

Traumatic Brain Injury (TBI) and Psychology

Traumatic Brain Injury (TBI) is defined as a disruption in normal brain function caused by an external force, such as a blow, jolt, or penetrating injury to the head. Some of the most common causes of TBIs include falls, car accidents, sports injuries or assault. This external impact can lead to structural damage to the skull and/or brain, with possible injuries including contusions (bruising) on the brain, haemorrhages (bleeding) within the brain, diffuse axonal injury (tearing of nerve fibres deep within the brain), and skull fractures.

TBIs are classified by severity into three main categories: mild (i.e., concussions), moderate and severe. Each severity level corresponds to different expected outcomes in terms of physical, cognitive, and emotional recovery, as detailed below:

Mild TBI (mTBI or Concussion)

- **Symptoms:** Mild TBI is typically defined by a loss of consciousness lasting 30 minutes or less, or no loss of consciousness at all, and normal brain imaging on CT or MRI scans. Immediate physical symptoms may include headaches, dizziness, nausea, fatigue, blurred vision, sensitivity to light or noise, and sleep disturbances. Emotional disturbances like irritability or mood swings can also occur. There can be temporary impairments to various cognitive functions, including memory, attention, concentration, and processing speed.
- **Expected Recovery:** The good news is that most individuals will recover fully from the majority of mild TBI symptoms within a few days to weeks, and the **majority of cognitive symptoms resolve within 1-3 months**. Some people may experience longer-term issues, known as post-concussion syndrome (PCS). The risk of developing PCS increases if there have been multiple concussions or a “complicated” mild TBI (i.e., concussion with some mild contusions or other abnormalities on brain scans). One challenge in diagnosing PCS is that its symptoms can also occur in healthy individuals or people with other conditions. Additionally, several factors can worsen PCS symptoms, including mental health issues, learning or attention difficulties, sleep problems, and pain. Previous injuries may also complicate the situation by either worsening or mimicking symptoms.

Moderate TBI

- **Symptoms:** Moderate TBIs involve a loss of consciousness lasting more than 30 minutes but less than 24 hours, and/or post-traumatic amnesia lasting between 24 hours and 7 days. Brain imaging may show structural damage to varying degrees, with contusions and haemorrhages being quite common. There may be more noticeable and longer-lasting physical symptoms, such as persistent headaches, motor impairments, dizziness, and issues with sensory perception (e.g., blurred vision or hearing loss). Significant emotional and behavioural changes are also common. The cognitive effects of moderate TBI can include memory loss, difficulty with problem-solving, impaired judgement, and challenges with language or communication.
- **Expected Recovery:** Recovery from moderate TBIs is slower than with mild TBIs, often taking several months. While some physical symptoms may improve quite quickly, residual effects (e.g., headaches, dizziness) can persist for 6-12 months or longer. **Optimum cognitive recovery is generally expected to take 6-12 months, but some deficits can sometimes be permanent.**

Severe TBI

- **Symptoms:** Severe TBIs involve loss of consciousness for more than 24 hours or post-traumatic amnesia lasting more than 7 days. Brain imaging typically shows significant structural damage, such as diffuse axonal injury, contusions, haemorrhages, or skull fractures. Physical symptoms can include severe motor impairments, sensory loss, and long-term issues with basic functions like movement, coordination, or speech. This is also often complicated by further musculoskeletal injuries that may be sustained at the same time as the TBI itself (i.e., during a car accident). Significant emotional and behavioural changes are also common. Severe TBIs can lead to profound impairments in various cognitive functions, including memory, attention, executive function, communication, and reasoning.
- **Expected Recovery:** Physical recovery from a severe TBI may extend over months to years. Even with rehabilitation, some motor and sensory deficits may persist for life. ***Optimum cognitive recovery is generally expected to take up to 24 months, with some individuals experiencing long-term or permanent impairments beyond this.***

In summary, while recovery for mild TBIs is usually full and rapid, moderate and severe TBIs often result in long-term or permanent deficits, requiring ongoing therapy and support.

It is important to note that all individuals are unique, and the length and completeness of physical, emotional and cognitive recovery following any severity of TBI can be impacted by a range of personal factors. These include (but are not limited to):

- **Age and health:** with younger and healthier individuals tending to recover more quickly and fully.
- **Type and location of injury:** with more localised injuries generally recovering more quickly and fully.
- **Access to rehabilitation:** with comprehensive multidisciplinary rehabilitation playing a crucial role in optimising recovery, especially for moderate and severe TBIs.

The Role of Neuropsychology and Psychology

A clinical neuropsychologist can help individuals who have experienced any severity of TBI by assessing their cognitive functioning and identifying any deficits that may be impacting their daily life. Neuropsychological assessments can often be helpful to assist medical clinicians and rehabilitative teams to better understand the person's cognitive functioning to ensure rehabilitative interventions are as effective as possible, as well as assist insurance bodies to make decisions regarding suitability to return to a range of activities (e.g., work and driving) following a TBI. They can also provide recommendations for specific cognitive rehabilitation strategies personalised to the person's needs, including compensatory cognitive exercises and behavioural interventions.

Treating psychologists can also help individuals who have experienced a TBI by addressing any emotional or psychological difficulties that may arise as a result of the injury. TBI survivors often experience a range of mental health challenges, including depression, anxiety, and adjustment difficulties, in the months and years following injury. These difficulties can impact their quality of life in various ways, including by causing disruption to cognitive functioning in daily life. A psychologist can provide therapy and counselling to help individuals cope with these challenges and improve their overall well-being.



Hardwick Psychology Services has Neuropsychologists and Clinical Psychologists who are experienced in providing support following TBI. Individuals can self-refer for intervention or they could be referred through their insurance provider or can be referred by their treating team. Please feel free to contact our admin team on (07) 3515 0172 for further information.

Author



Caitlin Knight
ENDORSED PSYCHOLOGIST
Clinical Neuropsychologist

References:

- American Psychiatric Association. (2022). *Diagnostic and statistical manual of mental disorders (5th ed., text rev.)*. American Psychiatric Publishing.
- Brain Injury Australia website: <https://www.braininjuryaustralia.org.au/>
- Ponsford, J., Draper, K., & Schönberger, M. (2008). Functional outcome 10 years after traumatic brain injury: its relationship with demographic, injury severity, and cognitive and emotional status. *Journal of the International Neuropsychological Society : JINS*, 14(2), 233–242. <https://doi.org/10.1017/S1355617708080272>
- Arciniegas, D. B., Held, K., & Wagner, P. (2002). Cognitive Impairment Following Traumatic Brain Injury. *Current treatment options in neurology*, 4(1), 43–57. <https://doi.org/10.1007/s11940-002-0004-6>
- Patricios, J. et al. (2023). Consensus statement on concussion in sport: The 6th International Conference on Concussion in Sport–Amsterdam, October 2022. *British Journal of Sports Medicine*, 57(11), 695–711. <https://doi.org/10.1136/bjsports-2023-106898>

