

Fall 12-1-2012

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Recommended Citation

Lee, Jonathan; Harper, Michael; Uihlein, Michael; and Lee, Kenneth, "Wheelchair Athlete Concussion Baseline Data: A Pilot Retrospective Analysis" (2012). *Intersections Fall 2020*. 20.
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Wheelchair Athlete Concussion Baseline Data: A Pilot Retrospective Analysis

Jonathan Lee, Dr. Michael Harper, Dr. Michael Uihlein, and Dr. Kenneth Lee

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Presented by Jonathan Lee

Outline

- Background on Concussions
- Importance of Baseline Concussion Testing and Baseline Initiative
- Components of Wheelchair Athlete Concussion Baseline
 - Concussion History Questionnaire (CHQ)
 - Symptoms Checklist (mGSC)
 - Standardized Assessment of Concussion (SAC)
 - Wheelchair Error Scoring System (WESS)
 - King-Devick (KD)

Background

What is a Concussion?

- Sport related concussion (SRC) is a **traumatic brain injury** induced by biomechanical forces.
- Caused by a **direct blow**
- **Rapid onset** of short-lived impairment
- **MAY OR MAY NOT involve loss of consciousness.**



Common Concussion Symptoms

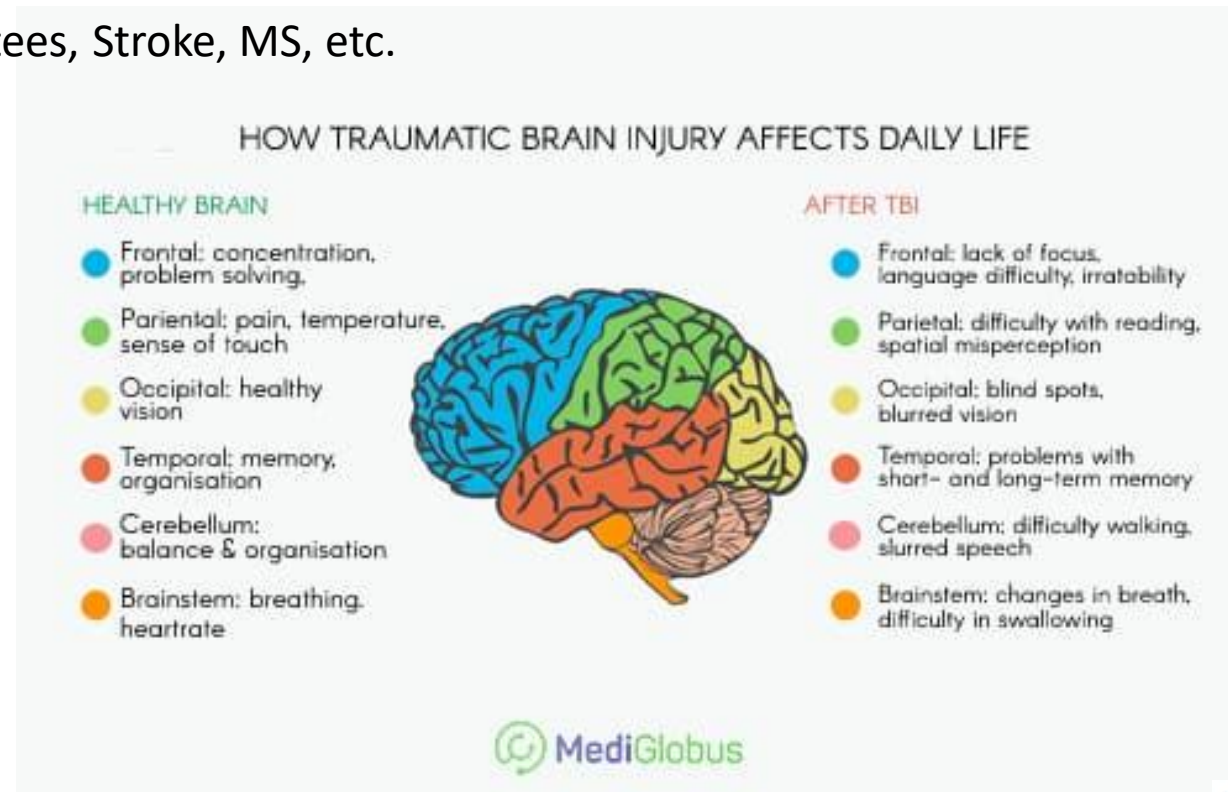
- Headache
 - reported in 70% of athletes
 - (Lovell, Collins, & Bradley, 2004)
 - Nausea
 - Vomiting
 - Dizziness
 - Balance problems
 - Feeling 'slowed down'
 - Fatigue
 - Trouble falling asleep
- Drowsiness
 - Sensitivity to light or noise
 - Loss of consciousness
 - Blurred vision
 - Difficulty remembering
 - Difficulty concentrating
 - (Guskiewicz et al., 2004, pg. 283).

