

# ADULT TRAUMATIC BRAIN INJURY | *for Mental Health Professionals*

## Brain Injury: One Name, Diverse Injuries

### *How Do I Identify How Severe a Brain Injury Is?*

Traumatic brain injury (TBI) is an alteration in brain function or mental status that results from external force. In TBI, changes such as ionic shifts, abnormal metabolism of energy, and decreased cerebral blood flow temporarily (or permanently, in the case of more severe TBI) disrupt brain functioning. It is important to note that not all forces, blows, or jolts to the brain result in TBI.

Each TBI is identified as mild, moderate, or severe, based on injury characteristics occurring at the time of the injury event. However, there are different classification systems for brain injury and there is not always consensus among experts in defining severity in a particular case. Diagnosis of TBI severity (especially with respect to differentiation of mild TBI from moderate TBI) is still under much discussion. Best practice reflects diagnosis by a provider with specialty training in brain injury assessment since other conditions, such as sleep disruption or psychological stress, can mimic putative effects of brain injury. A diagnostic interview and physical exam are typically conducted when medical care is sought. While the use of neuroimaging following mild TBI is debated, it is used in suspected cases of moderate to severe TBI. Detection of evidence of brain pathology using imaging as a means of TBI identification has been proposed.

While no standard definition or diagnostic criteria for mild TBI currently exist, there are commonly used criteria for stratifying the severity of injury. The VA and Department of Defense (DoD) have developed a widely used consensus definition based on the American Congress of Rehabilitation Medicine criteria (ACRM Mild TBI Committee, 1993). In these and other definitions, there is general consensus that brain injury diagnosis does not require that the individual experience loss of consciousness (LOC). Posttraumatic amnesia (PTA) is another sign of brain injury, which manifests as a period where the individual is not able to form new memories. PTA may look like loss of memory for events immediately before, during, or after the injury, while the person is responsive or conscious. PTA has subsided when there is return of continuous memory. PTA differs from psychological dissociation. Alteration of consciousness (AOC) is another characteristic of brain injury that reflects true disorientation and confusion. The above should be differentiated from amnesia and reduction in awareness of one's surroundings seen in acute stress reactions. The VA/DoD system of classification indicates that only one of the following need be present to diagnose TBI: LOC, PTA, or AOC. Cognitive concerns, headache, loss of balance, and fatigue, among other symptoms, can be present, but are nonspecific to TBI.

According to the VA/DoD TBI classification system, mild TBI has occurred when loss of consciousness is 30 minutes or less, and/or PTA is up to 24 hours, and/or AOC is up to 24 hours. Moderate TBI has occurred when LOC is between 30 minutes and 24 hours, and/or PTA is greater than 24 hours up to 7 days, and/or AOC is 24 hours up to 7 days. Severe TBI is rated when LOC is greater than 24 hours, and/or PTA is greater than 7 days, and/or AOC is greater than 7

## What Is Cognitive Behavior Therapy?

Behavior Therapy and Cognitive Behavior Therapy are types of treatment that are based firmly on research findings. These approaches aid people in achieving specific changes or goals.

Changes or goals might involve:

- **A way of acting:** like talking to your doctor when you notice any changes in memory or cognition;
- **A way of feeling:** like staying positive and remembering you are not alone and that recovery takes time;
- **A way of thinking:** like knowing that many people with brain injuries have gone on to success in their job, school, or personal relationships;
- **A way of dealing with physical or medical problems:** like focusing on self-care, such as getting enough sleep;
- **A way of coping:** like pacing yourself to avoid fatigue.

Behavior Therapists and Cognitive Behavior Therapists usually focus more on the current situation and its solution, rather than the past. They concentrate on a person's views and beliefs about their life, not on personality traits. Behavior Therapists and Cognitive Behavior Therapists treat individuals, parents, children, couples, and families. Replacing ways of living that do not work well with ways of living that work, and giving people more control over their lives, are common goals of behavior and cognitive behavior therapy.

**HOW TO GET HELP:** If you are looking for help, either for yourself or someone else, you may be tempted to call someone who advertises in a local publication or on the Internet. You may, or may not, find a competent therapist in this manner. It is wise to check on the credentials of a psychotherapist. It is expected that competent therapists hold advanced academic degrees and training. They should be listed as members of professional organizations, such as the Association for Behavioral and Cognitive Therapies or the American Psychological Association. Of course, they should be licensed to practice in your state. You can find competent specialists who are affiliated with local universities or mental health facilities or who are listed on the websites of professional organizations. You may, of course, visit our website ([www.abct.org](http://www.abct.org)) and click on "Find a CBT Therapist."

