

Concussions In Children & Management

Presented by:
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Concussions in Children



Defining Concussions

Prevalence and Prevention

Concussion Complications

Managing Concussions



Defining Concussions

- A traumatically induced short term disturbance of brain function. Concussion is a subset of mild traumatic brain injury (MTBI) and usually self-limiting along with mild in severity. Zurich Consensus 2013
- A traumatic brain injury that alters the way the brain functions. Effects are usually temporary but can include headaches and problems with concentration, memory, balance and co-ordination. Mayo Clinic



Defining Brain Injury

- Mild Traumatic Brain Injury (MTBI) - Acute brain injury resulting from mechanical energy to the head from external physical forces including:
 - 1 or more of : confusion or disorientation, LOC for less or equal to 30 min., post-traumatic amnesia less than 24 hr., seizures, or an intracranial lesion not requiring surgery.
 - 70-90% of all TBI's are mild.
 - All Concussions are considered MTBI's

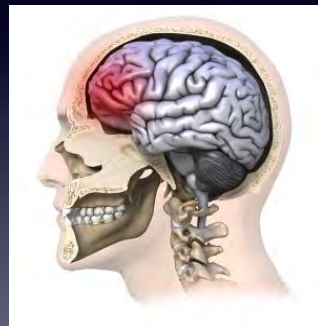
Concussion Prevalence and Prevention

- Concussions do not just occur in sports situations: Slips, falls, trips, and whiplash too.
- 94000 concussions/yr Canada
- m.c. sports are football, hockey, rugby, soccer & basketball
- 80-90% recover in 7-10 days
- Prior concussion history raises risk from 2x - 5.8x likelihood.
- Games more risk than practises
- Females have greater risk than males



Concussion Prevalence and Prevention

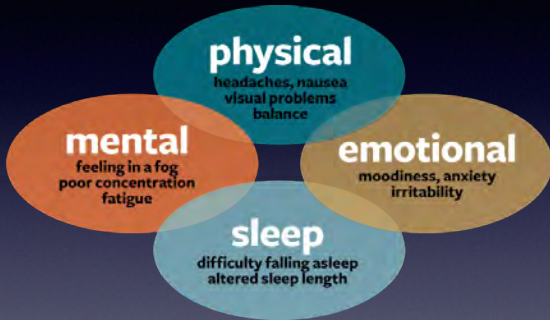
- Prevention's 2 areas: primary and secondary considerations
- Primary prevention lies in the rules of sports games
- Secondary prevention comes from equipment considerations and careful return to play management
- Questionable value of things like head gear & mouth guards. Most NB issue is correct fit!



Concussion Features

- From a direct blow to head, face, neck or body
- Typically symptoms will be short lived and resolve spontaneously. Symptoms involve the mind, body symptoms, emotion/mood, and sleep. Persist for 24 hr to 10 days typically.
- Most concussions DO NOT show physical injury signs to the brain structures.
- Up to 90% of concussions have NO loss of consciousness
- The neck is commonly involved and can mask or worsen symptoms associated with concussion. See your chiropractor

Symptom Spectrum



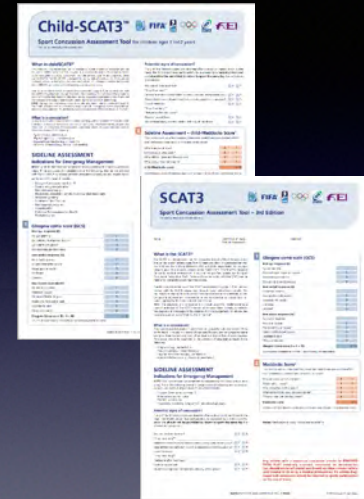
| COGNITIVE/NEUROLOGICAL | PHYSICAL | EMOTIONAL/PSYCHOLOGICAL | SLEEP DISTURBANCE |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Difficulty thinking clearly Feeling slowed down Difficulty concentrating Difficulty remembering new information | <ul style="list-style-type: none"> Headache Nausea/vomiting Balance problems Dizziness Blurred vision Fading/loss of hearing Sensitivity to noise or light | <ul style="list-style-type: none"> Irritability Sadness More emotional than usual Nervousness or anxiety | <ul style="list-style-type: none"> Sleeping more or less than usual Trouble falling asleep |

- These lists can be more extensive. This is just basic examples.

