Concussion in Synchronized Swimming

Synchro Swim Ontario Journey to Excellence 2016 Conference

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Overview

* What is a concussion?
* Common concussion myths
* What can I do?
* Guidelines
* Future Directions
* Question Period
What is a Concussion?
The Concussion in Sport (CIS) group (Zurich, 2012)

A concussion is a traumatic brain injury (TBI)
  * mTBI

Concussions are primarily FUNCTIONAL not structural injuries
How Does it Happen?

• A concussion can result from any direct or indirect blow to the head, neck or body

• This causes the brain to shift inside the meninges and make contact with the skull
What is happening in the brain?
Symptoms

* Every concussion is different

* Symptoms can be defined as part of 4 main clusters:
  * Somatic
  * Cognitive
  * Emotional
  * Sleep
Iceberg Profile  
(Morgan, 1980)

Concussion Crevice  
(Mainwaring, et al. 2008)

Mainwaring et al., 2008, 2012
Profiles: Controls

T Score
Profiles: Concussed
(Mainwaring et al., 2008)

[Graph showing POMS Subscale T scores against different variables]
Concussion Myths
Myth #1

You need to lose consciousness to have a concussion

Reality
Loss of consciousness may occur, but is not the case for all concussions

(McCrory et al, 2013)
Myth #2

You need a direct blow to the head for a concussion

Reality

Concussions can result from both direct and indirect forces on the head (e.g. body blows)

(McCrory et al, 2013)
Myth #3

A ‘bell-ringer’ is less severe than a concussion

Reality

- “Bell-ringers”
- “Having your bell rung”
- “Seeing stars”
- “Having your clock cleaned”

= Concussion

Miyashita et al, 2014; Register-Mihalik et al, 2013
Myth #4

Concussions can be diagnosed with an X-ray, MRI or CT-Scan

Reality

Traditional imaging techniques are not sensitive enough to capture changes in the brain that may result from a concussion

Shenton et al, 2012
Myth #5

It’s okay for athletes to continue to practice or perform when it’s really important

Reality

Removal from performance is critical for full recovery and return to competition

Athletes may also experience performance deficits if continuing to swim when concussed

Guskiewicz et al, 2003; Prins et al, 2013;
Myth #6

An athlete will tell me when they have concussion symptoms

Reality

Athletes may under-report or fail to disclose symptoms in order to stay in training or competition

McCrea et al, 2004; Register-Mihalik et al, 2013
Myth #7

If an athlete has one or more concussions, they should be permanently removed from sport

Reality

With proper management, most athletes are able to fully recover and return to sport

McCrory et al, 2013
Concussion Management
Managing Concussion

Why is it important to treat and manage a concussion properly?

- Speed of recovery
- Risk of lasting effects
- Risk of re-injury
- Minimize stress
What Can I Do as a Coach?

- Be aware of the risks
- Be aware of the signs and symptoms of concussion
- Follow established response guidelines if concussion is suspected
- Follow established Return to Play protocol following concussion injury
- Promote a culture of safety and open communication
What Can I Do as a Parent?

* Be aware of concussion signs and symptoms
  * Physical
  * Cognitive
  * Emotional
* Facilitate social support
* Encourage activities that support cognitive and physical recovery
What Can I Do as an Official?

* Be aware of the risks
* Be aware of and enforce SSO concussion policies and guidelines
* Promote safe involvement in synchro
Coach Guidelines and Return to Synchro Protocol

* Please refer to your handout
Guidelines for Parents and Athletes

* Please refer to your handout
Looking Ahead

* Research partnership between SSO and U of T team

* Initial planned investigations:
  * Quantifying concussions in synchro
  * Analyzing the injury contexts and mechanisms in synchro
  * Identifying key risks of training programs
  * Developing synchro-specific concussion education materials for all members
Summary

- mTBI
- Signs and symptoms
- Management
- Safe practices
- Communication
- 85-90% recovery on their own
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Questions?