEENS

Teens should receive and have explained their information on medical diagnosis by a knowledgeable professional (e.g. their neuropsychologist). Throughout this process, they will need support from parents/guardians and school professionals. It is recommended that teens be part of meetings with school staff and medical professionals as they prepare for greater independence at college and in the community.

A critical aspect of being a teenager is that teens are working towards independence from their parents and part of this independence is marked by social acceptance from their peers. A brain injury can make people feel less independent and confident, which can lead to a loss of friends, decreased involvement in extra-curricular activities, and an increase in depression.

Brain injuries that are sustained during the adolescent years may lead to a teen needing a few more years to meet the emotional or cognitive milestones of their peers. When a significant difference in a teen is noticed post-brain injury, it is important to communicate this across the teen's support system (e.g. parents, guardians, teachers, healthcare professionals).

Teens generally work towards independence through employment activities and higher education opportunities. It is important that teens have the opportunity to learn in school how to advocate for modifications and accommodations in their jobs and in their college classroom. Informal supports may be sufficient or a teen may need support in learning how to communicate their needs. For a young adult this may be a learning process of trial and error. College applicants can receive accommodations when taking ACT or SAT exams when they have a medically documented brain injury. It is also advised that students attending college meet with representatives at the office for students with disabilities to begin to discuss potential accommodations in classrooms.

CHANGING FAMILY DYNAMICS AND BRAIN INJURY

It can be challenging for the entire family when a child has a brain injury. Even after a child's medical condition has stabilized, doctor's appointments and rehabilitation will continue to require additional time, resources, and attention. Sometimes, parents will need to take leave from work or change dynamics in their spousal/co-parenting relationship as the demands within the family have greatly increased.

When the immediate crisis has resolved many siblings continue to feel like they are not getting the same attention from their parent, but may feel guilty to openly discuss this. This can be an important time for the entire family to seek support from loved ones, extended family, friends, and professionals. During this time it is also important for parents and guardians to remember to take care of themselves so they can continue to support their child and family.

EDUCATION SUPPORTS AND RIGHTS

School interventions can vary from general accommodations in the classroom to more extensive modifications that may require customized special education services and the development of an Individual Education Plan (IEP). Determining appropriate accommodations often depend upon the severity of injury, how the injury impacts the student's functioning, and the length of time the student has symptoms.

Educational needs and accommodations can change quickly in the first weeks and months following a brain injury, especially a mild injury. This may require frequent checking in with the student to assure general classroom accommodations are sufficient or evaluate what needs to be changed. This will ensure that the plans are reflective of current educational needs.

AVAILABLE SHOOL SUPPORTS AND SERVICES

General Accommodations

Symptoms resulting from most mild brain injuries/concussions are temporary and resolve within a few days or weeks. General Accommodations are short-term and may include a shortened school day schedule, minimal/no homework, rest breaks, quiet environment, extended transitions between classes, and preferential seating.

504 Accommodations

For students with more long-term issues, a Section 504 Plan might be implemented. Parents can request that their child be evaluated for a 504 Plan. The school district has a legal responsibility for learners who qualify for 504 accommodations, and once eligibility has been determined, a Section 504 Plan is prepared and implemented in accordance with applicable regulations, including the identification of accommodations to the environment, curriculum, materials and instructions in the least restrictive environment.

Individuals with Disabilities Education Act (IDEA)/Special Education Services

If the student's educational needs resulting from a brain injury are chronic and/or severe, a parent or education staff can request a special education evaluation. Determination of eligibility for special education services must be established before those services can be provided. An Individualized Education Plan (IEP) will be written and annually reviewed by the educational team, of which parents are a vital part.

For more information, contact the Brain Injury Association of New Hampshire (603-225-8400).

General Guidelines: Return to School Following a Brain Injury

Student Name: _____ School/Grade: _____
Parent/Guardian Name: _____ Date of Injury: _____

Immediately Following Injury

Upon hearing of the injury, the school representative (often the school nurse) will:

- Obtain release of information between school, parent, and medical provider.
- Gather/obtain copies of pertinent information (including the documentation of the medical diagnosis) from medical provider(s) and parents/guardians for school file.
- Contact the student's classroom teacher(s) to:
  - Inform them of the student's condition.
  - Discuss potential or recommended educational accommodations.
  - Request that they monitor student's status following return to school, and report any concerns or additional accommodations.

If symptoms persist in substantially limiting one or more life activities, and/or appear to be chronic in nature

The school will:

- Review academic record prior to injury, and concerns shared by classroom teachers, parent/guardians, or other staff.
- Contact student's family to provide information and resources about mild brain injury and potential educational accommodations.
- Contact the school district 504 coordinator to request a 504 evaluation if the resulting educational needs are chronic and/or severe (resulting in substantial limitation of one or more major life activities). Note: This process requires parental notice and signed consent.
- Contact the regional or local school brain injury specialist for pre-referral direction and support.
- Follow due process requirements and initiate referral for a special education evaluation, if warranted; and incorporate pertinent medical information from clinic evaluations, out-patient and/or neuropsychologist reports.
- Develop IEP if student qualifies for special education services under the brain injury category.
- Implement accommodations in all educational settings as needed.
- Collaborate with other school staff and conduct staff/peer in-services as appropriate.
- Develop formal plan for communication with medical and therapy staff, the student, and the family with regard to ongoing physical, health and learning needs.
- Support the student in communicating their needs and increasing their self-advocacy skills as they relate to their IEP goals and objectives.

Ongoing:

The team will:

Informally re-evaluate student's needs and modify educational plan accordingly.

Maintain periodic contact with parent(s) and teacher about the student's changing needs and level of progress, following guidelines and laws set forth by Section 504 and IDEA

Intervention Strategies

Intervention strategies have been found to be helpful when a student with a brain injury returns to school following an injury. For more information, contact the Brain Injury Association of New Hampshire (603) 225-8400.

Sample Letter: Notice to School of Injury

Date (include month, day and year)

Name of Child's Special Education Coordinator
Name of School District
Street Address
City, State, Zip Code

Dear (name of Special Education Coordinator):

I am writing to inform you that my child (child's name) has sustained a brain injury. On (date of injury), (child's name) was injured while (explain how the brain injury occurred). I have enclosed information from my doctor (physician name) at (hospital or doctor office) that documents my child's injury and explains their symptoms.

I have noticed the following changes in (child's name) since the injury: (describe changes noticed in personality, behavior, memory, abilities to complete tasks, attention, etc.)

Due to (child's name)'s brain injury, I believe (child's name) may have a disability. I do not yet know how this injury will affect (child's name) in school. However, given the difference I have noticed thus far, (child's name) may experience difficulties with the following tasks while in school:

(List difficulties you believe your child may experience, such as attention, memory, behavior, etc.)
(Describe precautions that may need to be made regarding physical education classes and/or participation in sports)
I believe (child's name) may need special education services or 504 accommodations to continue progressing in school. My child attends (name of school) and is in the (____) grade.