➤ **How many wheelchair athlete's experience some of these at baseline?**

Importance of Baseline Testing

Each Wheelchair Athlete is Unique

- Many athletes have co-morbidities
 - TBI, SCI, CP, Amputees, Stroke, MS, etc.



Baselines Help Return to Play Decisions

- Having the baseline test will help Medical Staff distinguish what is from the co-morbidity and what is from the head injury.
- The goal is to allow athletes to return to play safely.
 - Medical Staff can do this with increased confidence when an athlete's baseline is known.

Components of CMP

Off-Field Exam for SRC (SCAT5)

Current Standard of Care for Able-Bodied Athletes

Step 1: Athlete Background

Step 2: Symptoms evaluation -> **What symptoms come from their disability?**

Step 3: Cognitive Screening -> **What is their cognitive baseline?**


Step 4: Neurological Screen (mBESS) -> **How do we assess balance?**

Step 5: Delayed Recall -> **What is their cognitive baseline?**

Step 6: Decision

Downloaded from <http://bms.bmj.com/> on November 3, 2017. Published by group bms.com
BJSM Online First, published on April 26, 2017 as 10.1136/bjsports-2017-097506SCAT5
To download a clean version of the SCAT5 tools please visit the journal online (<http://dx.doi.org/10.1136/bjsports-2017-097506SCAT5>)

SCAT5 SPORT CONCUSSION ASSESSMENT TOOL – 5TH EDITION
DEVELOPED BY THE CONCUSSION IN SPORT GROUP
FOR USE BY MEDICAL PROFESSIONALS ONLY

supported by


Patient details
Name: _____
DOB: _____
Address: _____
ID number: _____
Examiner: _____
Date of injury: _____ Time: _____

WHAT IS THE SCAT5?
The SCAT5 is a standardized tool for evaluating concussions designed for use by physicians and licensed healthcare professionals. The SCAT5 cannot be performed correctly in less than 10 minutes.
If you are not a physician or licensed healthcare professional, please use the Concussion Recognition Tool 5 (CRT5). The SCAT5 is to be used for evaluating athletes aged 15 years and older. For children aged 12 years or younger, please use the Child SCAT5.
Preseason SCAT5 baseline testing can be useful for interpreting post-injury test scores, but is not required for that purpose. Detailed instructions for use of the SCAT5 are provided on page 7. Please read through these instructions carefully before testing the athlete. Brief verbal instructions for each test are given in italics. The only equipment required for the tester is a watch or timer.
This tool may be freely copied in its current form for distribution to individuals, teams, groups and organizations. It should not be altered in any way, re-branded or sold for commercial gain. Any revision, translation or reproduction in a digital form requires specific approval by the Concussion In Sport Group.

Recognise and Remove
A head impact by either a direct blow or indirect transmission of force can be associated with a serious and potentially fatal brain injury. If there are significant concerns, including any of the red flags listed in Box 1, then activation of emergency procedures and urgent transport to the nearest hospital should be arranged.

Key points
• Any athlete with suspected concussion should be REMOVED FROM PLAY, medically assessed and monitored for deterioration. No athlete diagnosed with concussion should be returned to play on the day of injury.
• If an athlete is suspected of having a concussion and medical personnel are not immediately available, the athlete should be referred to a medical facility for urgent assessment.
• Athletes with suspected concussion should not drink alcohol, use recreational drugs and should not drive a motor vehicle until cleared to do so by a medical professional.
• Concussion signs and symptoms evolve over time and it is important to consider repeat evaluation in the assessment of concussion.
• The diagnosis of a concussion is a clinical judgment, made by a medical professional. The SCAT5 should NOT be used by itself to make, or exclude, the diagnosis of concussion. An athlete may have a concussion even if their SCAT5 is "normal".

Remember:
• The basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
• Do not attempt to move the athlete (other than that required for airway management) unless trained to do so.
• Assessment for a spinal cord injury is a critical part of the initial on-field assessment.
• Do not remove a helmet or any other equipment unless trained to do so safely.

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Davis GA et al. *Br J Sports Med* 2017;1-4. doi:10.1136/bjsports-2017-097506SCAT5
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CMP for the Wheelchair Athlete

Baselines and Off-Field Exam

- Concussion History Questionnaire
- Symptoms Checklist
- Standardized Assessment of Concussion (SAC)
- Wheelchair Error Scoring System (WESS)
 - King-Devick - Alternative to WESS

Return to play protocol

Education for coaches and athletes



What's Next?

Future Plans

- Handbook on the evaluation and management of wheelchair athletes
- Requiring baseline testing before events
- Expanding our CMP education to all events

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