



Concussion Update

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Objectives

Definition

Symptoms

Evaluation

Treatment

Describe current concussion updates nationally and within the state of Florida Guidelines

Outline the guidelines that Andrews Institute has for concussions



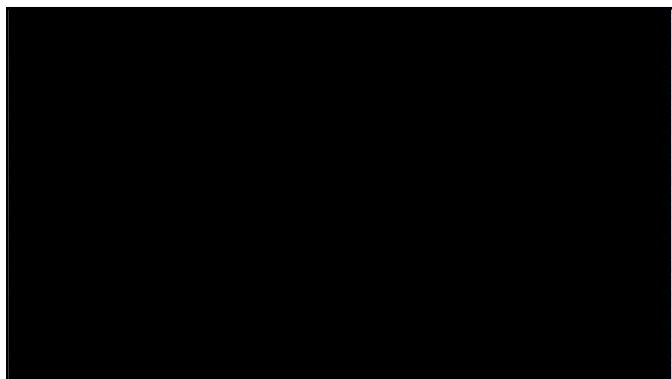
Concussion



Two players collide, airbags inflate, and another soccer tragedy is averted.

- [Shane Morris concussion](#)






Concussion

Brain Injury


- Disruption of function in any domain of brain activity



Concussion Symptoms

Physical

- Headache
- Nausea
- Vomiting
- Balance (dizzy/vertigo)
- Fatigue
- Light Sensitivity
- Sound Sensitivity
- Dazed
- Stunned
- Numbness/Tingling
- **Neurovascular (orthostasis)**




Concussion Symptoms

Physical

Cognitive

- Foggy
- Slowed down
- Concentration
- Memory
- Forgetful
- Confusion
- Slowness of response




Concussion Symptoms

Physical

Cognitive

Emotional

- Irritable
- Sad
- More emotional
- Nervous



Concussion Symptoms


Physical

Cognitive

Emotional

Sleep

- Drowsy
- Insomnia



Concussion Symptoms

- Physical
- Cognitive
- Emotional
- Sleep



Diagnosis

- Clinical diagnosis
- No gold standard
- Mechanism of Injury
- Sideline vantage point beneficial
- Football – press box vantage point may be beneficial

Recognition

Head Collisions

- Another Athlete
- Ground or Floor
- Other Objects



Body Collision

- Whiplash phenomena

Recognition

SYMPTOMS REPORTED BY ATHLETE:

- Headache or “pressure” in head
- Nausea or vomiting
- Balance problems or dizziness
- Double or blurry vision
- Sensitivity to light
- Sensitivity to noise
- Feeling sluggish, hazy, foggy, or groggy
- Concentration or memory problems
- Confusion
- Just not “feeling right” or is “feeling down”

SIGNS OBSERVED BY OTHERS:

- Appears dazed or stunned
- Is confused about assignment or position
- Forgets an instruction
- Is unsure of game, score, or opponent
- Moves clumsily
- Answers questions slowly
- Loses consciousness (even briefly)
- Shows mood, behavior, or personality changes
- Can’t recall events prior to hit or fall
- Can’t recall events after hit or fall

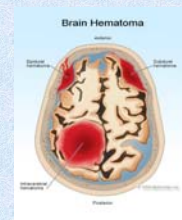
Immediate Post-Injury



- Remove from play
- Evaluation by ATC
- No Same Day RTP
- Red Flag Symptoms
- Symptoms may be delayed 24-48 hours
- Many injuries appear innocuous

Red Flag Symptoms

- One pupil larger than the other
- Is drowsy or cannot be awakened
- A headache that gets worse
- Weakness, numbness, or decreased coordination
- Repeated vomiting or nausea
- Slurred speech
- Convulsions or seizures
- Cannot recognize people or places
- Becomes increasingly confused, restless, or agitated
- Has unusual behavior
- Loses consciousness (even a brief loss of consciousness should be taken seriously)



Clinical Pearl

Removal from field of play for evaluation

- Value of having a place without distractions
- Greatest value is removing the athlete from presence of teammates, fans, coaches
 - Athlete feels more privacy to be honest in describing what she/he feels
- Applicable to other significant injuries (pregame determinations)

Wrestling adding injury timeouts & ability to remove from the mat

Sideline Assessment



Physician Evaluation

Mechanism of Injury

Post Injury Symptoms

- Patient
- Family
- Teammates
- Coaches

Physical Exam

Neurocognitive Testing



Neurocognitive Testing

C3 Logix

Continues to be a point of debate

Sports Medicine April 12, 2016

- 5968 studies
- Inconclusive diagnostic accuracy
- Sparse evidence of utility after symptom resolution



Modifying Factors

Sex

Concussion history

Depression/Anxiety

Migraine history

ADD/ADHD



Management

Activity Modification

Physical Therapy

- Vestibulo-ocular
- Cervical

Medication/Supplements?