*The Association for Behavioral and Cognitive Therapies (ABCT) is an interdisciplinary organization committed to the advancement of a scientific approach to the understanding and amelioration of problems of the human condition. These aims are achieved through the investigation and application of behavioral, cognitive, and other evidence-based principles to assessment, prevention, and treatment.*

days. Other common systems of classification include the Glasgow Coma Scale as well as the American Academy of Neurology, Colorado, and Cantu (1992) definitions.

The term "concussion" is used by some to describe a mild injury and often suggests a condition from which the individual will recover, although views differ concerning whether the term "mild brain injury" and "concussion" should be used interchangeably. The term "severe concussion" is generally avoided as it leads to definitional confusion.

### ***What Are Some Common Types and Causes of Brain Injury?***

Brain injuries can be classified as closed or open. A closed brain injury means that external force did not break the skull. An open, or penetrating, brain injury means the person was hit with an object that broke the skull and entered the brain (i.e., the dura mater, or, the outer layer of the meninges, is penetrated). Either type of injury may cause bleeding in the brain or the layers that surround the brain. Anoxic brain injuries result from lack of oxygen to the brain and can be due to unexpected surgical events, near drowning, drug abuse, or strangulation. Blast injuries (otherwise known as blast-induced neurotrauma or BINT) result from the pressure wave occurring in an explosion, and are typically closed head injuries. Blast injuries are characterized as primary (injury from overpressurization force of the blast wave), secondary (injury from projectiles such as bomb fragments or flying debris), tertiary (injuries from displacement of person by the blast wind), or quaternary (all other injuries from the blast). The brain is more clearly vulnerable to both secondary and tertiary blast injury. There is discussion around whether primary blast forces directly injure the brain, with support from animal models suggesting that the primary blast could potentially cause TBI directly. The primary blast can also cause formation of gas emboli, leading to stroke. Common causes of TBI include motor vehicle accidents, assault, falls, parachute jumps, sports injuries, and military-related blast or blunt force injuries.

### ***What Types of Cognitive Changes Can Be Seen After Brain Injury?***

Problems with memory (especially trouble forming new, short-term memories and trouble remembering to-do's), attention, speed of thinking, and executive functioning (planning, organizing, switching between tasks, problem solving, mental flexibility, inhibition of irrelevant responses, initiation, monitoring, and persistence with goal-directed thought and activity) can be seen across the severity spectrum of brain injury. Other changes that can be seen, especially in some cases of severe brain injury, include aphasia (partial or total loss of the ability to communicate in words), difficulty speaking clearly, visual spatial problems, problems in judgment or difficulty anticipating unsafe situations, or changes in reading or writing. There can be inattention to the left or right, which can have safety consequences. Restricted awareness of changes is also more common in individuals with severe brain injury. People who do not fully realize their limitations may be accustomed to hearing others tell them they are not safe to be alone. It has been helpful for people with brain injuries to understand this problem as though the brain itself wants to ignore others' feedback.

## ***What Social, Emotional, and Behavioral Changes Can Be Seen as a Result of Brain Injury, and for Whom?***

Social, emotional, and behavioral changes arising directly from brain injury are most evident in cases of more severe brain injuries, and result from injury to brain tissue. Changes can include trouble "filtering" or restraining emotions or thoughts one would normally avoid saying, feeling less patient, crying more, wanting to isolate, having trouble with healthy decision-making, feeling as if people are getting on one's nerves more easily, and unusual social skills (sometimes called "orbitofrontal" syndrome). Mood swings ("emotional lability") can occur in these cases. Brain injuries can also result in lethargy, "flat" mood, and difficulty getting started on or completing tasks (this can look like lack of motivation or decreased goal-directed activity). Depressed mood is a common outcome across severity levels of TBI. It can be very helpful for survivors to understand these as brain-based changes when this is the case, and to note when changes are evident.

Emotional and behavioral problems can also result from psychological denial of changes and/or stress associated with life changes following the injury. Some individuals regain awareness of their situation before they have developed the emotional coping skills to cope with loss of function, potentially exacerbating emotional and behavioral problems.

