

# Post-concussion syndrome (PCS) | the debate



Post-concussion syndrome (PCS) refers to those symptoms that linger following a concussion or mild traumatic brain injury (MTBI). Conflicting findings regarding symptom duration, an absence of objective neurologic findings, inconsistencies in presentation, poorly understood etiology and significant methodological problems in the literature make post-concussive syndrome a controversial topic. It was first described in 1822 by Boyer and understanding varies from a pure 'neurosis' or 'malingering' to an organic disorder.

Although no universally accepted definition exists, most of the literature defines the syndrome as the development of at least three of the following symptoms:

- headache
- dizziness
- fatigue
- irritability
- impaired memory and concentration
- insomnia and
- lowered tolerance for noise and light

Post-concussion symptoms can begin to occur within days, although in most cases often resolve within one month. However, in some individuals symptoms can persist from months to years following injury and may even be permanent.

## PCS: a long term condition?

There are a number of theories emerging as to why this may be the case.

One theory is the diathesis-stress paradigm which suggests a predisposition or vulnerability to developing PCS. Vulnerabilities can include pre-existing psychiatric disorders such as depression or personality disorder and/or psychological issues such as poor coping skills and illness perception. The other theory relates to the physical impact and the mechanisms of the injury. As scanning technology becomes increasingly sophisticated, subtle but diffuse microscopic damage to nerve cells and fibers can be identified following MTBI. These pathological changes typically occur after high speed declarative vehicle accidents rather than being struck directly on the head.

## PCS: more likely following severe injury?

The risk of post-concussion syndrome does not appear to be associated with the severity of the initial injury and does not require the individual to have lost consciousness. This has significant impact in a medico-legal aspect. A common perception is that patients who develop PCS from head injury are those who perceive a source of blame for the injury and desire to pursue litigation. However, a single study evaluating this did not demonstrate a correlation between blame and litigation. In fact, post-concussive syndrome symptoms persisted after settlement.

The argument continues as to the basis of the PCS. Most investigators now believe that a variety of pre-morbid, injury-related and post-morbid neuropathological and psychological factors contribute to the continuation of the symptoms in those sustaining MTBI. What is certain is the detrimental impact of these symptoms on an individual's ability to function on a day to day basis and the potential long term impact following MTBI. As such, correct diagnosis, thorough assessment, including neuropsychological assessment, and treatment (medical and psychological) on an outpatient basis should be standard.

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