



US LACROSSE
SPORTS MEDICINE SYMPOSIUM

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Fourth International Conference on Concussion in Sport: An Update

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Structure/Participants

- Scientific/Organizing Committee



Expert Panel



History

- The Conference held in Zurich at the home of FIFA is the fourth in a series of international consensus meetings held approximately 4 years apart: Vienna, Prague, Zurich (1), Zurich (2).
- The goal is to bring the “world’s experts” in sport concussion together to critically review the scientific literature and provide clinically relevant consensus guidelines for the evaluation and management of sport concussion.

Format – CISG-IV

- Prior to the start of the meetings the Organizing Committee generated a list of 12 questions that reflected the key issues to be discussed at the meeting.
- Each question was assigned a small group of international experts who were tasked with conducting a critical review of the scientific literature.

Format

- On November 1 & 2, 2012 an open meeting was held where papers were presented based on the critical reviews for discussion during an open meeting.
- These presentations are available for viewing at <http://www.f-marc.com/concussion2012>.
- On November 3, 2012 the expert panel convened to discuss each of the critical review papers, evaluate and incorporate information from public meetings, and reach consensus on the issues discussed.
- The Organizing Committee is now tasked with creating the consensus document that will be circulated to all panel members for their review.



Critical Review Questions

- 1. What is the lowest threshold to make a diagnosis of concussion?
- 2. Are the existing tools/exam sensitive and reliable enough on the day of injury to make or exclude a diagnosis of concussion?
- 3. What is the best practice for evaluating an adult athlete on the "field of play" in 2012?
- 4. How can the SCAT2 be improved? Evidence for utility of components?
- 5. Advances in Neuropsychology: Are computerized tests sufficient?
- 6. What evidence exists for new strategies/technologies in the diagnosis of concussion and assessment of recovery?



Critical Review Questions

- 7. Advances in the management of sport concussion: what is evidence for concussion therapies?
- 8. The difficult concussion patient - What is the best approach to investigation and management of persistent (>10 days) post concussive symptoms?
- 9. Revisiting Modifiers: how should the evaluation and management of acute concussion differ in specific groups?
- 10. What are the most effective risk reduction strategies in sport concussion?
- 11. What is the evidence for chronic concussion-related changes?; behavioural, pathological and clinical outcomes
- 12. From Consensus to Action- How do we optimize Knowledge transfer, education and ability to influence policy?

Key Changes

- SCAT3 – Adult (13 years +) and Child Versions (<13 years old).
- SCAT3 – Adult – maintains many features of SCAT2.
- Adds Visible Signs of Concussions.
- Indications for Emergency Management.
- Balance Examination includes Tandem Gait.

Key Changes

- SCAT3 – Adult – Cont.
- No longer uses a total score, although subsections can be scored.
- SCAT3 is a screening tool and not a substitute for formal neuropsychological testing.
- SCAT3 – Child –
 - Developmentally appropriate for children younger than 13.

Key Changes

- **Concussion Recognition Tool** (formerly Pocket SCAT2)
 - For non-medical personnel.
- Visible signs of concussion
- Concussion Symptoms
- Brief Orientation Questions
- Instructions for immediate removal from play of concussion is suspected
- “Red Flags” for urgent medical attention (deteriorating condition, severe increasing HA)
- Clear instructions for not moving an injured player



Key Changes

No minimum threshold for diagnosis.

Cognitive deficit not necessary for diagnosis.

Emphasis on multimodal assessment with diagnosis being made on the basis of aggregate clinical information and not any given tool.

No return to play in the same day.

Neuropsychological testing remains a key component in a multi-modal evaluation but should not be used as a stand alone tool.

Key Changes

Widespread baseline testing may not be necessary when appropriate local norms exist.

Psychological factors need to be examined more carefully.

Very limited evidence to support the use of newer technologies in clinical setting (e.g. functional imaging, qEEG, accelerometers, eye tracking, etc.).

Cognitive/Physical rest remain the best treatment approaches.

Multi-modal rehab should be considered in slow to recover cases.

Equipment – not much change since 2008



Key Changes

- **CHRONIC TRAUMATIC ENCEPHALOPATHY (CTE)** is a tauopathy distinct from other known tauopathies.
- Incidence unknown. Not possible to identify all high risk individuals.
- At present...
- Lack of evidence that PCS and CTE are linked.
- Lack of evidence that one concussion leads to CTE.
- Lack of evidence that low exposure to contact sports is a risk for CTE.
- Not related to concussions alone.
- Much more systematic research is needed.



The final consensus statement will be published in March along with all of the companion papers in several journals simultaneously....

....Stay tuned.



Thank you.