SCAT 3 Child & Adult

Great tools we use to help guide us in evaluating our children and adult patients who have suffered from concussion.

Always err on caution and get your chiropractor or qualified health doc to help assess the situation!



Persistent Post-Concussive Syndrome

- 1/3 of childhood concussions involve symptoms that persist for greater than 28 days
- This includes any or all of the cognitive, body pain, mood, or sleep type symptoms.



Post Concussion Vulnerability



- A condition known as **Second Impact Syndrome** exists
- The risk for SIS remains high for 1 year after a concussion
- This risk time period has a 4x greater risk of second concussion, with much more likelihood of more serious injury to the athlete/child.

Multiple Concussions CTE



- Subject of recent movie “Concussion” with actor Will Smith
- This condition occurs from massive multiple concussions and appears up to 10-20 years post sport retirement
- More study needed in the area, but not good news for these types of athletes if this develops.

Concussion Management

- The big idea for an athlete who has suffered a concussion - immediate physical and cognitive rest until the acute symptoms resolve.
- Return-to-learn SHOULD precede return-to-play
- Once acute symptoms have resolved, a graduated mental and physical return to normal activities is followed until official health status is cleared as normal.

Concussion Management

- Published criteria for Return-To-Play Stages 2014
 1. No activity & rest (variable time frame)
 2. Light aerobic exercise to ↑ heart rate but below 70% HRM
 3. Sport specific exercise with NO impact
 4. Non contact training drills with more complexity and speed to full
 5. Full contact practise following health clearance
 6. Full return to play game level
- Symptom reoccurrence signals no progress to next stage. NOTE: This is all to occur in the absence of any pharmaceutical agents/medication.
- Each step usually takes ~ 1 day, so usually a min of 1 week total if all goes well. This applies to elite and non-elite athletes the same.

Concussion Therapy

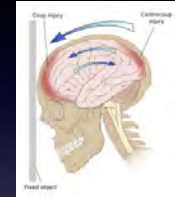
- Published literature reviews for concussion related treatment is limited. Most success has been from helping assess, guide, and mentor the recovery process.
- Recovery has been shown to be faster when co-management of the injured neck occurs, so Chiropractic care is very helpful.
- **Laser therapy** has a fantastic role in helping increase the rate of recovery from concussion incidences. The energy increase in brain affected regions increases the healing rate transcranially.
- In complex cases, vestibuloocular reflex therapy can be used to focus brain input balance and reestablish balanced brain output signalling.

Dietary Considerations

- Hydration is critical
- Anti inflammatory food is ideal. Mainly veggies, fruit, clean and lean proteins, and healthy fat rich foods
- Avoid sugars, alcohols, and packaged foods



Supplements to Help?



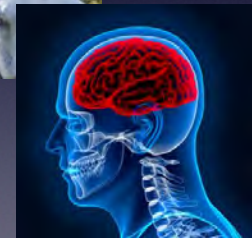
- Consider adding some supplements that aid in reducing the inflammatory reaction in the brain tissue
- Omega 3/6 EFA's, resveratrol capsule, Magnesium
- Phosphatidyl Choline and Serine to help the nerve axons repair

Special Notes on Children

- Size of brain, skull thickness, nerve myelination differences all influence concussion susceptibility
- Return-to-Learn **should precede** return-to-play
- Recovery in 5-15 yoa can take up to 2x longer
- Neck strength & awareness of contact may both lower risk of concussion severity (opinion) but this is not supported in research.

Concussion Summary

- Concussions are common and must be taken seriously
- Use these guidelines as only that - a guide and not a substitute for full medical attention
- Be aware of the greater risks and complications of concussion like PCS, SIS, CTE
- Chiropractors are an important part of the health care network that identifies and helps manage concussion issues. 😊



Upcoming Workshops at Beacon Hill Chiropractic

- Food Sensitivities Workshop
- Seniors (Golden Years) Workshop
- Yoga

