

# CONCUSSION

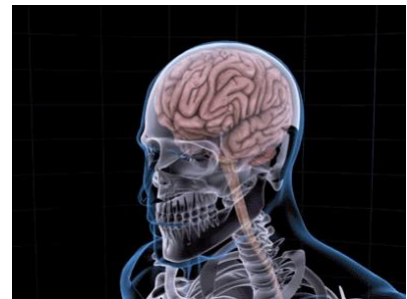
A concussion is a form of mild traumatic brain injury (mTBI) that changes how the brain works & functions. Concussions may occur due to a direct blow to the head or a blow to the body causing movement of the brain within the skull. You do not have to lose consciousness or get “knocked-out” to suffer a concussion. This injury is characterized by a myriad of symptoms, clinical presentations, and recovery trajectories and there is no imaging available (x-ray, CT Scan, MRI) to diagnose a concussion.

**Symptoms** can be broken down in to physical, cognitive, sleep, and emotional symptoms and may include any of the following:

- **Physical:** headache, nausea, dizziness, balance problems, sound sensitivity, light sensitivity
- **Cognitive:** feeling in a fog, feeling slowed down, difficulty remembering, difficulty concentrating, forgetful of recent events, confusion
- **Sleep:** drowsiness, trouble falling asleep, trouble staying asleep, sleeping at odd times, sleeping more or less than “normal”
- **Emotional:** irritability, sadness, more emotional, nervousness, anxiousness

## Recovery following concussion

- 80% of patients have symptom resolution within 3 weeks of sustaining the injury.
- The first 24-36 hours are spent with relative cognitive and physical rest.
- After 24-36 hours of active rest patients can begin with light to moderate activity that does not provoke or increase symptoms.
- The return-to-learn protocols should begin as soon as possible after the injury.
- Return-to-play protocols can begin following resolution of symptoms and a normal clinical exam.



## Prolonged Symptoms:

If symptoms extend beyond 7-10 days, a referral to a sports medicine physician trained in concussion management is recommended. Treatment will depend on symptom type and severity, but may include:

- Behavior modifications
- Therapeutic exercise
  - Vestibular Therapy
  - Vision Therapy
  - Exertional Therapy
  - Cervical Spine Treatment
- Prescription medications

## Incidence rates:

- 1.6-3.8 million concussions per year
- 8.9% of all high school injuries
- 5.8% of collegiate injuries
- 3-8% of high school and collegiate football players
- Females have higher rates of concussion than males

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## Role of Concussion Testing:

A concussion is a complex injury requiring a comprehensive evaluation for diagnosis & management. A proper evaluation should be comprehensive and may include the following:

- Personal & Family history
- Symptoms assessment
- Cognitive testing
  - SCAT
  - ImPACT
- Vestibular & Ocular Assessment
- Balance Assessment

*\*\*Currently, there is no single tool that can diagnose or clear a concussion.*

## Return-to-Learn Progression\*

1. No mental activity
2. Light mental activity: school work from home
3. Partial School Attendance
4. Full School Attendance with Breaks
5. Full School Attendance
6. Full Academic Activities
7. Some school is better than no school. Use return-to-learn strategies accordingly.

## Return-to-Learn Strategies

- Breaks as needed
- No testing/assignments or extra time for testing assignments.
- Peer note-taking.
- Limited computer/tablet work.
- Books on tape

*\*\* It is important to work with school staff to identify essential content, identify essential assignments, and develop a realistic timeline for completion of missed content & assignments.*

## Return-to-Play Protocol:

Gradual, step-wise progression\*

1. Symptom-limited activity
2. Light aerobic exercise
3. Sport-specific exercise
4. Non-contact training drills
5. Full contact practice
6. Return to sport
7. Activity should not increase symptoms

*\*\* Generally, the “Return to Learn” process precedes the “Return to Play” progression. However, a physician may allow monitored exertional activity prior to the complete resolution of symptoms.*