Concussions in Ultimate

By Brent Burton DC
Agenda

- Background on Concussions
- Definition of Concussion
- Evaluation of a Concussion
- Returning athletes to play
- Recommendations for Ultimate
Background on Concussions in Ultimate

- Low reporting of injuries in general from Ultimate.
  - One 2006 US Ultimate study: of 135 respondents, 40 had “head injuries” (30%), 14 (35% of head injuries) reported “concussions”. 13 of the “head injuries” were from laying out!
  - Study of UPA 2007 college championships: 15/107 injury time outs due to injury to head/face/eye (8M, 7F).
  - 2014 Study of College Ultimate Teams – 47 concussions (18M, 29F)
• 19,800 (2010-2011) Hospital visits in Ontario related to concussions (38% children).

• Legal Obligations: Ontario government proposes Bill 39

• Liability: August 2013 – NFL players reach deal

• Ethically: Need for Policy to Protect Players!
Hypothetical Scenario:

19 y.o. female, plays ultimate Frisbee, collided with another player 2 days ago in league play.

- No LOC
- Tried to get back in the game but “didn’t feel right”
- HA, sensitive to light, + difficulty concentrating ever since.
- Has a test tomorrow
- Wants to play in tournament this weekend
- Wants to know what she can take/do to get better

“Coach, I want to play. I think I’m fine. I just got my bell rung”
4th International Consensus Conference on Concussion in Sport (Zurich 2012)
Definition of Concussion

“A concussion is a brain injury and is defined as a complex pathophysiological process affecting the brain, induced by biomechanical forces.”

1. Direct blow to the head, neck or anywhere in the body where force is transmitted to the head.
2. Quick onset of symptoms (clinical and cognitive) but may evolve over minutes to hours.
3. Symptoms reflect functional disturbances rather than a structural injury *
4. May or MAY NOT involve a loss of consciousness (LOC).
Evaluation of Concussions

• Help, Safety, Environment and ABCs (Standard First Aid)
  • Don’t move player unless you have appropriate training. – Spinal Injury!
• Assess for **RED FLAGS!** - Indicates some other serious pathology
  • Severe/Increasing Neck pain
  • Increasing irritability
  • Repeated vomiting
  • Seizure or convulsions
  • Weakness/tingling/numbness in arms/legs
  • Deteriorating conscious state
  • Severe or increasing headache
  • Unusual behavioural change
  • Double Vision
Evaluation of Concussions Continued...

Concussion signs: What to look out for!

**COGNITIVE**
- Feeling Mentally Foggy
- Difficulty Concentrating
- Difficulty Remembering
- Repeats Questions
- Feeling Mentally Slowed Down
- Forgetful of Recent Information
- Confused About Recent Events
- Answers Questions Slowly

**PHYSICAL**
- Headache
- Nausea/Vomiting
- Balance Problems
- Numbness/Tingling
- Sensitivity to Light/Noise
- Visual Problems
- Dizziness
- Dazed or Stunned

**EMOTIONAL**
- Irritability
- Sadness
- More Emotional
- Nervousness

**SLEEP**
- Drowsiness
- Sleeping Less Than Usual
- Sleeping More Than Usual
- Trouble Falling Asleep
Pocket CONCUSSION RECOGNITION TOOL™
To help identify concussion in children, youth and adults

RECOGNIZE & REMOVE
Concussion should be suspected if one or more of the following visible clues, signs, symptoms or errors in memory questions are present.

1. Visible clues of suspected concussion
Any one or more of the following visual clues can indicate a possible concussion:

- Loss of consciousness or responsiveness
- Lying motionless on ground/Slow to get up
- Unsteady on feet/Balance problems or falling over/Incoordination
- Grabbing/Clutching of head
- Dazed, blank or vacant look
- Confused/Not aware of plays or events

2. Signs and symptoms of suspected concussion
Presence of any one or more of the following signs & symptoms may suggest a concussion:

- Loss of consciousness
- Seizure or convulsion
- Balance problems
- Nausea or vomiting
- Drowsiness
- More emotional
- Irritability
- Sadness
- Fatigue or low energy
- Nervous or anxious
- "Don’t feel right"
- Difficulty remembering

- Headache
- Dizziness
- Confusion
- Feeling slowed down
- “Pressure in head”
- Blurred vision
- Sensitivity to light
- Amnesia
- Feeling like “in a fog”
- Neck Pain
- Sensitivity to noise
- Difficulty concentrating

3. Memory function
Failure to answer any of these questions correctly may suggest a concussion.

- “What venue are we at today?”
- “Which half is it now?”
- “Who scored last in this game?”
- “What team did you play last week/game?”
- “Did your team win the last game?”

Any athlete with a suspected concussion should be IMMEDIATELY REMOVED FROM PLAY, and should not be returned to activity until they are assessed medically. Athletes with a suspected concussion should not be left alone and should not drive a motor vehicle.

It is recommended that, in all cases of suspected concussion, the player is referred to a medical professional for diagnosis and guidance as well as return to play decisions, even if the symptoms resolve.

