



## Concussions

A concussion is a complex pathophysiological process affecting the brain, induced by biomechanical forces such as a direct or indirect blow. Concussions can be caused by a blow to the face, neck or elsewhere with a transmitted force to the head. Concussions usually result from a rapid short-lived impairment of neurological function, which resolve spontaneously. The majority (80-90%) of concussions resolve in a short (7-10 day) period, although the recovery time frame may be longer in children and adolescents. Although no abnormality is seen on standard structural neuro-imaging studies, a head CT or MRI may be considered if there is prolonged loss of consciousness, an abnormal neurologic exam or ongoing symptoms consistent with an intracranial hemorrhage.

Regardless of the severity of the injury an athlete will not be allowed to return to sports as long as symptoms are present.

The Primary Care Sports Medicine Clinic uses the recommendations from the most recent 2012 4th International Conference on Concussion in Sport held in Zurich, Switzerland. Our clinic also incorporates neuropsychological test batteries such as the SCAT2 or SCAT3 tests to compare baseline or post injury baseline to a recovery period to evaluate if there is any direct improvement of the patient.

For deciding when to return to play, our recommendation and the current standard of care is to follow a supervised, stepwise process. The patient should never return to play while symptomatic. The protocol we use is based on the summary and agreement statement of the 4th International Conference on Concussion. The protocol is as follows:

Level 1: No activity, complete rest initially once asymptomatic the athletes can proceed to level 2. This includes television, computer, texting and studying.

Level 2: Light aerobic exercise such as walking or stationary cycling.

Level 3: Sports specific training without physical contact(i.e. skating in hockey, running in soccer).

Level 4: More complex, non-contact practice.

Level 5: Full contact training after medical clearance.

Level 6: Game play.

If any post concussion symptoms occur the patient should drop back to the previous asymptomatic level and attempt progression of the protocol after a 24 hour symptom free period.