Academic Modification



Management

Return to Learn

- Remain out of class until able to tolerate 30 minutes of light cognitive activity
- Then may return to classroom. Maximum of 30-45 minutes of cognitive activity followed by 15 minutes of rest
- Adjustments made by healthcare professionals collaborating with academic faculty/staff

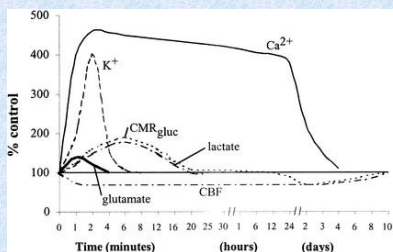
Return to Play

- Symptom free (rest, classroom, activity)
- Off of medications
- Asymptomatic through progression
- Progression modifications

<http://www.ncaa.org/health-and-safety/health-and-safety/return-to-learn-guidelines>



Brain Chemistry Post-Concussion



<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2321212/figure/fig1>

Florida High School Athletic Association Policy 40 Concussions

40.1.2 When you suspect that a player has a concussion, follow the "Heads Up" 4-step Action Plan:

- **Remove** the athlete from play.
- Ensure that the athlete is **evaluated** by an appropriate health-care professional.
- **Inform** the athlete's parents or guardians about the possible concussion and give them information on concussion.
- **Keep the athlete out of play** the day of the injury and until an appropriate health-care professional says he or she is symptom-free and gives the okay to return to activity.

Florida High School Athletic Association Policy 40 Concussions

40.4.1 No athlete should return to play (RTP) or practice on the same day of a **suspected** concussion. "When in doubt, sit them out!"

40.4.2 Any athlete suspected of having a concussion must be evaluated by an **AHCP** (as defined above) as soon as possible and practical.

40.4.3 Any athlete who has sustained a concussion must be **medically cleared** by an AHCP (as defined above) prior to resuming participation in any practice or competition. 106 2015-16 FHSA Handbook

40.4.4 After evaluation and examination by an AHCP (as defined above), return to play must follow a **step-wise protocol** as defined by the "Graded Return to Play Protocol" form and under the supervision of an AHCP, athletic trainer, coach or other health care professional (Post Head Injury/Concussion Form).

40.4.5 A **written medical clearance** from an AHCP (as defined above) is required for return to competition (Post Head Injury/Concussion - RTP Form).

AT18 Protocol

Florida High School Athletic Association Policy 40 Concussions

40.7 Sanctions on Coaches

40.7.1 Level 1 Suspension. A head coach who commits a violation of any condition listed in Policy 40 will be **ineligible to coach or attend the next contest**, at any level, for a minimum of the next two (2) contests during the period of suspension, in all sports except football. For football, the coach will be ineligible for a minimum of one (1) football game; or

40.7.2 Level 2 Suspension. A head coach who receives a second Level 1 Suspension due to a violation of any condition listed in Policy 40, or commits multiple violations in Policy 40 will be **ineligible to coach or attend** any interscholastic athletic contest in any sport, at any level, for a period of **up to six (6) weeks**; or

40.7.3 Level 3 Suspension. A head coach who receives a second Level 2 Suspension for violating any condition of Policy 40 or commits an egregious violation of Policy 40, as determined in the sole discretion of the Executive Director, will be ineligible to coach or attend any interscholastic athletic contest in any sport for a period of up to **one (1) year**.

College Athletics

January 2015
Division I Autonomy Conferences
ie, Power 5: ACC, Big Ten, Big Twelve, PAC 12, SEC

Concussion Safety Protocol Legislation
Concussion Safety Protocol Committee

Evaluating Practice and Technique

Big 12

- 32% reduction in football concussion (2013-15)

Wrestling

- Head injury evaluation time outs separate from general injury & blood time. Ability to remove from mat for eval
- Practice modifications
 - Contact w/ opponent 60%:Contact with floor 30%
 - Takedown 52%:Sparring 20%

FL HS FB policy

- Live contact restrictions

Relevant Guidelines to Review

Aubry M et al. Summary and agreement statement of the first international conference on concussion in sport, Vienna 2001. Br J Sports Med 2002; 36:6-10

McCrory P et al. Summary and agreement statement of the 2nd international conference on concussion in sport, Prague 2004. Clin J Sport Med Volume 15, Number 2, March 2005

McCrory P et al. Consensus statement on concussion in sport – the 3rd international conference on concussion in sport held in Zurich, November 2008

McCrory P, Meeuwisse WH, Aubry M, et al. Consensus statement on concussion in sport: the 4th international conference on concussion in sport held in Zurich, November 2012. Br J Sports Med 2013; 47:250-258

Harmon KG, Drezner JA, Gammons M, et al. American medical society for sports medicine position statement: concussion in sport. Br J Sports Med 2013, 47, 15-26

Florida High School Athletic Association (FHSA) Health & Wellness Policies. (<https://www.fhsaa.org/departments/health>)

FHSA Concussion Policy (https://www.fhsaa.org/sites/default/files/attachments/2015/12/18/node-23154/fhsaa_concussion_policy.pdf)

References

Giza et al. The Neurometabolic Cascade of Concussion. J Athl Train. 2001 Jul-Sep; 36(3): 228-235.
<http://bjsm.bmj.com/content/47/5/259.full.pdf>

http://www.cdc.gov/headsup/pdfs/custom/headsupconcussion_fact_sheet_coaches.pdf

http://childrensnational.org/~media/cnhs-site/files/departments/score/score_325.aspx?la=en

