



Concussion Management

August 2015

Sports Medicine



- 25 Years serving Barrie and area
- 3 locations – 2 clinics in Barrie and in Angus
- Only CARF and CPA accredited facilities in region
- Multidisciplinary Care including physio, massage and athletic therapy, chiropractic, acupuncturists, osteo, sport med doctors and orthopaedic surgeons
- BayCats, OHL Colts, Blizzard, Vertical Zone, Premier Soccer, Elite Volleyball



Dr. Brad Baldwin, Angus Clinic

- Chiropractor
 - Complete Concussion Management Trained
 - ART
 - Graston
 - Acupuncture
 - Kinesiology

Concussion Problem

- Prevalence = 10 – 30%
 - Widely underreported (~50%)
- Improper management
 - Long-term brain damage
 - Severe brain injury/fatalities
- Recognition & proper diagnosis is key
- Symptoms do not reflect injury recovery!



Concussion Symptoms?



- Chances are you will experience a player with a concussion.
- Symptoms include but are not limited to headaches, loss of consciousness, irritability, slow reaction time, drowsiness, slurred speech, double vision and vomiting.

THINKING PROBLEMS

- Does not know name, time, date, place, period of game, opposing team, score of game
- General confusion
- Cannot remember things that happened before and after the injury
- Knocked out

ATHLETE'S COMPLAINTS

- Headache
- Dizziness
- Feels dazed
- Feels “dinged” or stunned; “having my bell rung”
- Sees stars, flashing lights
- Ringing in the ears
- Sleepiness
- Loss of vision, blurry or double vision
- Stomachache, stomach pain, nausea

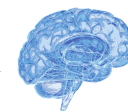
Other Problems

- Poor coordination or balance
- Blank stare/glassy eyed
- Vomiting
- Slurred speech
- Slow to answer questions or follow directions
- Easily distracted
- Poor concentration
- Strange or inappropriate emotions (ie. laughing, crying, getting mad easily)
- Not playing as well

Observations

- being off balance or unsteady
- may even fall a few times on way to bench
- going the wrong direction
- appearing confused
- clutching the head immediately following the impact

When in doubt, Sit them out!



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If you are suspecting a concussion injury has occurred at this point,

DO NOT ALLOW THE ATHLETE TO RETURN TO THE GAME until they have been cleared by a CCM certified practitioner/physician!

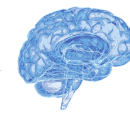
Do not allow the athlete to take any medication for pain---killing purposes.

Do's and Don'ts



1. Do not allow the athlete to go to sleep for at least 2 to 3 hours after the suspected concussion
2. Do not give any pain medications – These may increase the risk of bleeding within the brain and may also mask any signs of a worsening condition
3. Wake the athlete every 2 hours throughout the first night – The athlete only has to be awoken briefly to ensure:
 - a) That they are able to be awoken and,
 - b) Are responsive and aware of what is going on
4. Keep all **EMERGENCY SITUATIONS** in mind. If any of those signs or symptoms come up then head to the nearest hospital emergency department immediately.
5. Make sure they are assessed by a SM/CCM practitioner as soon as possible following their injury. This should preferably be done within the first 24 hours so that a proper management and RTP play strategy can be implemented.