Thus, the causes of emotional and behavioral changes in TBI are multiple and diverse, and encompass neurological changes that result directly from the injury (e.g., to some of the brain areas where emotion and behavior regulation is mediated, such as the limbic system and frontal lobes), as well as pre-injury factors (e.g., coping style) and post-injury factors such as difficulty adjusting to functional limitations and limited availability of social and health system supports. All or any combination can be present.

## **Recovery and Treatment Considerations After Brain Injury: A Guide for Clinical Decision-Making**

### ***What Can We Expect Recovery to Look Like After Brain Injury?***

Recovery depends strongly on whether professionals classify the injury as mild, moderate, or severe. This classification is based on duration of acute injury characteristics, such as loss of consciousness, posttraumatic amnesia, and alteration of consciousness.

It is important to remember that there are many people who have experienced a brain injury who have gone on to success related to their job, school, and personal lives.

In the case of mild brain injury (concussion), a complete recovery is often expected. Mild TBI is different from moderate or severe TBI in terms of expectation for recovery. Recovery following experiencing of a single mild TBI is rapid and full in most cases (1 to 2 weeks until full recovery is the norm).

Concussions such as those occurring in a military setting tend to occur within the context of other factors that predict persistence in behavioral and cognitive problems, such as sleep deprivation, emotional stress, and/or physical injuries and pain. These latter factors may instead be explanatory in cognitive difficulties. Patient education in these cases has been shown to be one of the most effective ways to decrease symptoms.

While almost everyone recovers from a single concussion within days, the time it takes to heal also depends on the number of brain injuries in one's lifetime and other variables (e.g., age). In a small minority of cases (>10% to 20%) and namely in cases of repetitive mild injury or re-injury prior to full recovery, there can be a more prolonged recovery or increased likelihood of long-term residual from brain injury. Second impact syndrome is less common, where an individual is re-injured before the brain has had an opportunity to heal, which may result in death. Older people also may be less likely to recover fully. To date, the literature suggests that recovery from blast (e.g., in the combat setting) does not differ from TBI recovery related to nonblast causes, although this area is actively under investigation. In the case of moderate to severe brain injury, learning to compensate for difficulties can take time and often requires a team treatment approach with significant involvement of family members or other supporters.

### ***What Are Other Factors That Can Make Recovery Easier or More Difficult After TBI?***

Cognitive and physical rest for the week following a concussion will maximize recovery. While the questions of how much and what kind of rest are under investigation, it is customary for athletes to refrain from play or military personnel to refrain from duties such as report writing, going on convoys, or performing guard duty within the week following TBI. Individuals should receive plenty of sleep during this time. Rest will also protect the individual from subsequent concussion during healing. Temporary symptoms also resolve faster when a person rests.

Brain injury survivors can feel overwhelmed by their memory problems, but one useful coping strategy has been to isolate each memory problem, make a list, and attack one problem at a time. Following mild TBI, negative global, stable attributions about memory problems (e.g., "they will never go away") tend to predict symptom persistence.

Abstinence from alcohol and drug use is also likely to improve cognitive efficiency over time. Alcohol has been shown to differentially and negatively affect individuals with TBI.

### ***What Assessment and Treatment Steps Can Be Considered After Brain Injury?***

In general, immediate medical attention is recommended where brain injury is suspected. Recovery from most mild brain injuries generally takes a benign course, although close monitoring for potential complications such as intracranial bleeding, seizures, or worsening of symptoms is recommended in some cases. If the brain has been severely injured, neurosurgical evaluation or efforts to control elevated intracranial pressure may be useful.

Physical and cognitive rest is essential for the week after brain injury.

Individuals with milder injuries should be able to return to duty, work, or normally performed activities when they are symptom free with exertion and have had an appropriate amount of time to recover. Recovery is different for every person and depends on the nature and severity of injury.

To develop recommendations to promote recovery, assessment as close to the time of injury as possible is critical for maximizing accuracy of diagnosis, for

maximizing long-term functioning, and for evaluating potential for return to work, school, or safety needs around completion of activities of daily living.

During the acute phase after injury, education about prognosis with positive expectancy in most cases of mild TBI is helpful. The first-line treatment for individuals who have experienced mild TBI or concussion is education about benign expected outcome and the importance of avoiding re-injury or other factors that can impede recovery such as alcohol use. The Heads Up campaign on the Centers for Disease Control website (<http://www.cdc.gov/concussion/headsup>) provides some useful handouts regarding TBI prevention. If an individual's symptoms do not resolve within 1 to 2 weeks following concussion, they will benefit from a more comprehensive evaluation. Consideration of the contribution of psychological factors to persisting symptoms is warranted.

