Mild Traumatic Brain Injury and Chronic Cognitive Impairment

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Mild traumatic brain injury (mTBI), commonly known as concussion, is the most common type of traumatic brain injury. Along with impaired cognitive function, mTBI causes an array of symptoms, including headaches, fatigue, depression, anxiety, and irritability, referred to as post-concussion syndrome (PCS). The time it takes for symptoms to resolve in the majority of individuals is thought to be approximately three months; however, some individuals continue to experience symptoms beyond that time period. Those with persistent symptoms are said to experience persistent post-concussion syndrome.

A widely cited figure suggests that only 15 percent of individuals experiencing a first-time concussion will go on to experience long-term cognitive impairment. A recently published research article suggests that this number is likely a gross underestimation.

To address long-term cognitive outcomes in singly-concussed individuals, the researchers performed a scoping review of the literature reporting such longer-term cognitive outcomes. The goal was to identify the impact of a single concussion on cognitive function in the chronic stage – more than three months – post-injury. Data relating to the presence/absence of cognitive impairment were extracted from 45 studies. The researchers noted the inconsistency between clear evidence of longer term pathophysiological changes resulting from mTBI and the number of individuals reporting longer term mTBI-related symptoms, particularly impaired cognitive function.

The researchers concluded that, in contrast to the prevailing view that most symptoms of concussion are resolved within three months post-injury, approximately 50 percent of individuals with a single mTBI demonstrate long-term cognitive impairment. The evidence indicates that a single concussion has long-term impact on cognitive function, supporting the theory that “mild” traumatic brain injury is a misnomer. Even a single concussion can disrupt the neurological mechanisms underlying cognition. These findings highlight the need to carefully examine the long-term implications of a single mTBI.

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