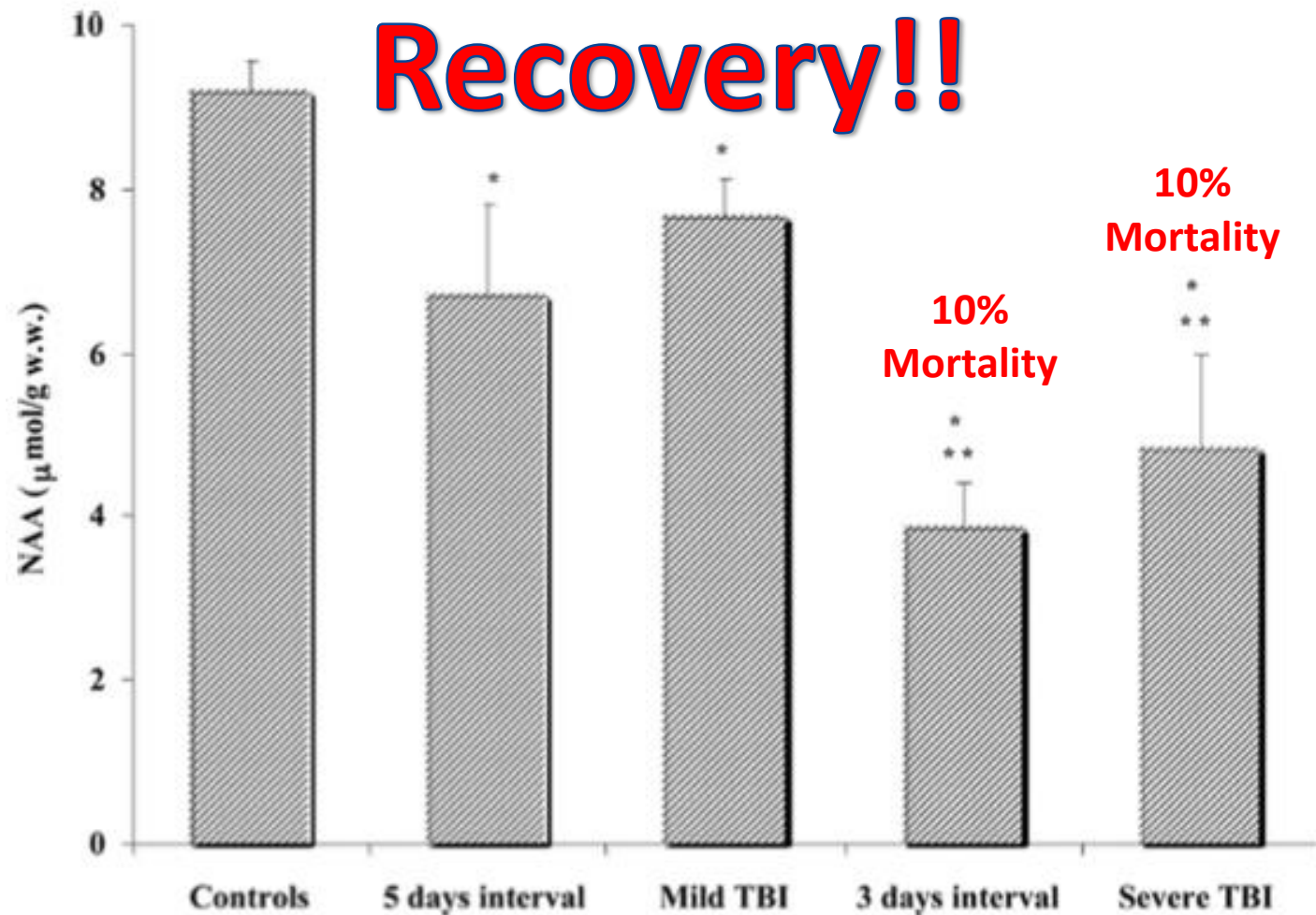
Why you shouldn't return before recovery!!



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- Your brain is vulnerable during recovery
 - Energy needs to be restored
 - Takes much less force to cause a 2nd concussion
- Nerves are dysfunctional
 - Your systems are down
 - Processing speed is slowed
 - Balance is off
 - Your reaction time is diminished
- 2nd concussions are much more severe – *Second Impact Syndrome*

Second Impact



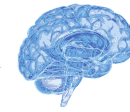
Vagnozzi et al., 2005

Symptoms alone are a poor indicator of recovery!!

- **Baseline Testing?**

You need Objective Measures

- Balance, reaction time, cognitive ability, memory, visual processing, physical capacity, impact test, etc.



“Well my doctor cleared me...”

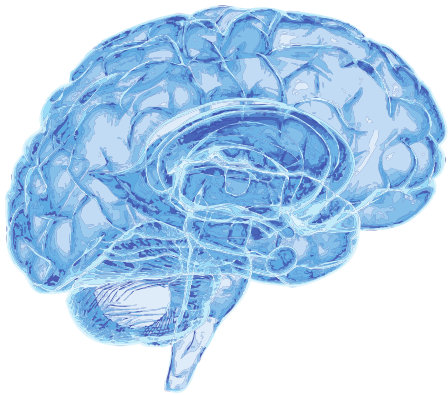
1. What did your doctor do?

- Did they just ask about symptoms?
- Did they test your systems against a BASELINE value?

2. Does your doctor know about proper concussion management?

3. Follow a supervised Return to Play Program

- Doctor, physiotherapist and trainer working together



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Baseline Testing

Return-to-Learn & Return-to-Play Management

Injury Treatment & Rehabilitation

Key Components of the Sports Medicine Concussion program:

1. Recommend Baseline testing
 - Not just the computer test
2. Return to Play Athlete Management
 - Graduated and supervised
 - Athlete/Parent/Trainer Communication

Baseline Testing

- Tests every area of brain function that could become affected during a concussion:
 - Balance
 - Reaction Time
 - Concentration
 - Memory
 - Vision & Visual Processing Speed
 - Strength & Physical Capacity
 - Neurocognitive Function
- Proper diagnosis & **safer RTP decisions**

Online Testing??