After a brain injury, individuals who experience moderate to severe injuries (and potentially a minority of individuals with mild injuries who do not experience symptom resolution) may be considered for rehabilitation. The purpose of rehabilitation is to facilitate functioning and productivity in performing activities of daily living, and to teach people how to compensate for problems. Rehabilitation also enables professionals to give a multi- or interdisciplinary assessment after brain injury, with appropriate safety recommendations and treatment plans.

Each person responds differently to rehabilitation. Some people after moderate to severe brain injury receive rehabilitation treatments in an acute, inpatient program, while other people with milder injuries receive rehabilitation through outpatient services.

In the case of more severe injuries, rehabilitation, unlike other types of health care, rarely provides a "cure," because professionals are unable to "fix" or cure severe brain injury completely. The discussion around problem reduction and compensation rather than cure can be difficult. A stay in the rehabilitation center, however, can help individuals adjust well.

Rehabilitation is most commonly offered on an inpatient basis for weeks to months, because it requires the input of multiple specialists, including physicians, neuropsychologists, physical therapists, speech pathologists, occupational and recreational therapists, and social workers, among others, working together. Some of these professionals focus on teaching strategies for managing attention, memory, problem solving, behavior, and communication. Driving safety evaluations and vocational rehabilitation may be appropriate. Other types of rehabilitation that are psychologically oriented focus on increasing the individual's self-esteem by facilitating tasks or pleasant activities that he or she can learn to successfully complete. This process helps decrease adjustment reactions such as feelings of worthlessness, depression, and anxiety.

It is common for the individual with brain injury to wonder why the rehabilitation team wants him/her to see a psychologist. A psychologist will frequently help the person with a brain injury and his/her support system to understand and adjust to his/her medical situation and changes in abilities. This can include problem-solving activities to help the individual learn to adapt to changes in daily functioning, and/or cognitive behavioral therapy to address depressive symptoms or anger. It is also important for the psycholo-

gist and other professionals to assess risk for suicide, capacity for intentional and unintentional self-harm, and potential safety issues following TBI.

Neuropsychological assessment conducted by a neuropsychologist frequently helps individuals with brain injury, their support system, and other health-care providers to understand the severity of the injury, strengths and weaknesses, prognosis (that is, whether one's functioning is expected to return to pre-injury levels or not), implications for daily functioning, and treatment planning for medical care. The assessment provides direction for vocational and educational choices or accommodations, as well as safety guidance for day-to-day living.

Further guidance for professionals working within or interfacing with the VA/DoD health care system can be found in the VA/DoD clinical practice guidelines for TBI, available at [http://www.pdhealth.mil/clinicians/va-dod\\_cpg.asp](http://www.pdhealth.mil/clinicians/va-dod_cpg.asp).

***Should Treatment for Posttraumatic Stress Disorder (PTSD) Be Deferred Until After Assessment and Treatment for TBI? How Can PTSD Treatment Be Adapted to Maximize Therapy Outcome After TBI?***

Empirically supported treatment for PTSD has typically been implemented for individuals who have experienced mild to moderate TBI. For these cases, it is generally accepted that following the first weeks post-injury, treatment for acute stress (or later, PTSD) does NOT need to be deferred. While cognitive rest is generally recommended for the first several days post-TBI, a growing body of literature suggests that TBI may increase risk for the development of PTSD and depression, and likewise may interfere from recovery of PTSD and depression. There is no evidence to date to suggest that psychotherapy for mental health symptoms interferes with recovery from TBI. While the research in this area is evolving, initial evidence suggests that individuals with TBI benefit from psychotherapy for PTSD symptoms as well as for adjustment concerns related to TBI. Modification of treatments for PTSD to accommodate cognitive difficulties may help to facilitate recovery (e.g., writing down key points from the session; speaking slowly in short sentences). Thus, effective treatments for PTSD (such as prolonged exposure and cognitive processing therapy [CPT]) are felt to work well for those who have experienced mild to moderate TBI. Additional suggestions for modifying CBT-oriented treatments for individuals with TBI are detailed below.

***What Treatments Help With Emotional and Behavioral Changes After Brain Injury?***

Neuropsychological assessment can help guide choice of treatment modality. Cognitive behavioral therapy (CBT), social skills training, and more recently, mindfulness-based stress reduction approaches are used to treat emotional and behavioral changes related to TBI. In general, therapy that targets the way survivors talk and think about recovery can positively affect the way the survivor feels and behaves.

