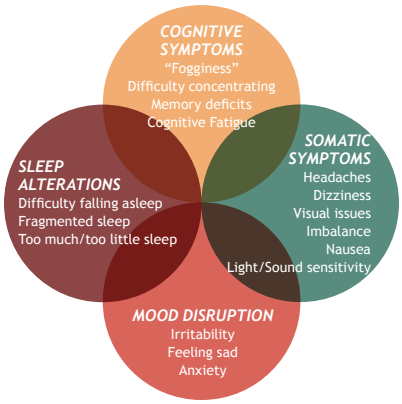
Concussions Awareness and Rehab

Participation in youth sports is associated with a large range of documented physical, emotional, social, educational, and other benefits that can last into adulthood. Student-athletes learn discipline, commitment, work ethic, and teamwork, however like most things in life, participation in sports comes with a risk of injury, including concussion. Just the word concussion strikes fear in the heart of every parent, moms especially! While concussions are a very serious injury, the medical community is working hard to improve our understanding and treatment of concussions.

Concussions are caused by direct or indirect forces including acceleration/deceleration and rotational forces acting on the brain. These forces result in shearing, stretching, and twisting of the brains axons which slows signal transmission. This also the disrupts the normal chemical make up in the brain [1,2]. These changes impact multiple physiological systems, specifically those that control vision, balance, cognition, migraines and mood and can manifest in over 20 different symptoms. Each set of symptoms are unique to each athlete.

Research shows that 80% of sports related concussions recover within 3 weeks. The 20% who continue to have symptoms beyond that normal window of recovery are considered to be experiencing Post Concussion Syndrome (PCS). These athletes benefit from further evaluation and multi-disciplinary treatment. Much research has gone into trying to understand who and why some athletes go on to develop PCS. Recent investigation has shown there to be correlations between the athletes/family past medical history, symptoms at the time of injury and post injury symptoms with the development of PCS. For those with baseline ImPACT testing, a change of 3 more RCI is also correlated with PCS. Athletes with these factors should be closely monitored and may benefit from early intervention. [1,3]



Concussions can be grouped into clinical subtypes based on symptoms. This helps the health care team identify which neurological systems are more likely involved and allows us to more specific with our evaluation and treatment plan [1.3] Athletes can have more than one type of concussion subtype.

Given the unique nature of each concussion, each athlete should have an individualized treatment plan. The idea that a standard duration of "just" rest is sufficient to treat any concussion is no longer the recommended course of treatment [1,3]. Due to the multitude of physiological systems involved with a concussion, a multi - disciplinary treatment team is recommended.

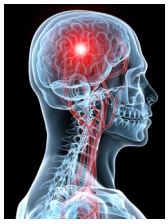
RISK FACTORS

Athlete / family history
ADHD / learning disorders
Younger > Older / Females > Males
Migraines
Vision / Motion sickness
Mood disorders

Symptoms at time of injury:
Dizziness*
Immediate amnesia
**7x more likely to result in PCS*

Sub acute symptoms (~3-10 days):
Migraines
Vision disturbance
Changes in mood
Mental fogginess
Multiple symptoms
Dizziness
Difficulty concentrating

CONCUSSION



SUBTYPES OF CONCUSSION

Vestibular
Dizziness, loss of balance, nausea, difficulty focusing, motion sickness

Ocular
Difficulty reading and focusing, pain behind eyes, blurred vision, difficulty in math and science, motion sickness

Cognitive
Difficulty concentrating, mental fogginess, decreased memory, altered sleep, fatigue

Migraines
Headaches, light sensitivity, nausea

Neck
Joint and muscle pain, headaches

Anxiety / Mood
Change in mood, difficulty managing stress, feeling overwhelmed, difficulty sleeping, depression

TREATMENT

Multi-disciplinary team

Physician

Physical Therapist

Vision therapist

Neuropsychology

Athletic Trainer

Parents, coaches, teachers

Specialists as needed: Occupational & Speech Therapy, Cognitive Therapy, Psychology, Neuro-otology

What is Vision Therapy?

The ability to control the eye (oculomotor function) can be compromised following a concussion. In fact of those with vision changes, 50% have difficulty with convergence or the ability to focus on a near object without double vision. Consider the impact this has on our student-athletes! Fortunately vision therapy is tremendously successful in treating this. Vision therapists are also excellent at addressing a large variety of vision related dysfunctions.

How does Physical Therapy help a concussion?

A PT trained in vestibular therapy has completed advanced training in the evaluation and treatment of dizziness and balance. Physical therapists can also assist recovery by implementing progressive aerobic activities, or "Exertional therapy". These programs are based on the latest research shows that often, anything more than 1-2 days of limited activity may not be beneficial and can actually increase symptoms, especially vestibular. This approach has been found to be very effective in facilitating a safe and quicker recovery and return to play [1,3].

ImPACT®

How does ImPACT testing relate to all of this?

ImPACT is a valid and reliable computerized neurocognitive assessment tool which can be used to establish a baseline for each athlete as well as a post injury assessment tool. Post injury testing helps guide the clinician in determining their course of treatment as well as monitors the recovery progress.

Moscow Mountain Sport & Physical Therapy offers free ImPACT baseline and post injury testing to all local athletes. Starting this fall, we are also offering free Vestibular Ocular Motor Screening (VOMS) for concussed athletes to help provide more specific evaluation and treatment recommendations. For more information please call 208-882-1426.

1. Collins MW, Kontos AP, Reynold E, Murawaski CD, Fu FH. A comprehensive, targeted approach to the clinical care of athletes following sports-related concussions. Knee Surg Sports Traumatol Arthrosec 2013.
2. D'Angelo ML, Tannen B. The Optometric Care of Vision Problems After Concussion: A Clinical Guide. Optometry & Visual Performance. (2013). 3: 298-306.
3. ImPACT Trained Physical Therapist Fast Track Workshop. Anaheim, CA. February 17, 2016.
4. Mucha A, Collins MW, Furman JM, Troutman-Enseki C, DeWolf RM, Marchetti G, Kontos AP. (2014). A Brief Vestibular/Ocular Motor Screening (VOMS) Assessment to Evaluate Concussions. The American Journal of Sports Medicine.

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