- Not sufficient!
- "Neuropsychological tests should only be used as a part of a comprehensive concussion management strategy and **SHOULD NOT BE USED IN ISOLATION**" –
*American Medical Society position statement on Concussion in Sport – Clin J Sports Med, 2013:
Echemendia et al., 2013*
- "Computer-based concussion evaluations did not provide stable measures of cognitive functioning. Inconsistent performance on concussion assessments may lead clinicians to inaccurate determinations of cognitive function." – Broglio et al., 2007

Clinical utility of ImPACT assessment for postconcussion return-to-play counseling: Psychometric issues

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Computerized neuropsychological testing is commonly utilized in the management of sport-related concussion. In particular, the Immediate Postconcussion Assessment and Cognitive Testing 2.0 program (ImPACT) is widely used to assess the cognitive functioning of athletes before and after a concussion. We review the evidence for the clinical utility of this program in terms of validity, reliability, and use in return-to-play decisions. **We conclude that the empirical evidence does not support the use of ImPACT testing for determining the time of postconcussion return to play.**

Keywords: Athlete; Concussion; Neuropsychological testing; Reliability; Validity.

Concussion Management



- 90% of concussions resolve in 7 – 10 days
 - These athletes need to follow a 10 step Return to Play process
 - Following the process provides a safe managed environment for the athlete
- 10 % of concussions require treatment, specialists and athlete management

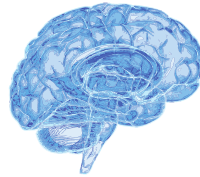
10% of concussions



Physician/Specialist



*Collaborative, multidisciplinary
management*



**COMPLETE
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Stepwise, Evidence-based
Return-to-learn/Return-to-play
Management

Nutritional plans for
cellular metabolic
imbalance

Treatment of
underlying cervical
issues

Vestibular &
Balance Therapy

Visual Therapy

Controlled
Exercise Rehab

RETURN-TO-PLAY ATHLETE MANAGEMENT

Step 1: No activity, only complete mental and physical rest. Proceed to Step 2 only when all symptoms are gone. This includes avoiding both mental and physical stress. ***Book concussion assessment at Sports Medicine to compare baseline results, assess injury and provide athlete education.***

Step 2: Light cognitive activity (i.e. ½ hour of reading max.)

Step 3: Half day at school (restrictions)

Step 4: Full day at school (restrictions) **Step 5:** Light aerobic exercise, such as walking or stationary cycling. Monitor for symptoms and signs. No resistance training or weight lifting. ***Book follow-up session with CCM professional.***

Must provide a Doctor's Note to go to step 6

Step 6: (individually) Sport specific activities and training (e.g. light skating, anaerobic, aerobic workout). Still no gym. ***CCM clinic professional supervises the transition.***

Step 7: (with the team) Drills without body contact. May add light resistance training and progress to heavier weights. The time needed to progress from non-contact to contact exercise will vary with the severity of the concussion and the player. Go to Step 8 after **medical clearance (Reassessment and note to be submitted to your team's Trainer).**

Must provide a Doctor's Note ...Reassessment to go to Step 8

Step 8: Begin drills with body contact after medical clearance. (I.e. scrimmage). ***Exertion test and final check at Sports Medicine.***

Step 9: The athlete should have one full practice, at least, prior to full game play.

Step 10: Game play.

Note: Players should proceed through "Return To Play Steps" only when they do not experience symptoms or signs and the physician has given clearance. Each step should be a minimum of each hockey practice. If symptoms or signs return, the player should return to step 1, and be re-evaluated by a physician.

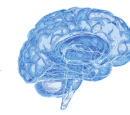
OTHER – Treatment, Referral to a Specialist Network

Recap

- Improper concussion management
 - Long-term effects
 - Potentially permanent or fatal brain injury
- Recognizing the injury is crucial
- Objective measures are needed to ensure recovery – Optional Baseline Program
 - Pre-injury baseline testing (comprehensive)
- Return to Play Athlete Management – 10 Steps

Recommend Optional baselines to your team

- Price: Covered through extended health care benefits
 - \$80/athlete (paid via group benefit insurance)
 - 1 hour, comprehensive testing
- Return to Play Program as required, Chiro fees apply.
- Book athlete with Dr. Brad Baldwin, chiropractor, Return to Play planning. Guided safe return to hockey.
3 – way Communication



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Thank You!

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