In the acute phase of recovery, brief psychoeducational and cognitive-behavioral interventions have consistently been shown to result in improvement in managing cognitive and psychological symptoms for brain injury survivors. CBT has been helpful in the acute phase post-TBI and beyond in

helping survivors to manage the anxiety, depressive symptoms, and insomnia that can be present following TBI. CBT is used to help individuals regulate negative affect, consider alternative goals, and modify self-concept following brain injury. Initial clinical trials show that CBT delivered soon after mild TBI is well tolerated and may facilitate recovery in individuals at risk for chronic postconcussive symptoms. In these cases, CBT can address recovery expectations and perceived consequences of TBI. Behavioral techniques such as relaxation, behavioral activation, and treatment of insomnia are frequently first-line approaches for anxiety and depression after TBI because they are relatively straightforward and accessible. Behavioral pain management approaches are often integrated as well, given the high co-occurrence of poly-trauma injuries (i.e., injury to more than one organ system, one of which includes the brain). When substance use problems are present, concurrent treatment for substance use is typically the treatment of choice.

The emotional context in which the TBI occurred can be essential in understanding the clinical presentation of brain injury survivors and in determining when CBT is used and how it is integrated into other treatments. CBT is frequently used to target TBI-specific cognitions and psychiatric symptoms. Initial evidence suggests that therapies which were designed to target post-traumatic stress symptoms, which can be frequently present, can also be of benefit. Whether treatments should first address acute stress, if present, or other psychiatric symptoms (including substance use), if present, in samples of brain injury survivors is under discussion.

Efficacy of CBT after TBI can very much depend on both the person's level of cognitive functioning and the ways in which the CBT is adapted to increase its accessibility for individuals with cognitive limitations. TBI-related cognitive impairments in domains such as memory, verbal communication, attention, abstract thinking, and self-awareness can impose a significant potential barrier to the effective delivery of CBT, although this tends to be more the case following severe TBI. Therapists may need to assess the extent to which people with moderate to severe TBI are able to comprehend the idea of an unhelpful thought or remember to do homework exercises, and it is therefore important to consider how therapy can be effectively adapted for each person with TBI, particularly in light of the pattern and severity of cognitive difficulties. Speech and language inefficiencies should be understood prior to embarking upon a course of CBT.

Despite potential barriers, there is a growing body of evidence indicating that people with TBI can benefit from CBT. There are several ways in which CBT can be adapted for individuals with TBI. Procedural learning, role-playing, repetition, and structure can increase the likelihood that CBT will be effective. Use of prerecorded relaxation sessions may be helpful for those with memory problems. Brain injury survivors may need support in generating ideas for pleasant activities if previous life activities are no longer possible due to cognitive and other changes; expect to devote more time to this and to counter negative thoughts, as a reduced ability to participate in previously defined meaningful activities is common. The use of a "therapy partner," such as a family member, to help with homework or to challenge negative thoughts has been incorporated. In vivo work (in the case of prolonged exposure therapy for PTSD) has been used in individuals with significant cognitive deficits, and individuals with difficulty verbalizing what they are seeing can be encour-

aged to bring in tangible reminders of their traumas such as photos or mementos to stimulate discussion.

Exploration of beliefs about the TBI itself (i.e., the cause and prognosis of TBI, symptoms, and functional difficulties) can be very helpful in the later phase of therapy, as these can often be sources of distress. A book entitled *Psychotherapy After Brain Injury*, by Pamela Klonoff (Guilford, 2010), provides therapists with guidance for helping patients with beliefs about self, identity, capabilities, and acceptance after brain injury.

Behavior therapy is also an effective intervention in cases where there is greater functional impairment or severity of injury. Behavior therapy has been effective in helping individuals to relearn skills such as self-care and completion of chores following TBI. Behavioral approaches taught to the family (e.g., use of cues with fading over time; behavioral reinforcement system) may be the preferred approach in working with individuals with severe TBI.

For individuals with moderate to severe TBI, CBT or behavioral management approaches are frequently delivered within the context of an overarching multidisciplinary rehabilitation treatment program, simultaneously with other treatments. The emphasis on education and skill-building is broadly consistent with the goal-oriented approach of rehabilitation.