Please provide me the name and telephone number of the person to whom this letter will be forwarded to, and who will become my contact regarding my request. I ask that you inform me of the process for transitioning my child back into school and determining if my child needs special services or accommodations. I would like this process to start immediately.

I look forward to you contacting me once you receive this letter. Thank you for your help and support in helping (child's name) transition back to school.

Sincerely,

Your signature

Your printed name
Street Address
City, State, Zip Code
Daytime Telephone Number
E-mail Address Cc: Specialists or other staff

LOSS OF TASTE OR SMELL AFTER TRAUMATIC BRAIN INJURY

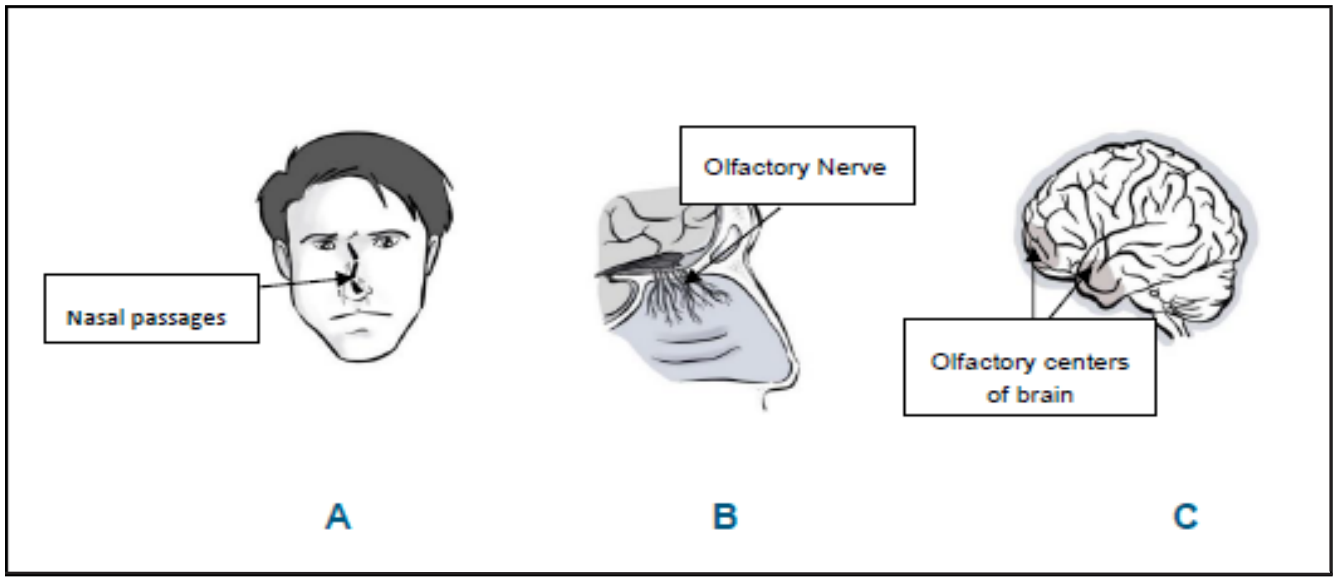
WHAT YOU NEED TO KNOW
Your senses of smell and taste are important for many aspects of your life.
Traumatic brain injury (TBI) can cause problems with smell and taste.
Loss of smell is often the cause of loss of taste after TBI.
Talk to your doctor about changes in your smell and/or taste.

WHY ARE SMELL AND TASTE IMPORTANT?
Smell and taste add to our enjoyment and experience of food and nice smells, like perfume or flowers.
Both smell and taste are important for safety as they serve as warning signs. Our sense of smell can alert us to harmful things around us, like a gas leak or a fire. Things that taste bad or smell a certain way may not be safe to eat or drink.
Smell and taste prepare the body to digest food.

Sense of smell and taste helps us form new memories and recall old memories; it can also cause a strong emotional response. For instance, the smell of apple pie can bring on a memory of your grandma and how much you love her.
Why does someone lose their sense of smell after trauma to the head or brain?

As air enters the nose, it triggers certain nerves. These nerves bring information to a part of the brain called the olfactory bulb. That information then goes to the part of the brain that creates our sense of smell. Loss of smell may result from damage to the lining of the nose or nasal passages (diagram A). Other causes may be injury to the nerve that carries smell sensation from the nose to the brain (olfactory nerve, diagram B) or harm to parts of the brain that process smell (diagram C). Other possible causes are infections, toxins, and medicines.

Three diagrams. Diagram A shows the nasal passages leading to the nasal cavity in the nose. Diagram B shows the olfactory nerve, passing from its receptors in the nasal mucosa to the forebrain. Diagram C shows the olfactory centers in the temporal lobe of the brain.



Smell and taste are part of an overlapping sensory system. "Flavor" comes almost entirely from the nose. Smell and taste are directly related because they both trigger the same nerves. Taste receptors on the tongue and nerves in the nose work together to tell us about the air we breathe and the food we eat.

HOW ARE SMELL AND TASTE PROBLEMS FOUND AFTER TBI?

You may not notice smell and taste problems right after TBI. Over time, as you go back to your usual foods and start to recover from the TBI, you may notice problems with smell and taste. If you are concerned about your smell or taste talk to your doctor about it. Different kinds of doctors can check your sense of smell. Such doctors may include physiatrists, who focus on physical medicine or rehabilitation; neurologists, who treat conditions of the nervous system; and ear, nose, and throat (ENT) doctors (also called otolaryngologists). These doctors will decide what tests you may need to see why you have loss of smell or taste and make recommendations for how to manage the problem.

HOW DOES LOSS OF SMELL AND TASTE AFFECT YOUR APPETITE?

- The smell of food triggers the appetite; loss of smell can lead to reduced appetite and lack of interest in food.
- Loss of smell can reduce saliva production. This makes dry foods, like biscuits and crackers, harder to eat.
- Many foods that are needed for a balanced diet may no longer be appealing; this can lead to a diet that doesn't have a balanced variety of nutrients.
- Changes in taste may make some foods, such as meat, taste bad and make you avoid those foods.
- Any of these problems may affect what food you choose and lead to a poor diet.

