

WHAT IS A CONCUSSION?

A concussion is one form of a mild traumatic brain injury (mTBI) that is a transient or sudden alteration in brain function without structural damage to brain tissue. The rapid movement causes brain tissue to change shape, which can stretch and damage brain cells. This sort of damage can cause chemical and metabolic changes within the brain cells, making it more difficult for cells to function and communicate. Essentially, when the brain is shaken violently enough, brain cells are damaged to the point where they don't work properly. The CDC estimates that approximately 3.8 million concussion occur in the U.S. annually through sports and recreational activities.

The effects of a concussion cannot be seen on any medical tests such as an MRI or CT-scan. This is why identifying brain biomarkers is paramount to properly diagnosing and monitoring concussions. This is why the importance of biomarkers is paramount in this field so that concussions can be properly diagnosed and monitored.

COMMON CONCUSSION SYMPTOMS

Concussion signs and symptoms have been categorized into various clinical categories:

COGNITIVE

- Feeling foggy
- Difficulty concentratingDifficulty remembering
- (amnesia)
- Feeling mentally slowed down/sluggish
- Confused
- Answers questions slowly
- · Easily distracted
- Difficulty learning & retaining new information
- Inability to multitask
- Decreased balance

PHYSICAL

- Headache
- Fatigue or drowsy
- Changes in sleep patterns
- Nausea and/or Vomiting
- Balance problems
- Numbness and/or tingling
- Sensitivity to light and/or noise
- Vision problems (double vision)
- Dizziness
- Dazed or stunned
- Neck pain and soreness
- Tinnitus (ears ringing)

EMOTIONAL

- Irritability
- Sadness
- More emotional or Heightened emotions
- Nervousness
- Anxiety
- Depressed behavior
- Mood changes

MOST IMPORTANTLY: "I DON'T FEEL RIGHT"

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