RED FLAGS
If ANY of the following are reported then the player should be safely and immediately removed from the field. If no qualified medical professional is available, consider transporting by ambulance for urgent medical assessment:

- Athlete complains of neck pain
- Increasing confusion or irritability
- Repeated vomiting
- Seizure or convulsion
- Weakness or tingling/burning in arms or legs
- Deteriorating conscious state
- Severe or increasing headache
- Unusual behaviour change
- Double vision

Remember:
- In all cases, the basic principles of first aid (danger, response, airway, breathing, circulation) should be followed.
- Do not attempt to move the player (other than required for airway support) unless trained to do so.
- Do not remove helmet (if present) unless trained to do so.

What do I do if I suspect a Concussion?

▪ If a concussion is suspected, *immediate* evaluation should be provided by *trained healthcare provider*.
  – Should occur in a dimly lit, quiet place, no distractions (not on the field).
  – Ideally evaluation occurs at onsite facility but if not, safe removal from field and urgent referral to physician.

▪ “When in doubt, sit the player out” – DO NOT RETURN TO PLAY!!!
  – Player may be confused or may not understand possible implications of first impact or increased risk associated with second impact.
  – Monitor for several hours – *DO NOT LEAVE THEM ALONE!*
Return to Play (RTP)

- Healing takes time – everyone is different!
- RTP - important stage for coaches, captains, parents, players to be involved in and aware of.
- Stepwise progression to return to play.
- Should not engage in demanding mental tasks initially.
Return to Play Protocol

- Each stage lasts a minimum of 24 hours. Therefore should take a minimum of a week before full activity.
- If symptoms recur, rest additional 24hrs and then start at stage where no symptoms (may be a few stages back).

<table>
<thead>
<tr>
<th>Rehabilitation stage</th>
<th>Functional exercise at each stage of rehabilitation</th>
<th>Objective of each stage</th>
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</thead>
<tbody>
<tr>
<td>1. No activity</td>
<td>Symptom limited physical and cognitive rest</td>
<td>Recovery</td>
</tr>
<tr>
<td>2. Light aerobic exercise</td>
<td>Walking, swimming or stationary cycling keeping intensity &lt;70% maximum permitted heart rate No resistance training</td>
<td>Increase HR</td>
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<tr>
<td>3. Sport-specific exercise</td>
<td>Skating drills in ice hockey, running drills in soccer. No head impact activities</td>
<td>Add movement</td>
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<tr>
<td>4. Non-contact training drills</td>
<td>Progression to more complex training drills, eg, passing drills in football and ice hockey May start progressive resistance training</td>
<td>Exercise, coordination and cognitive load</td>
</tr>
<tr>
<td>5. Full-contact practice</td>
<td>Following medical clearance participate in normal training activities</td>
<td>Restore confidence and assess functional skills by coaching staff</td>
</tr>
<tr>
<td>6. Return to play</td>
<td>Normal game play</td>
<td></td>
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</tbody>
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Northern Flights 2012
Hypothetical Scenario - Revisited

Reminder:

- 19 y.o. female, collided w another player 2 d ago in league play.
  - No LOC
  - Tried to get back in the game but “didn’t feel right”
  - HA, + sensitive to light, + difficulty concentrating ever since.
  - Has a test tomorrow
  - Wants to play in tournament this weekend
  - Wants to know what she can take/do to get better
    “Coach, I want to play. I think I’m fine. I just got my bell rung”

What do you do?

- Ask if she was evaluated medically?
- Ask about current symptoms? (Physical, Cognitive, Emotional, Sleep)
- If symptoms, tell her no studying/test (speak to doctor).
- If no symptoms, stepwise progression through min 1 week. REST and Monitor
- Explain that you need her to be healthy for rest of season/life, not for one game/tournament. (Reassurance)
Last but not least… Recommendations

- Youth are particularly vulnerable – training for coaches. E.g. CDC HeadsUP! For USAU
- Rule changes?
  - E.g. Red Card for dangerous play.
- Educational campaign. – Coaches, captains, players.
- Exhausting tournament schedule?
- Ban substance use (enforcement).
- Sport-Specific Training – Awareness.
- Safe skills development – e.g. Layout technique, “Berkley Cuts”.
- Baseline Testing – SHIFT, ImPACT
- Mandatory Reporting Tools – how, who, what happened, where, why.
- Trained medical staff at tournaments
References (not in any order)


K. G. Helmer et al., Hockey Concussion Education Project, Part 1 Susceptibility-weighted imaging study in male and female ice hockey players over a single season. Journal of Neurosurgery.. Feb 4th 2014..


McGuine et al., Protective equipment and player characteristics associated with the incidence of sport-related concussions in high school football players. American Journal of Sports Medicine. 2014. Published online July 24th.


Swedler et al., Incidence and descriptive epidemiology of injuries to college ultimate players. Journal of Athletic Training. 2014. 49(3):000-000.
So why worry if it resolves?

- Dr. Paul Echlin - February 4th, 2014 – “Microbleeds” detected using special MRI techniques.
- Demonstrable structural damage in hockey players who were concussed.
- Unknown if this will lead to persistent/permanent changes.