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
  – Kinesiologist
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!

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!!

• Your brain is vulnerable during recovery
  – Energy needs to be restored
  – Takes much less force to cause a 2\textsuperscript{nd} concussion

• Nerves are dysfunctional
  – Your systems are down
  – Processing speed is slowed
  – Balance is off
  – Your reaction time is diminished

• 2\textsuperscript{nd} concussions are much more severe – Second Impact Syndrome
Second Impact

Recovery!!

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
Baseline Testing
Return-to-Learn & Return-to-Play Management

Injury Treatment & Rehabilitation

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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 CONCUSSION MANAGEMENT™

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

Nutritional plans for
cellular metabolic imbalance

Treatment of
underlying cervical issues

Controlled
Exercise Rehab

Visual Therapy

Vestibular &
Balance Therapy
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
Thank You!

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