SMELL AND TASTE PROBLEMS CAN IMPACT DAY-TO-DAY LIFE AND LEAD TO SAFETY RISKS:

- Loss of appetite or loss of enjoyment or interest in food can make you eat too little, which may result in not getting important vitamins and nutrients that the body needs, and/ or lead to unsafe weight loss.
- Not feeling satisfied by food can cause you to eat too much because you are constantly searching for something to satisfy the lack of taste; this can lead to unsafe weight gain and/or other health problems.
- Some may use too much salt in attempt to add flavor, which can contribute to health problems, such as high blood pressure.
- Eating old or rotten food or eating something toxic may lead to food poisoning.
- Inability to smell gas leaks, toxic fumes or chemicals, which can be harmful if undetected.
- Inability to know which liquids are harmful or poisonous, and which liquids are safe.
- Loss of smell may lead to not knowing when you need to bathe, put on deodorant, or wash your clothes. This will result in poor hygiene.

ARE THERE OTHER CHALLENGES ASSOCIATED WITH LOSS OF SMELL AND TASTE?

The parts of the brain involved in smell and taste are close to parts of the brain that deal with other functions. If the areas of the brain that deal with taste and smell are injured, other nearby parts of the brain may also be injured. As a result, some people with taste and smell problems may also have the following issues:

- Emotional problems (depression, irritability)
- Behavioral problems, such as being impulsive or aggressive
- Trouble seeing and responding to others' feelings
- Reduced concern for others' feelings and needs
-

WILL YOUR SENSE OF SMELL AND TASTE GET BETTER?

- Recovery can happen. Research shows that 30% of affected people get better naturally over time.
- The sooner your symptoms improve, the better. Most people who improve do so 6 to 12 months after TBI.
- The chance of getting better over time is more likely if you have mild loss of sense of smell.
- Some people recover the ability to identify strong odors, but not more subtle scents.
- How can you help yourself if you have loss of smell or taste?
- Cook with lots of spices (but be careful not to add too much salt!).
- Try foods that are hot and spicy.
- Choose foods that are salty, sweet, bitter, or sour.
- Find foods that have texture or crunch, such as pretzels.

- Set reminders to eat.
- Consider using a smart phone app that tracks the nutrients and calories you are getting each day.
- Ask your doctor about vitamin supplements.
- Put dates on food and open cartons; check expiration dates before eating.
- Install smoke alarms on every floor. Keep fire extinguishers handy.
- Choose an electric oven or stovetop instead of gas.
- Buy a high-quality natural gas detector that gives a warning signal if there is a leak. Some gas detectors can be linked to the gas supply to automatically shut it off. This is especially helpful if a leak occurs while you're out, so you don't walk into a house full of gas. You can also get detectors for propane, butane, and liquefied petroleum gas (LPG) if you use gas cylinders, for instance, on a boat.
- When using household cleaners, make sure the area is well ventilated or use a mask.

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SEIZURES AFTER BRAIN INJURY

One of the problems that may occur after a brain injury is seizures. Although most people who are living with a brain injury will not experience seizures, it is good to understand what a seizure is and what to do if you have one. Most seizures happen in the first several days or weeks after a brain injury. Some may occur months or years after the injury. About 70-80% of people who have seizures are helped by medications and can return to most activities. Rarely, seizures can make you much worse or cause death.

WHAT ARE SEIZURES?

During a seizure there is a sudden abnormal electrical disturbance in the brain that results in one or more of the following symptoms:

- Strange movement of the head, body, arms, legs, or eyes, such as stiffening or shaking.
- Unresponsiveness and staring
- Chewing, lip smacking, or fumbling movements
- Strange smell, sound, feeling, taste, or visual images
- Sudden tiredness or dizziness
- Not being able to speak or understand others

Symptoms of seizures happen suddenly and are uncontrolled. Seizures usually last only a few seconds or minutes, but may continue for 5-10 minutes. The individual may have a bladder or bowel movement, bite their tongue or the inside of the mouth. Afterwards, the person may feel drowsy, weak, confused, or have a hard time talking to/understanding others. After a severe seizure (longer than 2 minutes) it may be harder for the individual to stand, walk, or take care of his/herself for a few days.

Conditions that could increase the risk of having a seizure include:

- High fever
- Loss of sleep and extreme fatigue
- Drug and alcohol use
- Chemical changes in the body such as low sodium or magnesium, or high calcium

SEIZURES AND BRAIN INJURY

- Early post-traumatic seizures: This seizure occurs in the first week after a brain injury. About 25% of people who have an early post-traumatic seizure will have another seizure months or years later.
- Late post-traumatic seizures: This occurs more than seven days after a brain injury. About 80% of people who have a late post-traumatic seizure will have another seizure.
- Epilepsy: Having more than one seizure is called epilepsy. More than half of the people with epilepsy will have this problem for the rest of their lives.

The cause of the brain injury can help doctors understand how likely more seizures will occur.

- 65% of people with brain injuries caused by bullet wounds have seizures.
- 20% of people with closed head injuries that cause bleeding between the brain and the skull experience seizures. A 'closed head injury' means the skull and brain contents were not penetrated in the injury.
- Over 35% of people who need 2 or more brain surgeries after injury experience late post-traumatic seizures.
- Over 25% of people with bleeding on both sides of the brain, or who have a blood clot removed by surgery experience late post-traumatic seizures.

MEDICATIONS TO TREAT SEIZURES

Medications that are used to control seizures are called anti-epileptic drugs (AEDs). These drugs may be used for other problems, such as chronic pain, restlessness, or mood instability. Consult a doctor about which drug to use, based on the type of seizure(s), age, health conditions, and side effects from medications. Side effects of AEDs usually improve after taking the medication for 3-5 days.

Some common side effects of AEDs are:

- Sleepiness or fatigue
- Worsening of balance
- Lightheadedness or dizziness
- Trembling
- Double vision
- Confusion

Blood tests may be necessary to ensure proper medication is being administered or whether the medication is causing additional health concerns. Although these drugs rarely cause birth defects in newborns, tell your doctor if the individual may already be or may become pregnant.

WHAT IF THE MEDICATIONS DO NOT WORK?

If seizures continue for the individual, he/she may be referred to comprehensive Epilepsy Center for more tests and to be seen by a specialist (Epileptologists or Neurologists specializing in epilepsy) to see if further treatments are necessary.

SAFETY ISSUES

In most states, individuals who experience seizures must notify the Department of Motor Vehicles. The individual may have their license withheld. Laws vary from state to state; consult with the Department of Motor Vehicles.
Other safety issues:

- Never swim alone.
- Do not climb ladders, trees, roof tops, or other tall objects
- When eating, let others know what to do if you start to choke or have a seizure

CAREGIVERS AND FAMILY MEMBERS

Family members or caregivers should watch closely to see what happens during a seizure to be able to explain to medical professionals. They should make a diary of date, time, length of seizure, and incident description.

The majority of seizures are short and do not involve significant injuries. However, it is important for caregivers to know how to best protect the individual from hurting him/herself during a seizure.

