



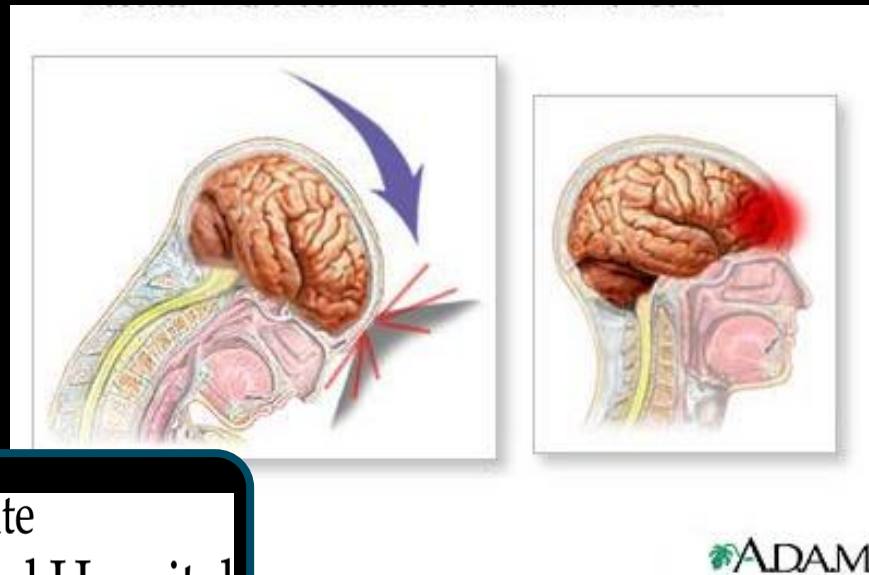
Neurosciences Institute  
*Abington* Memorial Hospital

# Concussion in the Student-Athlete



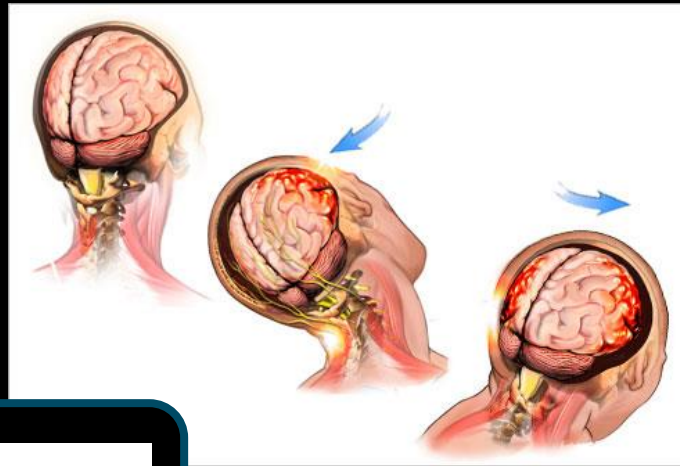
# Definition

A type of mild traumatic brain injury caused by a blow or jolt to the head or body with or without loss of consciousness



# Definition

Can also occur from a fall or blow to the body that causes the head and brain to move quickly back and forth



# Scope

Approximately 3.8 million recreation- and sport-related concussions annually in the US

Girls have a higher rate of concussion than boys playing similar sports

# Facts

Children and teens are more likely to get a concussion and take longer to recover than adults

Athletes who have EVER had a concussion are at increased risk for another concussion

A repeat concussion that occurs before the brain recovers from the first can slow recovery and increase the likelihood of having long-term problems

# Risk Factors

Younger Age

Female Gender

History of Prior Concussion

Personal or Family History of:

*Migraine*

*ADD/ADHD*

*Depression/Anxiety*

# Concussion by High School Sport

1. Football
2. Girls' soccer
3. Boys' lacrosse
4. Boys' soccer
5. Girls basketball
6. Wrestling
7. Girls' lacrosse
8. Softball
9. Boys basketball
10. Volleyball
11. Baseball

# Safety in Youth Sports Act

- Effective July 1, 2012
- Sets educational requirements for schools with interscholastic athletics
  - Coaches
    - Training course each year
    - CDC or NFHS
  - Students and Parents
    - Sign and return acknowledgement of receipt and review of concussion and TBI information sheet



# Safety in Youth Sports Act

- Requires that student athletes exhibiting signs and symptoms of concussion be removed from play
- Requires **written** clearance by an appropriate medical professional for return to play
- Penalties for coaches