### ***What Treatment Approaches and Strategies Help With Memory and Attention (Cognitive) Changes After Brain Injury?***

For individuals with milder brain injuries and where indicated, positive expectancy about the natural course of recovery can reduce worry about memory and attention, thereby preventing exacerbation of the cognitive problems caused by stress. In addition, in individuals with milder injuries, reductions in cognitive symptoms can often be most effectively achieved with reductions in psychological distress; thus, psychotherapy is an appropriate recommendation. Further, because it is observed that stress can make it difficult for people to take advantage of brain injury assessment and treatments, psychotherapy can be an important part of a broader treatment plan, in turn improving memory and concentration through stress reduction.

In 2011 the Institute of Medicine (IOM) issued a report that evaluated the evidence and developed treatment guidelines for cognitive rehabilitation, an emerging set of therapies that help individuals increase their ability to process information and to move through daily life by recovering or compensating for impaired cognitive functions. The benefits of using cognitive rehabilitation with individuals with moderate to severe cognitive impairments are more well-documented than for those with mild cognitive difficulties. While support for efficacy of cognitive rehabilitation interventions is limited to date, the ongoing use of cognitive rehabilitation for survivors of TBI while improvements are made in the standardization, design, and conduct of studies is recommended. The IOM report calls for more research on cognitive rehabilitation. The report is available at: <http://www.iom.edu/Reports/2011/Cognitive-Rehabilitation-Therapy-for-Traumatic-Brain-Injury-Evaluating-the-Evidence/Report-Brief.aspx?page=1>.

Approaches used in cognitive rehabilitation training include compensatory strategies (i.e., use of strategies that “work around” the impaired cognitive abilities) and restorative strategies (i.e., drills and practice in cognitive tasks that directly target impaired cognitive functions). A restorative approach

helps the patient reestablish a cognitive function, while compensatory approaches help the individual to adapt to an ongoing impairment. In cognitive rehabilitation that focuses on teaching of external compensatory strategies, consistent use of an external calendar system with integration of to-do lists is taught. Family members are frequently incorporated and can provide prompts which are faded over time. For brain injury survivors, it can be frustrating to have to relearn skills mastered before injury, and skill-building that emphasizes distress tolerance and readiness to learn (e.g., relaxation training) can augment treatment.

## **Helping the Survivor of Brain Injury and His/Her Supporters Cope With Changes**

### ***What Thoughts, Beliefs, Fears, and Emotional Responses Can People Have After Brain Injury in Coping With Changes?***

Individuals who have experienced mild TBI can be fearful that perceived consequences of mild TBI will remain with them for life. It is important for affected individuals to evaluate the evidence for and against this with a trained professional. It is far more common for individuals with one or few concussions to experience complete recovery within several days to 1 year. It is also very common for individuals to attribute emotional changes to brain injury when these may represent exacerbation of preexisting symptoms and/or stressors. This is known as the "good old days" bias. On the other hand, service members and athletes may not note new changes, expecting to return to their roles.

People with moderate to severe brain injury and for whom long-term residual effects are expected may be grieving perceived lost dreams. There can be a fear of loss of control or loss of independence, which may lead survivors to decline help of others who are trying to put supports in place. Hopelessness can occur. If individuals realize that these themes are common following brain injury, they may be less likely to have catastrophic reactions in response to changes in independence and skills.

It also may be overwhelming to cope with the responses of others and the shift in identity that may occur. Loss of intimacy can occur with partners. People can feel as though they have let their family or partner down, and use negative thinking traps such as "labeling" (i.e., the person contradicts reality by telling him or herself that s/he is now "lazy" or "unintelligent" after the injury) or "all-or-nothing thinking" (i.e., the person believes that if s/he can't do everything as was done before the injury then the outcome will be terrible, or believes that s/he won't return to work or school unless s/he can do as well as before the injury). Unfair comparisons to other individuals with brain injuries may be made. It is helpful for people with brain injuries to remember that brain injuries are like fingerprints and no two are the same; the only fair comparison is between "you" and "you."

