

Traumatic Brain Injury for VR Counselors

Margaret A. Struchen, Ph.D. and Laura M. Ritter, Ph.D., M.P.H.

Training Session 1c: Understanding Recovery Courses and Outcomes after TBI

- [What is the typical recovery course after a mild or moderate/severe TBI?](#)
- [What are the effects of personal and environmental factors, such as drug and alcohol use and pre-injury functioning, on my client's recovery?](#)
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What is the typical recovery course for someone who has sustained a mild or moderate/severe TBI?

As discussed in Training Sessions [1a](#) and [1b](#), a TBI can be classified as severe, moderate, or mild based upon an individual's GCS score, duration of loss of consciousness, and/or duration of post-traumatic amnesia. Injury severity as determined by the GCS is predictive of an individual's functioning in the hours and days immediately after injury, as well as an individual's functioning in the months to years following the injury. While injury severity grading based on GCS scores is not perfect, it does allow a common way of describing injury severity. For patients initially classified within each of the GCS injury severity categories, a very wide range of outcomes is possible and patients initially in different GCS categories may have similar outcomes.

Mild TBI

The majority of individuals with mild TBI experience symptoms in the initial weeks and months after injury. The term "*postconcussion syndrome*" is often used to describe the symptoms experienced following mild TBI. Most persons will feel close to "normal" within the first 3 months after a single, uncomplicated mild TBI. It is important to note that different people have different rates of recovery after injury. Recovery can be slower in persons who have had one or more brain injuries in the past. Recovery can also be slower in persons who are older. For the purposes of this website, the acute phase of recovery after mild TBI refers to the first 3 months following injury.

Symptoms are usually worse acutely. However, sometimes persons may not notice problems until they attempt to resume their normal daily activities (like returning to work or school). Symptoms will tend to get better over time for most people. Improvements are thought to be facilitated if clients have sufficient rest and take a gradual approach to resumption of pre-injury activities.

A subset of individuals with mild TBI continue to experience persisting physical, cognitive, or emotional symptoms following their injuries. At this time, it is not well understood why some individuals continue to have difficulties over time after mild TBI. The likely contributions toward outcome after brain injury are multifactorial in nature, with variables related to the force and type of injury, personal characteristics of the person (and brain) that is injured, severity of the injury, the symptom presentation, reactions to such symptoms, and available resources to address issues after TBI.



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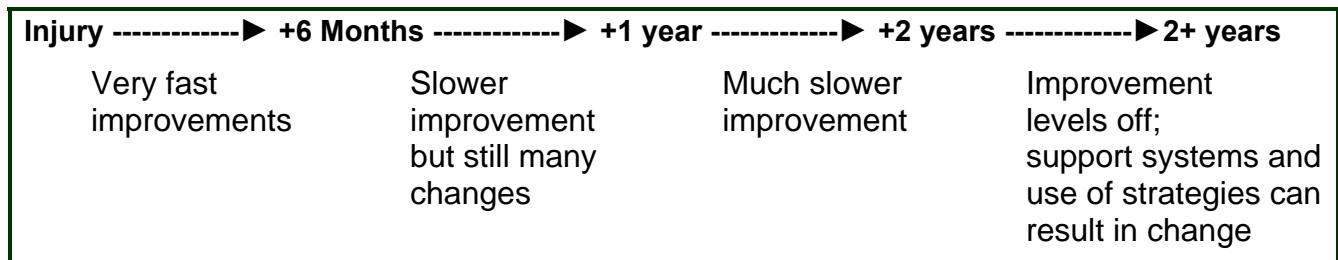
Severe TBI

For patients with severe TBI, outcomes can be very poor. About 20% to 40% of these patients die as a result of their injuries. A small percent (less than 5%) may remain in a non-responsive condition called the vegetative state. These patients show eye opening at times, but follow no instructions and give no speech. They show no evidence of having any conscious awareness of themselves or the world around them. Patients who are in a vegetative state for a few weeks or months may recover to showing some degree of consciousness but those in a vegetative state for a year are unlikely to recover though in rare cases surprising recovery can occur even after years in a non-responsive state. Those who do recover to some degree after a significant period of time in a vegetative state are likely to have very severe physical and mental impairment.

Another small percentage of patients with severe TBI may remain in a minimally conscious state for weeks or months. Patients in the minimally conscious state differ from those in the vegetative state in that they show some, inconsistent evidence of awareness. This may be shown by occasional following of instructions, emotional responses to family members, or inconsistent attempts to communicate. The prognosis for patients who are minimally conscious for weeks or months is more favorable than for those who are vegetative, but they are still likely to be left with severe long-term physical and mental impairments.

For those individuals with more severe injuries who recover to a consistent responsiveness, the typical recovery course is longer in duration. In general, persons with more severe injuries experience the most rapid improvements in the first six months after injury. Persons show continued improvements between six months and one year after injury. However, these improvements are usually not as dramatic or rapid as those seen in the first six months after injury. The time period between one and two years after injury is different for different people; some persons continue to show slow and gradual improvements while others show very little improvement. Persons with more severe injuries generally show little change two years or more after injury. For the purposes of this manual, the acute phase of recovery after moderate to severe TBI refers to the first 6 to 12 months following injury.

General Recovery Course for Persons with Moderate to Severe TBI



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For those with moderate to severe TBI, residual cognitive and behavioral deficits are common. Initial injury-related symptoms are more likely to be a factor long-term after injury. With increasing severity of injury and with greater degrees of initial impairments related to such injuries, the probability that symptoms will be long-standing increases. For example, duration of coma and duration of confusion are associated with the degree of impairment after injury. Longer durations of coma and longer durations of post-traumatic confusion are associated with more severe impairments after injury.

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What are the effects of personal and environmental factors, such as drug and alcohol use and pre-injury functioning, on my client's recovery?

As previously noted, every individual is different and every recovery after TBI is different as well. It is not well understood why some individuals recover more quickly or with better outcomes than others, but it is likely due to a number of factors, such as: the extent of the injury to the brain, the condition of the brain that was injured, previous cognitive functioning, ability to utilize and benefit from compensatory strategies, material support (e.g., financial resources, access to transportation, etc.) and social supports (e.g., family and friends), to name a few.

There is a strong relationship between substance abuse and TBI. Studies have found a pre-injury history of alcohol abuse in 37 to 66% of persons with TBI¹⁻⁴; between 36 and 51% of persons with TBI are intoxicated at the time of injury.⁵⁻⁸ Continuing use of alcohol and drugs after TBI can interfere with recovery. The brain is more vulnerable to the effects of alcohol and drugs after injury, so even a relatively small amount can have a pronounced and negative effect on judgment, thinking skills, and balance. The interaction of alcohol or other drugs with prescription medications can be especially dangerous.

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Some of the information in this guide was adapted, with permission of the authors, from the following sources:

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