- Loosen tight clothing, especially around the neck.
- Make sure the person does not fall. Hold him/her steady as possible, whether in a chair, sofa or bed. If he/she is standing, help to get him/her to the ground safely.
- Turn the head so that if nothing in the mouth, even spit, will block the throat
- Do not put anything into the mouth.
- Keep checking the pulse.
- Listen for breathing at the mouth and extend the individual's neck if the breathing seems difficult.
- If the seizure lasts more than 3 minutes, call 911.
- Notify doctor's office of the seizure.

SLEEPING ISSUES AFTER BRAIN INJURY

Many people who have brain injuries suffer from sleep disturbance. Not sleeping well can increase or worsen depression, anxiety, fatigue, irritability, and one's sense of well-being. It can also lead to poor work performance and traffic or work-place accidents. A review of sleep disorder studies and surveys suggest that sleep disorders are three times more common in brain injured patients than in the general population and that nearly 60% of people living with a brain injury experience long-term difficulties with sleep. Women are more likely to be affected than men. Sleep problems are more likely to develop as the person ages.

Sleep disturbances have been found in people with all severities of brain injuries – from mild to severe. Sleep is a complex process that involves many parts of the brain. For this reason, and depending on the location and extent of injury, many different kinds of sleep disturbances can occur after brain injury.

COMMON SLEEP DISORDERS

- Insomnia: Difficulty with falling asleep, staying asleep, or a restless sleep. Insomnia can aggravate behavioral and cognitive (thinking) difficulties. Insomnia is typically worse directly after injury, yet it often improves with time.
- Excessive Daytime Sleepiness: Extreme drowsiness
- Delayed Sleep Phase Syndrome: Mixed-up sleep patterns.
- Narcolepsy: Falling asleep suddenly and uncontrollably during the day.

COMMON SLEEP SYNDROMES INCLUDE:

- Restless Leg Syndrome (RLS): Urge to move the legs because they feel uncomfortable, especially at night or when lying down.
- Bruxism: Grinding or clenching teeth.
- Sleep Apnea: Brief pauses in breathing during sleep, resulting in reduced oxygen flow to the brain and causing loud snoring and frequent awakening.
- Periodic Limb movement disorder (PLMD): Involuntary movement of legs and arms during sleep.
- Sleepwalking: Walking or performing other activities while sleeping and not being aware of it.

WHAT CAUSES SLEEP PROBLEMS?

The brain directs sleep by putting your body to rest. Injury to the brain can lead to changes in sleep.

PHYSICAL AND CHEMICAL CHANGES

The "internal clock" in the brain controls when people sleep and wake every day. If injured, the brain may not be able to tell the body to fall asleep or wake up. There are chemicals in our body that help us to sleep. An injury can change the way that these chemicals affect the body. If brain mechanisms for starting and stopping sleep are injured, a condition called post-traumatic hypersomnia may result in which a person sleeps many hours more than normal.

CHANGES IN BREATHING CONTROL

Sometimes the brain's ability to control breathing during sleep becomes altered after a brain injury, resulting in periods of apnea (when breathing actually stops long enough for oxygen levels to drop). Other factors may cause sleep apnea such as family history or being overweight.

MEDICATIONS

Medications taken after a brain injury may cause problems going to sleep or staying asleep, or can make people sleepy during the day and unable to participate in activities.

- Prescription drugs for treating asthma and depression may cause insomnia. Also, stimulants that are meant to treat daytime sleepiness can cause insomnia if taken too close to bedtime. These problems can often be avoided by adjusting the timing of the medication or by substituting a different medication. Consult your physician. Many other medications can cause sedation (sleepiness) as well.
- Most over-the-counter sleep and medications contain an antihistamine and are not recommended for people living with a brain injury because they may cause disturbances in memory and new learning. Retention of urine, dry mouth, nighttime falls and constipation are also possible side effects of this class of medications.

DAYTIME SLEEPING (NAPPING) AND PHYSICAL INACTIVITY
Napping during the day is likely to disturb sleep at night. Inactivity or lack of exercise can also worsen sleep.

PAIN
Many people who have suffered brain injuries also experience pain in other parts of the body. This discomfort may disturb sleep. Medications taken to relieve pain may also affect sleep.

DEPRESSION
Depression is much more common in persons living with a brain injury than in the general population. Sleep problems such as difficulty falling asleep and early morning waking are common symptoms of depression.

ALCOHOL
While alcohol may help bring on sleep, drinking alcohol before bedtime is likely to interfere with normal sleep rather than improve it.

CAFFEINE AND NICOTINE
Nicotine from tobacco may cause sleep disturbances and is often overlooked. Caffeine can disturb sleep when consumed in the afternoon or evening.

WHAT CAN BE DONE TO IMPROVE SLEEP
Changes in behavior and environment are the first line to treating sleep difficulties.

DAYTIME SUGGESTIONS

- Set an alarm to try to wake up at the same time every day.
- Include meaningful activities in your daily schedule.
- Get off the couch and limit TV watching.
- Exercise every day. People living with a brain injury who exercise regularly report fewer sleep problems.
- Try to get outdoors for some sunlight during the daytime. If you live in an area with less sun in the wintertime, consider trying light-box therapy.
- Don't nap for more than 20 minutes during the day.

NIGHT TIME SUGGESIONS

- Try to go to bed at the same time every night and set your alarm for the next day.
- Follow a bedtime routine.
- Avoid caffeine, nicotine, alcohol, and sugar for five hours before bedtime.
- Avoid eating prior to sleep to allow time to digest, but also do not go to bed hungry, as this can wake you from sleep.
- Do not exercise within two hours of bedtime, but stretching may help with sleep.
- Do not eat, read, or watch TV while in bed.

- Keep stress out of the bedroom.
- Create a restful atmosphere in the bedroom, free from distractions, noise, extreme temperatures and light.
- If you don't fall asleep within 30 minutes, get out of bed and do something relaxing or boring until you feel sleepy.

ASK YOUR DOCTOR

If sleep problems persist, talk to your doctor to explore safe and effective solutions. Evaluation of sleep problems should include a thorough history of such problems, medication review, an assessment of your bedtime routines, and a comprehensive medical evaluation. Before recommending any action, your physician will explore with you a variety of possible causes for your sleep problems, including pain or depression. If necessary, he or she may recommend a polysomnographic evaluation (a sleep lab). Based on your symptoms, medical history and specific needs, your doctor will be able to make a personalized treatment plan to help you achieve restful sleep.

