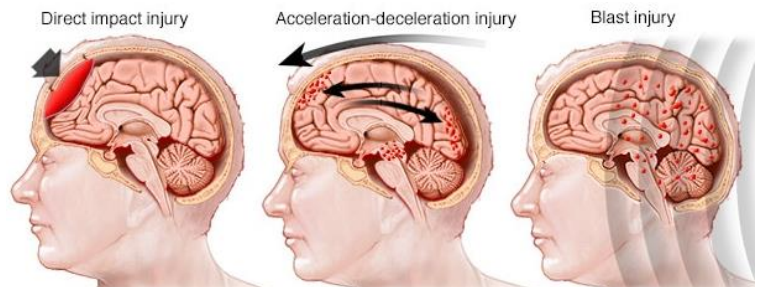


## Post Concussion Syndrome

### Overview

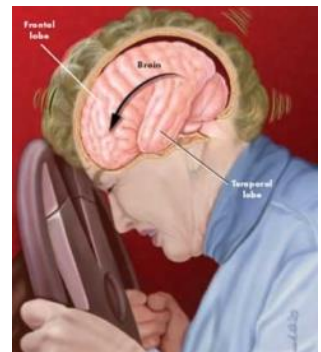
A concussion is a mild form of traumatic brain injury that can result from a jolt, blow or bump to the head. The sudden movement causes the brain to bounce around or twist inside the skull which results in a disturbance of brain function. After suffering a concussion, most patients will begin to get better within a few days to a few weeks at most, however, some people are unfortunate enough to develop symptoms that continue for extended periods of time. These patients can be considered to be suffering from a post concussion syndrome.



### Causes

Sports injuries, falls, acts of violence and motor vehicle accidents are all common causes of concussion.

Post concussion syndrome is not a foregone conclusion following a head injury or generalised concussion, and researchers have not determined why some people who have had a concussion develop post concussion syndrome and others do not. The condition has been the subject of some controversy, as health care professionals try to better understand the pathophysiology of the condition. In particular, some experts believe that post concussion symptoms are caused by structural damage to the brain or disruption of the messaging system within the nerves, caused by the



original impact, whereas others believe that post concussion symptoms are related to psychological factors.

There is some evidence that persistent post concussion syndrome is more likely in patients involved with compensation claims and neurosis related to such. It is still unclear why some people develop the condition and others do not, although clinical evidence is mounting that the condition is an organic one. This means that there are physiological changes to the body. These can be evident on neuroimaging, or as neurochemical changes and possible variations on electroencephalogram (EEG), which is a device which measures the electrical activity in the brain.

### Symptoms and Signs

Symptoms and signs are based around the regular symptoms that may be apparent with a concussion although they continue for extended periods of time, including:

Symptoms	Headache	Sensitivity to light
	Dizziness	Fatigue
	Ringing in the ears	Vomiting
	Difficulty concentrating	Insomnia

<b>Signs</b>	Loss of consciousness	Confusion
	Disorientation	Memory loss
	Incoherent speech	Dazed or vacant state

Patients are often concerned as to why they are experiencing post concussion syndrome symptoms. It has been found that only fifteen percent of sufferers of post concussion syndrome will still be experiencing symptoms twelve months after the initial head injury.

## Diagnosis

Accurate diagnosis of post concussion syndrome is difficult because not only are some of the symptoms subjective, they can also be signs of other conditions. Diagnosis is largely based upon clinical presentation with a recent history of head injury and can be backed up by neurological examinations. The following table shows a widely accepted diagnostic criterion.

### Diagnostic Criteria for post concussion syndrome (ICD-10)

- A. History of head trauma with loss of consciousness preceding symptom onset by a maximum of four weeks.
- B. Symptoms in three or more of the following symptom categories:
  - headache, dizziness, malaise, fatigue and noise intolerance;
  - irritability, depression, anxiety, emotional lability;
  - subjective concentration, memory, or intellectual difficulties without neuropsychological evidence of marked impairment;
  - insomnia;
  - reduced alcohol tolerance; and
  - preoccupation with above symptoms and fear of brain damage with hypochondriacal concern and adoption of sick role.

## Risk Factors

The main risk factors associated with post concussion syndrome are:

- age – studies have found that post concussion syndrome is more likely to occur in older people; and
- gender – there is a higher number of women who are diagnosed with the syndrome. However, it has been suggested that this is due to the fact that women are more likely to report injuries.



There is no proven connection between the severity of the injury and the likelihood of developing post concussion symptoms.

## Treatment

Treatment is directed at symptoms as opposed to the overall condition.

As depression is a common feature, antidepressants such as selective serotonin reuptake inhibitors (SSRIs) are often used in these cases. Some form of psychotherapy is usually recommended.

If the patient is a sports professional, care needs to be taken by the medical professionals and sports coaches not to allow the player to return to play or training too soon as there may be a return of symptoms. This can be worsened as athletes often push through the pain barrier and do not rest when they need to.

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