

## **Safe Contact Clinic – Concussions in Sport**

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Handout Notes:

### **What is a Concussion?**

- A concussion is a complex pathophysiological process affecting the brain which is induced by biomechanical forces.
  - o *(Consensus statement on Concussion in Sport, 2012)*
- They are injuries to the Brain, which may or MAY NOT include LOC (loss of consciousness)
- Typically involve a rapid onset of signs and symptoms
- Typically result in neuropathological changes and not structural changes, so it's difficult to 'detect' unlike a bruise, ankle sprain or ACL tear
- Most cases resolve very quickly (7-10 days) if they are managed properly with minimal symptoms

### **Mechanism of Injury (MOI)**

- Direct blow to the Head, face, neck, torso
- Indirect blow (such as in a whiplash injury in a car accident)
- Coup, Contra-coup: Brain moves rapidly (front to back) within the skull and contacts the inner wall of the skull aggressively
- Brain can also rotate rapidly within the skull with a rapid acceleration and deceleration causing microbleeding within the brain

### **Signs and Symptoms to look for**

- Headache
- "pressure in the head"
- Neck Pain
- Nausea or vomiting
- Dizziness
- Blurred Vision
- Balance Problems
- Sensitivity to Light/Noise
- Feeling slowed down
- Feeling "in a fog"
- "don't feel right"
- Difficulty concentrating
- Difficulty remembering
- Fatigue/low energy
- Confusion
- Drowsiness
- Trouble sleeping
- More emotional
- Irritability
- Sadness
- Nervous or anxious

## Sideline Assessment

- use the Pocket SCAT2 and the Maddocks score to guide your questioning and decision making

### Pocket SCAT2



Concussion should be suspected in the presence of **any one or more** of the following: symptoms (such as headache), or physical signs (such as unsteadiness), or impaired brain function (e.g. confusion) or abnormal behaviour.

#### 1. Symptoms

Presence of any of the following signs & symptoms may suggest a concussion.

<ul style="list-style-type: none"> <li>▪ Loss of consciousness</li> <li>▪ Seizure or convulsion</li> <li>▪ Amnesia</li> <li>▪ Headache</li> <li>▪ "Pressure in head"</li> <li>▪ Neck Pain</li> <li>▪ Nausea or vomiting</li> <li>▪ Dizziness</li> <li>▪ Blurred vision</li> <li>▪ Balance problems</li> <li>▪ Sensitivity to light</li> <li>▪ Sensitivity to noise</li> </ul>	<ul style="list-style-type: none"> <li>▪ Feeling slowed down</li> <li>▪ Feeling like "in a fog"</li> <li>▪ "Don't feel right"</li> <li>▪ Difficulty concentrating</li> <li>▪ Difficulty remembering</li> <li>▪ Fatigue or low energy</li> <li>▪ Confusion</li> <li>▪ Drowsiness</li> <li>▪ More emotional</li> <li>▪ Irritability</li> <li>▪ Sadness</li> <li>▪ Nervous or anxious</li> </ul>
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#### 2. Memory function

Failure to answer all questions correctly may suggest a concussion.

"At what venue are we at today?"  
 "Which half is it now?"  
 "Who scored last in this game?"  
 "What team did you play last week/game?"  
 "Did your team win the last game?"

#### 3. Balance testing

**Instructions for tandem stance**  
 "Now stand heel-to-toe with your **non-dominant foot in back**. Your weight should be evenly distributed across both feet. You should try to maintain stability for 20 seconds with your hands on your hips and your eyes closed. I will be counting the number of times you move out of this position. If you stumble out of this position, open your eyes and return to the start position and continue balancing. I will start timing when you are set and have closed your eyes."

Observe the athlete for 20 seconds. If they make more than 5 errors (such as lift their hands off their hips; open their eyes; lift their forefoot or heel; step, stumble, or fall; or remain out of the start position for more than 5 seconds) then this may suggest a concussion.

**Any athlete with a suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, urgently assessed medically, should not be left alone and should not drive a motor vehicle.**

#### 2 Maddocks Score<sup>3</sup>

"I am going to ask you a few questions, please listen carefully and give your best effort."

Modified Maddocks questions (1 point for each correct answer)

What venue are we at today?	0	1
Which half is it now?	0	1
Who scored last in this match?	0	1
What team did you play last week/game?	0	1
Did your team win the last game?	0	1
<b>Maddocks score</b>		<b>of 5</b>

Maddocks score is validated for sideline diagnosis of concussion only and is not used for serial testing

## Return to Play Guidelines

- Follow the protocol outlined in the SCAT3
- Remember that returning to School is the first real step in the protocol

### For example:

Rehabilitation stage	Functional exercise at each stage of rehabilitation	Objective of each stage
No activity	Physical and cognitive rest	Recovery
Light aerobic exercise	Walking, swimming or stationary cycling keeping intensity, 70 % maximum predicted heart rate. No resistance training	Increase heart rate
Sport-specific exercise	Skating drills in ice hockey, running drills in soccer. No head impact activities	Add movement
Non-contact training drills	Progression to more complex training drills, eg passing drills in football and ice hockey. May start progressive resistance training	Exercise, coordination, and cognitive load
Full contact practice	Following medical clearance participate in normal training activities	Restore confidence and assess functional skills by coaching staff
Return to play	Normal game play	

There should be at least 24 hours (or longer) for each stage and if symptoms recur the athlete should rest until they resolve once again and then resume the program at the previous asymptomatic stage. Resistance training should only be added in the later stages.

If the athlete is symptomatic for more than 10 days, then consultation by a medical practitioner who is expert in the management of concussion, is recommended.

**Medical clearance should be given before return to play.**

## **Assessment tools**

- SCAT3
  - Free online download as a PDF document
  - Can be used as a baseline assessment tool
  - Should be used to evaluate concussion and guide recovery
- Computer based testing
  - Impact
  - Axon
- Rehabilitation programming
  - Shift Concussion rehabilitation
  - [www.shiftconcussion.ca](http://www.shiftconcussion.ca)

## **Second Impact Syndrome**

- Affects those individuals who are currently recovering from an initial concussion who then sustain a second concussive hit
  - Body loses ability to regulate pressure in the head
  - May lead to severe swelling on the brain and permanent brain damage
  - Can occur in the same game or days/weeks later
  - Severity of second hit may be far less intense
  - Symptoms include; dilated pupils, loss of eye movement, LOC, breathing failure or death

## **Resources**

### **[www.cattonline.com](http://www.cattonline.com)**

- excellent recourse for handout materials, posters, videos and educational tools

### **[www.sportlegacy.org](http://www.sportlegacy.org)**

- Information on CTE and brain injury, prevention and detection strategies

### **[www.parachutecanada.org](http://www.parachutecanada.org)**

- Further concussion information and handouts/posters

### **[www.playfootball.bc.ca](http://www.playfootball.bc.ca)**

- Many of the above resources
- “Making headway in football” course

## **My contact information**



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### **Clinic Location:**

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