TREATMENT OPTIONS

Non-pharmacological Therapies

- If mood or emotional issues such as anxiety or depression are causing sleep difficulties, psychotherapy (counseling) may be an appropriate treatment.
- Sleep restriction may improve sleeping patterns by restricting the number of hours spent in bed to the actual number of hours slept.
- For those with anxiety, relaxation therapy can help create a restful environment both in your bedroom and in your body and mind.
- Use of special bright lights (phototherapy) has been shown in studies to help promote sleep. When exposed to these lights at strategic times in the day, you may be able to sleep more at night. However, consult with your doctor first, as these bright lights can cause eyestrain and headaches.

MEDICATIONS

Ask your doctor about medications that can help you sleep through the night or keep you awake during the day. Special care is necessary when choosing a medication in order to avoid daytime sedation or worsening of cognitive and behavior problems.

Natural remedies

Some consumers have found herbal teas, meltonin and valerian useful for sleep problems, and these are sold in health food and drug stores with no prescription needed. However, these remedies have multiple drug interactions, and you should tell your doctor if you are using them.

SUBSTANCE USE AND BRAIN INJURY

The use of legal or illegal drugs increases the risk of an acquired brain injury. Substance use disorder (SUD) is a disease that affects a person's brain and behavior and leads to an inability to control the use of a legal or illegal drug or medication. It results when addiction causes changes in the brain's wiring, causing people to have intense cravings for the drug, making it hard to stop using the drub, despite life-threatening consequences.

Individuals with traumatic brain injury are at an increased risk for substance use disorder (SUD) as they have exposure to multiple risk factors:

- High rates of chronic
- Higher risk for pre and post substance abuse
- Injury related behavioral changes
- Over prescribing of opioids
- Treatment barriers

Due to these risk factors, individuals with traumatic brain injury are 11 times more likely to die of accidental poisoning or overdose. Professionals recognize that there is an increased risk for addiction or relapse post brain injury. Cognitive issues, depression, and decreased socialization can make these individuals more vulnerable. *(Excerpted from TBI and Opioid Overdose: An Unrecognized Relationship, presented by Lance Trexler, Ph.D., FACRM, a BIAA Webinar, October 13, 2020.)*

COMMONLY MISUSED SUBSTANCES CAN INCLUDE:

- Opiates and other narcotics, including heroin, fentanyl, oxycodone, opium, codeine, and narcotic pain medications that may be prescribed by a doctor or purchased illegally
- Stimulunts, including cocaine, methamphetamine, and amphetamines
- Depressants, including alcohol, barbiturates, benzodiazepines, chloral hydrate and paraldehyde (LSD ("acid"), psilocybin ("mushrooms"), and PCP ("angel dust")
- Marijuana

NON-LETHAL OPIOID OVERDOSE AND ACQUIRED BRAIN INJURY

It has been suggested that the opioid crisis is a nationwide public health emergency; an epidemic that is the deadliest drug crisis in American history. Opioids are the leading cause of death for Americans under 50 years of age. The 2018 data showed that each day, more than 140 Americans lost their lives due to overdoses. *(Excerpted from Brain Injury Association of America: Non-Lethal Opioid Overdose and Acquired Brain Injury: A Position Statement of the Brain Injury Association of America, 2018.)*

Non-lethal overdose can result in permanent brain damage. Opioids (or opiates) are depressants, slowing down a person's breathing and heart rate; in other words, an overdose causes the body to forget to breathe on its own. When that happens, an individual can sustain either a hypoxic brain injury (not enough oxygen) or an anoxic (no oxygen) brain injury. These types of brain injuries can cause a multide of side effects, including loss of short term memory, difficullty concentrating, vision and/or hearing loss, loss of coordination and balance, issues with sequencing, problems with communication, and behaviorial changes. The longer the brain is deprived of the oxygen it needs, the higher the risk for more permanent brain damage. *(Excerpted from the Brain Injury Association of Virginia: Opioids and Brain Injury, 2018.)*

TREATMENT STRATEGIES

A number of treatment models for addressing substance use/misuse have been proposed. Best practices for treatment of substance use/misuse within the brain injury population include:

- Abstinence
- Patient and family education

- Incentives to encourage participation and retention in programs
- Modification of Alcoholics Anonymous (AA) and Narcotics Anonymous (NA) to make it more concrete and understandable
- Use of motivational interviewing techniques

Interventions that support adaptive coping

- Use of community resources to maximize social interaction and minimize boredom
- Matching materials and interventions with cognitive deficits stemming from injury

Treatment for substance use disorders should be integrated into the treatment process as seamlessly as any other form of brain injury therapy and counseling. Other common rehabilitation strategies include:

- Small groups
- Journaling
- Role-play
- Presenting information in smaller chunks with repetition to allow for delayed processing time *(Excerpted from Brain Injury Association of America: Non-lethal Opioid Overdose and Acquired Brain Injury: A Position Statement of the Brain Injury Association of America, 2018.)*

WHAT ARE SOCIAL SKILLS?

Social skills are the skills people use to communicate and interact with others. Social skills include what you say, as well as your body language, eye contact, facial expressions, tone of voice, and other actions. Cognitive skills (for example: staying focused, memory) and emotions (for example: anxiety, anger, sadness) also play a part in social skills.
Examples of social skills include:

- Listening to and understanding what people say
- Communicating thoughts, needs, and feelings through words and actions
- Managing your emotions in social interactions
- Respecting social boundaries and social rules (for example: not standing too close to someone, not asking overly personal questions
- Adjusting what you say and how you say it, as well as what you do, based on the situation

WHY ARE SOCIAL SKILLS IMPORTANT?

Good social skills can help you:

- Have enjoyable interactions
- Get along with others
- Keep old friendships and make new ones
- Feel confident socially
- Succeed at school, at a job, or in a volunteer position

HOW CAN A BRAIN INJURY AFFECT SOCIAL SKILLS?

After a traumatic brain injury (TBI), people may have problems with social skills. These problems can differ from person to person and can be harder to manage when feeling strong emotions, such as anger or excitement. Common examples are:

- Feeling out of place and uncomfortable around other people
- Interrupting conversations
- Losing focus during a conversation
- Forgetting what someone has said
- Misunderstanding the words, facial expressions, tone of voice, or actions of others
- Difficulty getting along with others
- Talking too little or too much
- Having trouble expressing thoughts and feelings
- Not showing interest in what others have to say
- Not knowing how to start or maintain a conversation

CAN SOCIAL SKILLS GET BETTER AFTER A BRAIN INJURY?

Research shows that social skills can improve after a TBI, even many years later. Working on your social skills with a therapist can help you to improve these skills. Therapists who help with social skills after TBI include speech-language pathologists, neuropsychologists or clinical psychologists, clinical social workers, and other health care professionals. You can also practice social skills with a family member or close friend.

HOW CAN SOCIAL SKILLS GET BETTER AFTER A BRAIN INJURY?