# Concussion Signs

## Observed by Coach, Parent or Trainer

- Appears dazed or stunned
- Confused about assignment or position
- Unsure of game, score, or opponent
- Moves clumsily
- Answers questions slowly
- Forgets instruction
- Loses consciousness (even briefly)
- Behavior or personality changes
- Can't recall events prior to or after hit or fall

# Concussion Symptoms Reported by Student 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
- Does not “feel right”

# Danger Signs

- Convulsions or seizures
- Cannot recognize people or places
- Becomes increasingly confused, restless, or agitated
- Demonstrates abnormal behavior
- Loses consciousness (even briefly)

**Call 911 or take athlete to  
the nearest  
hospital emergency  
room**

# Danger Signs

- One pupil larger than the other
- Drowsy or cannot be awakened
- Headache that does not diminish, gets worse
- Weakness, numbness, decreased coordination
- Repeated vomiting or nausea
- Slurred speech

**Call 911 or take athlete to  
the nearest  
hospital emergency  
room**

# Diagnosis

- Sideline evaluation
- Neurocognitive evaluation
- Physician follow-up
  - ER, Primary Care Provider, Concussion Specialist

*CT scans and MRIs will not show a concussion*

# Sideline Evaluation

- Performed on the sideline/Athletic Training Room
- SCAT2
  - **Orientation**- score, opponent, date
  - **Memory**-repeat back words
  - **Concentration**-digits backwards
  - **Balance**-double and single leg stance, tandem stance
  - **Coordination**-finger to nose
  - **Delayed recall**-previous word list

# Neurocognitive testing

- Does not **DIAGNOSE** a concussion
- Used as a **TOOL** to evaluate neurocognitive function after an injury
- ImPACT
  - Baseline
  - Post-injury



# Physician Follow-up

- Confirm Diagnosis
- Develop plan of care
  - Brain rest protocols
  - Expectations of recovery
  - “Return to learn” and academic accommodations
  - Return to play

# Initial Treatment

- Cognitive rest
  - Limit activities that aggravate symptoms
    - Reading, computer, texting
- Physical rest
  - Plenty of sleep – sleep schedule
    - Naps as treatment
  - Avoid high-risk activities
- Minimize over the counter medications
- Each child will improve at their own pace

# Return to Classroom

- Temporary learning support accommodations may be needed
  - Rest breaks
  - Shortened school day
  - More time for tests/assignments
  - Reduced time on computer, reading, writing
  - Early dismissal
  - No standardized testing

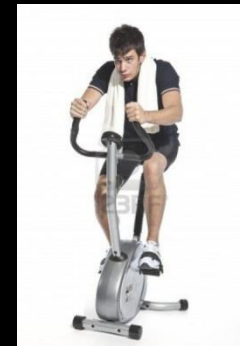
# Return to Play Guidelines

- Baseline
  - Completion of physical and cognitive rest
  - Symptom free for at least 48h hours
    - full day of classes required to meet criteria
  - Neurocognitive scores within normal range
  - Written clearance from Concussion Specialist



# Return to Play Guidelines

- Progressive protocol
- Under supervision of Athletic Trainer
- Minimum of 5 steps



# Post Concussion Syndrome

- Most recover quickly and fully
- Some have symptoms that last for weeks to months
- No correlation between severity of injury and symptoms
- Treatment aimed at treating specific symptoms

# Second Impact Syndrome

- Rare but devastating
- Second concussion suffered before a previous one has completely healed
  - Second injury can occur after minor hit
- Rapid swelling of brain, death can occur within minutes
- [Preston Plevretes](#)

# Prevention

- Protective Equipment (??)
- Good Sportsmanship
- Proper diagnosis and early treatment to prevent long-term consequences



# Conclusions

- Concussion are common in children and take longer to improve than adults
- Each child will improve at their own pace
- A second blow to the head before the first has improved can caused prolonged recovery as well as more serious consequences

**If there is any doubt remove from play**

# Concussion Program

- Provide support for school and community athletic programs
- Athletes seen within 48 hours by a physician specialized in treating concussion
- Educational programs available for faculty and trainers, students, athletes and parents

# Concussion Program

To schedule an evaluation or to learn more about the program, please call:

**215-481-HEAD (4323)**

# Resources

- [www.cdc.gov](http://www.cdc.gov)
- [www.biapa.org](http://www.biapa.org)
- [www.brainsteps.net](http://www.brainsteps.net)
- [www.nfhs.org](http://www.nfhs.org)
- [www.impacttest.com](http://www.impacttest.com)