### ***What Are Some Helpful Thoughts and Coping Strategies That Can Keep the Individual With Brain Injury Moving Forward in His or Her Recovery?***

It is important for survivors to focus on what has been accomplished since the injury ("look forward, not backward"). Coping can also focus on improved sleep hygiene, self-care, and identification of pleasant activities. It can be helpful for the individual to work with a therapist to challenge "should" statements such as "I am supposed to be employed right now" or "I ought to remember everything." Addressing the relationship between self-worth and one's ability to work, as well as challenging unhelpful thoughts such as "I should not need help" or "I am a failure if I can't be self-sufficient," can be helpful. Alternative balanced statements include, "I would prefer to work, but I can have other sources of meaning or be productive in other ways" or "People with medical conditions sometimes need assistance." Reevaluating one's value based on the type of person one is and other types of participation in life can be helpful. "Big-picture thinking" can be helpful (e.g., "I am not good at keeping track of details now because of the brain injury. Instead, I will help people focus on the big picture/what's really important in life and on relationships").

Psychotherapy after brain injury generally focuses on realistically achievable acceptance. A goal to work toward includes being able to hold two ideas in mind at the same time, such as "I don't like the impact of this brain injury" and "It isn't going to stop me and I can find a way of living in peace." Individuals are encouraged to avoid contrasting current problems with imagined successes should alternative choices have been made pre-injury; frequent pre-injury comparisons promote depression. People can burden themselves with unrealistic comparisons of what their potential would have been, or make overly optimistic pre-injury comparisons (known as the "good old days" bias), leading to depression. It is impossible to know what could have been had life played out differently. Similarly, fortune-telling (anticipating that one's recovery will decline or that quality of life will always be poor) is common; however, it is impossible to know the future that awaits us. Helping individuals to set realistic goals in their recovery and to engage in perspective-taking regarding short-term versus long-term consequences of decisions can be helpful. Learning to tackle all-or-nothing thinking traps, such as "I am only interested in attaining what I did before the brain injury, and I won't settle for less" or "I am going immediately back to work," can be of benefit. Goal-attainment scheduling has been used to help individuals get out of the thinking trap of accepting only the best or the worst outcome for their lives. Instead, individuals learn to identify sub-goals that help them advance toward the top goal that is most realistic.

### ***What Are Some of the Challenges That Family or Other Support System Members Face After Brain Injury?***

Members of the survivor's support system (termed "supporters") play a critical and often underappreciated role in recovery after brain injury. Brain injury involves not only the injured individual but also those close to that person who may also be going through a grief and acceptance or acknowledgment process. Coping with brain injury has been posited to be especially difficult because for many it is an "ambiguous" loss; that is, the survivor remains physically present and may even look unchanged, but is cognitively and/or psychologically changed.

Supporters sometimes cope with loss and financial challenges by falling into a "parental" or nurturer role (sometimes reluctantly) and/or withdrawing into work. Supporters try to balance the need to provide financially with overwork. Supporters can feel guilty for taking care of their own needs rather than those of the injured person. Supporters face changing roles and the need to work toward adjusting expectations and learning new skills while maintaining balance. Learning new ways of distributing responsibilities and pacing oneself are beneficial. Asking oneself what one wants to do, what one is or feels obligated to do, and what one can handle doing safely are important questions. Supporters frequently need to take more time for themselves to avoid compassion fatigue. Supporters can benefit from attendance at a caregiver support group, keeping a regular schedule, being assertive about getting the support needed, and educating themselves about available resources. Supporters may also have irrational beliefs about not having protected the person with TBI from the injury. Supporters sometimes begin to engage in anticipatory grief for losses that may not occur, assuming that goals are now out of reach. Supporters can become the unwitting target of frustration in the recovery process, because they are sometimes tasked with setting unwanted safety limits or enforcing treatment compliance. Individuals who do not appear to have a legal or traditional/permanent relationship to the individual with TBI might feel that their grief is invalidated by others, and will need to weigh whether direct communication of needs would be of benefit.

### ***What Communication Skills Can Friends, Family, and Providers Use With Individuals After Brain Injury?***

The following strategies are especially helpful in cases where the TBI has had a significant impact on the individual's daily functioning. For others in the survivor's life, there can be a natural inclination to assume a parental role, but people with brain injury may instead expect to be treated in the same manner as they were before the injury. Supporters can rely on professionals to explain their rationale to the survivor so that everyone knows where any restrictions in activities came from. This conversation can be recorded or written with the therapist's and survivor's permission. Written guidelines can also provide cueing in the case of memory problems.