Below are some tips that may help you improve your social skills. It may be helpful to ask a family member or friend to help you with this:

Evaluate. The first step in improving your social skills is thinking about your social skills: What you do well? What is challenging for you? It may help to think about someone who communicates well, or observe someone who is a good

communicator. What skills or behaviors make that person a good communicator? This may help you gain a better understanding of the social skills you would like to improve.

Below is a list of some common social skills. Again, ask a supportive friend or family member for feedback on how you are doing on each of these skills:

- Taking turns in conversation
- Staying focused on the topic
- Listening to others
- Showing interest in the other person
- Asking questions of the other person
- Getting to the point
- Coming across as friendly and relaxed
- Being supportive of the other person
- Keeping emotions in check, and using a calm tone of voice
- Taking the time to speak as clearly as possible

Set Social Skills Goals

- Decide on one or two areas you would like to improve and write them down. For example, you could set a goal to ask more questions during conversations to keep the conversation going.
- Post your goals in a place where you'll see them every day (for example, on your refrigerator or on your phone).
- Share your goals with a supportive family member or friend, who can help "coach" and practice with you.

Practice Social Skills and Get Feedback. Practice at home, at work, or in other social situations. Here are some specific ways to practice:

- Visit places in the community where you have a chance to interact with other people (for example, take a walk with a friend or neighbor, visit the library or recreation center, or have coffee with a friend).
- Think about what you're going to say before you speak, and about how others might feel about that.
- Show interest in the person you are talking with (smile, have eye contact, ask friendly questions).
- Pay attention to feedback you get from the other person (did he/she smile, ask questions, keep eye contact, etc.).
- At least once a week, ask your family member or friend to give you feedback about how you're doing on your goals.
- Practice social skills in front of a mirror, or have someone videotape you practicing. Watching yourself can help you notice areas to work on. It may also help you realize that you are doing better than you thought!
- Write a short script that you can practice to say when a specific situation comes up (for example: when a conflict comes up, when you are talking to someone new).

TIPS FOR WORKING ON YOUR SOCIAL SKILLS IN SPECIFIC SITUATIONS

To start a conversation, especially with someone new

- Talk about some of the things that are around you (such as a slogan on a hat, the weather, the person's dog, etc.).
- When you're first getting to know someone, stick with neutral topics. Avoid talking about politics, religion, money, or personal information.
- Ask open-ended questions, for example, "What did you do over the weekend?", "What do you think about the movie?", "What kind of hobbies do you have?", "What did you do over the holidays?", or "What are your plans for the weekend?"

To keep a conversation going:

- Focus on topics that you think might be interesting to the other person, and ask open-ended questions related to the conversation.

- Be aware of your body language. For example, make comfortable eye contact (looking at the person but not staring), nod your head, and smile.
- Take turns talking and listening.
- Watch for cues that the other person might want to end the conversation (such as looking at the clock, looking away, making comments about being in a hurry).
- Be respectful of other people's personal space by not standing too close.

When you feel like there could be conflict:

- Let the other person finish talking and listen to what they have to say. Try to see the other person's point of view. What is it that the person wants you to know? If you don't know, it's okay to ask. For example, "It sounds like you're upset that I didn't clean the kitchen, is that right?" If you can't agree on something, try to meet them half way.
- Use friendly body language and tone of voice. For example, avoid pointing your finger, yelling, or rolling your eyes. Try to stay calm and have your body and face as relaxed as possible. Remember to breathe.
- Pay attention to your emotions. Let the person know what you are feeling and start with the word "I": "I feel frustrated right now," or "I'm feeling upset about that." If you think you need time to calm your emotions, let the person know that you need to take a break.
- Show respect to the other person by talking to them in a way that you would want someone to talk to you.

Improving your social skills takes time and effort. Social skills usually improve one step at a time. Give yourself a pat on the back when you realize that you've taken even a small step toward your social skills goals.

FOR FAMILIES AND FRIENDS

Interacting with someone who has had a brain injury may require you to adjust your own social skills or the environment. For example, give the person more time to process what is being said and give them time to respond. Limit the amount of information you communicate at a time. Pay attention to the topic being discussed and the person's reactions: Do they affect the person's emotions and/or cognitive function? If the person seems fatigued or overwhelmed, wrap up the conversation.

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VETERANS AND BRAIN INJURY

Our nation's ongoing involvement in the Global War on Terrorism (GWOT) has lasted for over a decade and has resulted in over 2 million service members being deployed in support of it. Of those two million service members, approximately 800,000 have served multiple tours of duty which can last from several months to well over a year in length.

It is estimated that roughly 20 percent of service members deployed in support of the Global War on Terrorism have sustained some level of traumatic brain injury as a result of explosive blasts from roadside improvised explosive devises (IEDs), vehicle borne improvised explosive devises (VBIEDs) suicide bombings, rocket-propelled grenades (RPGs), among others.

Additionally, post-traumatic stress disorder has been found to affect anywhere from 14 to 20 percent of GWOT veterans and service members as a result of the same traumatic combat exposures mentioned above. The overlapping symptoms of these conditions as well as their lasting effects present significant and unique challenges for both the survivor and their families.

If you have a loved one who has suffered from a traumatic brain injury or PTSD, the Brain Injury Association of New Hampshire may be able to help. Please call (603) 225-8400 or visit the website: www.bianh.org for additional services or information.

GLOSSARY

GLOSSARY

A

ABSTRACT CONCEPT – A concept or idea not related to any specific instance or object and which potentially can be applied to many different situations or objects. Persons with cognitive deficits often have difficulty understanding abstract concepts.

ABSTRACT THINKING – Ability to reason and to solve problems.

ACQUIRED BRAIN INJURY – The implication of this term is that the individual experienced normal growth and development from conception through birth, until sustaining an insult to the brain at some later time which resulted in impairment of brain function.

ACUTE CARE – The phase of managing health problems which is conducted in a hospital on patients needing medical attention.

ACUTE REHABILITATION – Based in a medical facility, accepts patient as soon as medically stable, focuses on intensive physical and cognitive restorative services in early months after injury; typical length of stay one week to several months (short term); identifiable team and program with specialized unit.

ADL – Activities of daily living such as eating, grooming, toileting, and dressing.

AGITATION – Behavior pattern of restlessness and increased activity intermingled with anxiety, fear and/or tension.

AMBULATION – Walking

AMNESIA – Memory loss

Retrograde – inability to remember information prior to the injury

Anterograde – inability to consistently remember events since the injury; associated with inability to remember and learn new material.

ANEURYSM – A bubble-like deformity in a blood vessel wall which is prone to bleeding.

ANOXIA – State of almost no oxygen supply, resulting in low energy production and possible death of the cell, may be due to poor blood flow to the brain or low oxygen in the blood.

ANTICOAGULANT AGENTS – Drugs used in stroke prevention therapy to prevent blood clots from forming or growing. They interfere with the production of certain blood components necessary for clot formation.

