

## Prevalence of Mild Traumatic Brain Injury

Mild traumatic brain injury (mTBI) is the most common type of brain injury that occurs with concussion. It is defined as the result of the forceful motion of the head or impact causing a brief change in mental status (i.e. confusion, disorientation or loss of memory) or loss of consciousness for less than 30 minutes. It is typically characterized by symptoms that include headache, depression, fatigue, anxiety, irritability and diminished cognitive function. These are typically referred to as post-concussion syndrome (PCS). It should be emphasized that the early belief that concussion required both head impact and loss of consciousness (LOC) is no longer the prevailing medical opinion. Concussion can occur absent head impact or LOC and is far more common than previously believed. Another false belief about mTBI is that the injury is self-limiting and usually resolves within three months.

A recent study reviewed the literature for short-term and long-term cognitive function of individuals with a one-time mTBI. The authors were particularly focusing on the cognitive function in the chronic stage of the injury which they define as greater than 3 months post injury. The study was titled [Mild Traumatic Brain Injury \(mTBI\) and chronic cognitive impairment: A scoping review](#). I have a full copy of the study available for those interested. For clarification, cognitive function is assessed in several domains including executive function, learning and memory, attention and processing speed, and others. The authors searched over 6,000 studies and after a 4 phase refining of the literature, included only 45 studies.

The authors dichotomized the results into cognitively impaired and cognitively unimpaired (CI/CU). A subject was considered to be CI even if only one outcome measure was abnormal. The authors stated ***“Since our study is primarily concerned with demonstrating any form of cognitive impairment, it is not important if their impairment only manifests on one outcome measure; an individual who is impaired on one function still exhibits cognitive impairment”***.

So what were the findings of the study? Contrary to previously published papers that suggest the incidence of chronic PCS is approximately 15% they found that ***“a large proportion of individuals with a single mTBI will continue to demonstrate measurable impairment in various cognitive domains including executive function, learning/memory, attention, processing speed, and language function long after the initial injury”*** Specifically as it

relates to the 15%, they comment that “*our findings suggest that this number is likely a gross underestimation at least in relation to cognitive impairment*”. Finally, they state that “*Whereas mTBI used to be thought of as a relatively inconsequential “mild” injury, it is now more closely associated with the latter three letters of its acronym—“traumatic brain injury”*”.

This study confirms what those of us in the trenches see in practice quite regularly. It’s easy for academic clinicians or defense minded examiners to identify these mTBI patients as magnifiers, malingerers or worse. In fact, as practicing clinicians specializing in traumatic injuries we take these patients subjective complaints more seriously. Doctors who see patients frequently, such as chiropractors, are in a better position to identify personality and cognitive changes suggestive of underlying mTBI and PCS. These patients, when seen in the context of a single visit, may not be taken as seriously as they should.

Let me share an anecdote that changed my perception forever. Early in my professional career, after returning from a brain injury seminar, I was examining a woman that had been in an auto collision. In the examination room were her husband and two children. The children were being children and being disruptive. The mother’s reaction to the children was grossly disproportionate to their child play. After she screamed and threatened them repeatedly, I asked the husband if this was her usual behavior. Both he and the woman broke down into tears. They said that prior to the accident she had always been a doting mother, caring and compassionate. Only after the trauma had she become intolerant. Further questioning revealed that her marital relationship had deteriorated, she had short term memory loss, she was irritable and had difficulty sleeping. She was anxious and felt depressed. These were all new symptoms that, had they not been explored, would likely have been overlooked.

I recognized the issues and called in a favor from a neuropsychologist friend who agreed to see her quickly for an evaluation. That weekend, while driving through Hartford and listening to the local radio, I heard a report about a murder suicide that took place in the tobacco fields near Windsor Locks. The reporter said the wife took the husbands life and then her own. They then reported their names and to my shock, they were my patient and her husband. You can only imagine how I felt and the lasting impression it left on me and those in my office. I try to share that story and other much less tragic ones with my doctors and staff so that everyone is on the lookout for behaviors or statements that may be suggestive of some undiagnosed issue.



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**A MEDICAL-LEGAL NEWSLETTER FOR PERSONAL INJURY ATTORNEYS BY DR. STEVEN W. SHAW**

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Identifying the possibility of an mTBI is one thing but making the diagnosis, obtaining the proper workup, and finding treating professionals, are not as easy as one would hope. Generally speaking, neurologists and physiatrists (those who work regularly with TBI) are not overly concerned about mTBI. That's not unexpected considering that they are dealing with the life threatening consequences of a more serious and full blown TBI. Then there are the diagnostic challenges. Finding a neuropsychologist that is willing to accept a patient involved in a medical legal matter is not easy. When one is found, it is not unusual to see fees in the high four to low five figure range, depending on the needed testing, which makes access for most patients very limited. Then there are the imaging studies that may be helpful in detecting mTBI such as Diffusion Tensor Imaging and SPECT. Unfortunately, these also are not as routinely available as the more widely used neuroimaging modalities and are quite costly. Finally, the patient will likely need counseling and cognitive rehabilitation for months or years.

In summary, it all starts with the understanding that these mTBI patients are more common than commonly accepted and that a treating physician needs to document the suspicion in a report so it can be considered and worked up within the available parameters. I invite feedback from readers of this newsletter and ask that they share the names of Connecticut professionals and imaging centers that have shown a receptiveness to evaluating these patients and helping to properly manage their very serious conditions.