For all involved, consider talking in a distraction-free and non-brightly-lit place. A one-on-one format may work better than "family meeting" format for communication. Speak slowly, as though you are throwing a bunch of commas (like bullet points) into your sentences, since speed of thinking may have been affected by the brain injury. Avoid multi-part questions. Pause to check for understanding (survivor can summarize in his/her own key words). Use "key words" that summarize the message. Remind the person that he or she can write down information you are providing in their calendar/notebook during the conversation. The survivor can learn that they will attend where their eyes are orienting and can use this as a cue to stay "on track" and maintain eye contact as time post-injury progresses. Remember that the person has brain-based difficulties with memory and attention and it is most likely that they are not intentionally tuning you out. In terms of helping the survivor to compensate for memory and attention problems, it may be pre-arranged that the support person will cue the survivor to apply specific skills in specific situations. It is often the case that the survivor simply requires the

cue rather than needing the skill to be retaught, and that knowing when to apply the skill (skill generalization) is the challenge.

For survivors who are forgetful, cues can be introduced over time so that the individual with brain injury performs successively more challenging tasks with supervision ("cue, don't do"). Assist the person with breaking complex tasks into a series of simpler tasks. While walking with the person, point out landmarks: these may later serve as reminders of paths to places.

If you were/are significantly involved with the person with brain injury, rehabilitation providers want to gather information from you and to involve you in care. Communicate with providers to the extent possible. Family members are sometimes cautioned to avoid making any major decisions until they have sufficient information from specialists to be able to understand the survivor's long-term prognosis. Consider the impact of communications on the recovery and coping of the person with brain injury. Some families have found it helpful to discuss concerns individually with providers both separately and together from the person with TBI. Consider whether all who want to be involved in the life of the person with brain injury but who disagree can come together for a common goal.

### ***What Communication Skills Can the Individual With Brain Injury Use to Improve Relationships With Others?***

The brain injury survivor often needs to slow down speech to get words out, to take a step back before discussing personal things, and to manage discussion of one's injury while looking for cues to continue or limit (eye contact). Active listening skills can be learned or relearned, with a focus on nonverbal cues (e.g., maintaining a friendly expression, remaining at an arm's length away).

### ***How Can I Find Someone to Help Assess and Treat Brain Injury?***

#### ***How Can I Locate More Support for an Individual After Brain Injury?***

In some cultures there is a belief that family members and the affected individual ought to be able to handle brain injury on their own. However, this belief can lead to not receiving available support or treatment to achieve maximal outcomes. It is important for those who require help to recognize that this is a time to pursue support without feeling guilty or inadequate. Survivors and families can be reminded that everyone has something they can work on, and very few people have innate specialized knowledge on how to cope with brain injury.

The Brain Injury Association of America (<http://www.biausa.org>) has state chapters that can provide local referral resources for treatment facilities, respite care, transportation, care coordination, support groups, educational materials, and providers who can help. Also, frequently the regional neuropsychological society has an online roster of neuropsychologists who specialize in assessment and treatment.

For military personnel and veterans, the Defense and Veterans Brain Injury Center (DVBIC; see <http://www.dvbic.org>) and the Veterans Affairs (VA) Polytrauma System of Care (<http://www.polytrauma.va.gov>) can connect people with appropriate assessment and treatment. Nowadays the VA is making it easier to access treatment. Both the Department of Defense and

Department of Veterans Affairs use DVBIC as their clearinghouse for patient and family educational materials about TBI. DVBIC can help people connect with case management, which can help individuals get resources they need for day to day living. Caregivers play a critical role in the recovery of individuals with moderate to severe TBI, and the VA supports a family caregiver program that applies to caregivers of individuals with TBI (<http://www.caregiver.va.gov>). This program can provide a stipend, training for caregivers, support via telephone or in-person meetings, in-home skilled nursing, respite care, and a variety of other services for those determined eligible. A fact sheet is available with tips on caring for a Veteran with TBI (<http://www.caregiver.va.gov/pdfs/FamilyCaregiversGuideToTBI.pdf>).

Frequently used self-help bibliotherapy resources for family members include Brainline ([http://www.brainline.org/landing\\_pages/categories/caregiving.html](http://www.brainline.org/landing_pages/categories/caregiving.html)) and the Mayo Clinic guide on understanding brain injury (<http://www.mayo.edu/pmts/mc1200-mc1299/mc1298-01.pdf>). When reading, it is important to remember that some materials are more appropriate for recovery after severe brain injury and can promote catastrophizing about outcomes. Materials should be tailored toward severity of injury.

For those who are affected by brain injury, please remember that you are not alone and that there are so many resources and strategies to understand and compensate for brain injury.

***For more information or to find a therapist:***

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