ANTICONVULSANT – Medication used to control or decrease the possibility of seizure.

ANTIDEPRESSANTS – Drugs which help treat depression.

ANTITHROMBOTICS – Type of anticoagulation therapy that prevents the formations of blood clots by inhibiting the coagulating actions of the blood protean thrombin.

APHASIA – Loss of the ability to express oneself and/or to understand language, caused by damage to the brain cells rather than deficits in speech or hearing organs.

APRAXIA – Inability to carry out a complex or skilled movement; not due to paralysis, sensory changes or deficiencies in understanding.

ARTERIOVENOUS MALFORMATION (AVM) – A "tangle" of blood vessels present from birth which may be prone to bleeding.

ASPIRATION – When food or liquid goes into the windpipe (trachea) and lungs instead of the esophagus and then the stomach. This can cause lung infection or pneumonia.

ASSISTANCE –

Dependent/Maximum – Person is unable to perform the task

Moderate – Person can participate somewhat, but still requires a good deal of help.

Minimum – Person does most of tasks himself/herself, but requires some help

Contact/Guard (FBI – finger in belt) – Person requires no real help. A hand is placed on him/her for safety precautions (balance or lack of attention).

GLOSSARY

ATAXIA – A problem of muscle coordination not due to apraxia, weakness, rigidity, spasticity or sensory loss, caused by a lesion of the cerebellum or basal ganglia. Can interfere with a person's ability to walk, talk, eat, and to perform other self care tasks.

ATROPHY – Deterioration or loss of tissue caused by lack of nourishment, inactivity or loss of nerve supply.

AUDIOLOGIST – One who evaluates hearing defects and who aids in the rehabilitation of those who have such defects.

B

BILATERAL – Pertaining to both left and right sides.

BLOOD LEVELS – Amount of medications or other substances in the blood. Blood tests must be done regularly when a person is on certain medicines to ensure that proper levels are maintained.

BRAIN PLASTICITY – The ability of intact brain cells to take over functions of damaged cells; plasticity diminishes with maturation.

BRAIN SCAN – An imaging technique in which a radioactive dye (radionucleide) is injected into the blood stream and then pictures of the brain are taken to detect tumors, hemorrhages, blood clots, abscesses or abnormal anatomy.

BRAIN STEM – The lower extension of the brain connected to the spinal cord. Neurological functions located in the brain stem include those necessary for survival – being awake or alert.

C

CAT SCAN – Series of cross-sectional x-rays of the head and brain that reveals the internal structure of the brain in precise detail.

CEREBELLUM – The portion of the brain (located at the back) which helps coordinate movement. Damage may result in ataxia.

CEREBRAL INFARCT – When the blood supply is reduced below a critical level and the brain tissue in that region dies.

CEREBRAL-SPINAL FLUID – Liquid which fills the ventricles in the brain and surrounds the brain and spinal cord.

CLOSED HEAD INJURY – Trauma to the head which does not penetrate the skull but which damages the brain. Occurs when the head accelerates and then rapidly decelerates or collides with another object and brain tissue is damaged by violent smashing, stretching or twisting of brain tissue (example: hitting the windshield of a car).

COGNITION – "Thinking" skills such as being able to organize, solve problems, follow directions, etc.

COGNITIVE DEFICIT – A reduction in one or more "thinking" skills which include: attention, concentration, memory, sequential thought organization, judgment, reasoning, and problem-solving.

COGNITIVE REHBILITATION – Therapy programs which aid people in the management of specific problems in thinking and perception. New strategies and skills are taught to help people improve function and/or compensate for remaining deficits.

COMA – A state of unconsciousness from which the patient cannot be awakened or aroused, even by powerful stimulation.

CONCRETE THINKING – Thinking limited to what is seen or to one specific example.

CONCUSSION – The common result of a blow to the head or sudden deceleration usually causing an altered mental state, either temporary or prolonged.

CONFABULATION – Making up facts or events. It differs from lying in that the individual is not attempting to deceive.

CONTINENT – The ability to control urination and bowel movements.

GLOSSARY

CONTRACTURE – Loss of full movement of a joint.

CONTRECOUP – Bruising/injuries of brain tissue on the side opposite the point of impact.

CSF – Liquid which fills the ventricles of the brain and surrounds the brain and spinal cord.

CVA – Cerebrovascular accident. A term traditionally used for stroke. Stroke is no longer viewed as an accident.

D

DEPRESSION – A feeling of sadness brought about by loss; usually a natural process in brain injury recovery. On occasion, professional treatment may be necessary.

DIFFUSE – Brain damage which involves many areas of the brain rather than one specific location.

DYSARTHRIA – "Slurred" speech due to paralysis or weakness of tongue, lips, and other facial muscles. A language disorder characterized by difficulty with speaking or forming words.

DYSPHAGIA – Problem with or absence of the ability to chew and/or swallow.

E

EDEMA – Swelling.

ELECTROENCEPHALOGRAM (EEG) – A medical test which studies "brain waves" or electrical activity of the brain. Useful for diagnosing seizure disorders (epilepsy), coma and brain death.

EMBOLIC STROKE – Stroke resulting from the blockage of an artery by a blood clot (embolus).

EPILEPSY – Seizure disorder.

EPISODIC MEMORY – Memory for ongoing events in a person's life. More easily impaired than semantic memory or perhaps because rehearsal or repetition tends to be minimal.

EQUILIBRIUM – Normal balance reactions and postures.

F

FOCAL – Restricted to one region (as opposed to diffuse).

FRONTAL LOBE – Front part of the brain; involved in planning organizing, problem-solving, selective attention, personality and a variety of higher cognitive functions.

H

HEMOTOMA – blood clot

Regarding the brain:

Epidural – outside the brain and its fibrous covering but under the skull.

Subdural – between the brain and its fibrous covering.

Intracerebral – in the brain tissue.

HEMIANOPSIA – Visual field cut. Blindness for one half of the field of vision; this is not the right or the left half.

HEMISPHERE – One of the two halves of the brain.

Right – Controls left side of the body and is involved with visuospatial abilities.

Left – Controls the right side of the body and is involved with language.

HEMORRHAGE – Bleeding that occurs following trauma.

HYDROCEPHALUS – Enlargement of fluid filled cavities in the brain.

HYPOXIA – Lack of oxygen reading the tissues of the body.

I

ICP – Intracranial Pressure: Cerebrospinal fluid (CSF) pressure measured from a needle or bolt introduced into the CSF space surrounding the brain; reflects the pressure inside the skull.

GLOSSARY

INCONTINENT – Inability to control bowel or bladder functions.

INFARCT – The immediate area of a brain-cell death caused by the stroke. When the brain cells in the infarct die, they release chemicals that set off a chain reaction that endangers brain cells in a larger surrounding area.

ISCHEMIA – An interruption or blockage of blood flow.

L

LABILITY – State of having notable shifts in emotional state (e.g., uncontrolled laughing or crying).

LATENCY OF RESPONSE/RESPONSE DELAY – The amount of time it takes a person to respond after the stimulus has been presented.

LEFT HEMISPHERE – The half of the brain that controls the actions of the right side of the body, as well as analytic abilities such a calculating, speaking, and writing.

LONG TERM MEMORY – In neuropsychological testing, this refers to recall 30 minutes or longer after presentation. Requires storage and retrieval of information which exceeds the limit of short term memory.

M

MILD BRAIN INJURY – A patient with a mild traumatic brain injury is a person who has had a traumatically-induced physiological disruption of brain function, as manifested by at least one of the following: 1) any period of loss of consciousness; 2) any loss of memory for events immediately before or after the accident; 3) any alteration in mental state at the time of the accident (e.g., feeling dazed, disoriented or confused) 4) focal neurological deficit(s) which may or may not be transient; but where the severity of the injury does not exceed the following; a) loss of consciousness of approximately 30 minutes or less; b) after 30 minutes, an initial Glasgow Coma Scale score of 1-15; c) Post Traumatic Amnesia not greater than 24 hours.

MRI – Magnetic Resonance Imaging: A type of diagnostic radiography using electromagnetic energy to create an image of soft tissue, central nervous system and musculoskeletal systems.

N

NEUROPSYCHOLOGIST – A psychologist who specializes in evaluating (by tests) brain/behavior relationships, planning training programs to help the survivor of brain injury return to normal functioning and recommending alternative cognitive and behavioral strategies to minimize the effects of brain injury. Often works closely with schools and employers as well as with family members of the injured person.

NON-AMBULATORY– Unable to walk.

O

OCCIPITAL LOBE – Region in the back of the brain which processes visual information. Damage to this lobe can cause visual deficits.

OCCUPATIONAL THERAPIST – Therapist who focuses on helping stroke survivors rebuild skills in daily living activities, such as bathing, toileting, and dressing.

P

PARIETAL LOBE – One of the two parietal lobes of the brain located behind the frontal lobe at the top of the brain.

Right – damage can cause visuospatial deficits (having difficulty moving around new or familiar places).

Left – damage to this area may disrupt ability to understand spoken or written language.

PHYSIATRIST – Medical doctor who specializes in rehabilitation.

PHYSICAL THERAPIST – Healthcare professional who specializes in maximizing a stroke survivor's mobility and independence in order to improve major motor and sensory impairments in walking, balance, and coordination.

POST TRAUMATIC AMNESIA (PTA) – A period of hours, weeks, days or months after the injury when the patient exhibits a loss of day-to-day memory. The patient is unable to store new information and therefore has a decreased ability to learn.

POSTACUTE REHABILITATION – Are programs designed to provide intensive, 24-hour rehabilitation to improve cognitive, physical, emotional, and psychosocial abilities, to facilitate better independent living skills. Facilities typically provide a full spectrum of clinical therapies, as well as life-skills training in a residential setting.

PROSODY – Rhythm and timing of speech.

PSYCHIATRIST/PSYCHOLOGIST – Specialist who helps stroke survivors adjust to the emotional challenges and new circumstances of their lives.

PVS – Persistent Vegetative State: A long-standing condition in which the patient utters no words and does not follow commands or make any response that is meaningful.

R

RECREATIONAL THERAPIST – Therapist who helps to modify activities that the stroke survivor enjoyed before the stroke or introduces new ones.

REHABILITATION – Comprehensive program to reduce/overcome deficits following injury or illness and to assist the individual to attain the optimal level of mental and physical ability.

RETROGRADE AMNESIA – Inability to recall events that occurred prior to the accident; may be a specific span of time or type of information.

S

SEIZURE – 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 or other behavioral change.

SHORT TERM MEMORY – Primary or "working" memory; its contents are in conscious awareness. A limited capacity system that holds up to seven chunks of information over periods of 30 seconds to several minutes, depending upon the person's attention to the task.

SHUNT – A procedure to draw off excessive fluid in the brain. A surgically-placed tube running from the ventricles which deposits fluid into either the abdominal cavity, heart, or large veins of the neck.

SKULL FRACTURE – Term used to describe the breaking of the bones surrounding the brain. A depressed skull fracture is one in which the broken bone(s) exert pressure on the brain.

SLP – Speech – Language Pathologist: a professional educated in the development and disorders of human communication.

SOCIAL WORKER – Counselor of psychological needs.

SPASTICITY – An involuntary increase in muscle tone (tension) that occurs following injury to the brain or spinal cord, causing the muscles to resist being moved. Characteristics may include increase in deep tendon reflexes, resistance to passive stretch, clasp knife phenomenon, and clonus.

SPEECH-LANGUAGE PATHOLOGY SERVICES – A continuum of services including prevention, identification, diagnosis, consultation, and treatment of patients regarding speech, language, oral and pharyngeal sensorimotor function.

STATUS EPILEPTICUS – Continuous seizures; may produce permanent brain damage.

STROKE – Sudden interruption of blood flow to a part of the brain that kills cells within the area. Body functions controlled by the affected area may be impaired or lost.

T

TBI – Traumatic Brain Injury: Damage to living brain tissue caused by an external, mechanical force. It is usually characterized by a period of altered consciousness (amnesia or coma) that can be very brief (minutes) or very long (months, indefinitely). The specific disabling condition(s) may be orthopedic, visual, aural, neurologic, perceptive/cognitive, or mental/emotional in nature. The term does not include brain injuries that are caused by insufficient blood supply, toxic substances, malignancy, disease-producing organisms, congenital disorders, birth trauma, or degenerative processes.

TEMPORAL LOBES – Two lobes, one on each side of the brain located at about the level of the ears. They allow a person to tell one smell from the other and one sound from the another. They also help in sorting new information and are believed to be responsible for short-term memory.

Right Lobe – mainly involved in visual memory (i.e., pictures/faces)

Left Lobe – mainly involved in verbal memory (words/names)

THROMBOEMBOLISM – Embolus that breaks away from a clot in one vessel to become lodged in another vessel.

THROMBOSIS – Clotting of blood within a vessel.

V

VENTRICLES – Fluid filled cavities inside the brain.

VERBAL APRAXIA – Impaired control of proper sequencing of muscles used in speech (tongue, lips, jaw muscles, vocal cords). These muscles are not weak but their control is defective. Speech is labored and characterized by sound reversals, additions, and word approximations.

VOCATIONAL THERAPIST – A specialist who evaluates work-related abilities of people with disabilities.

Notes