SPORTS CONCUSSIONS
FACTS AND FALLACIES

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Disclosures

☐ I have no relevant financial or nonfinancial relationships to disclose.

☐ Presenting as a volunteer on behalf of the Brain Injury Association of Missouri

☐ Presentation in partnership with the Department of Health and Senior Services (DHSS) TBI Grant
Objectives

- Discuss the causes and symptoms of a concussion
- Be aware of the impact a concussion may have on young athletes
- Learn how to assess and manage concussions

Concussion, Defined

- Concussion may be caused by a direct blow to the head, face, neck or elsewhere on the body with an "impulsive" force transmitted to the head.
- Concussion typically results in the rapid onset of short-lived impairment of neurologic function that resolves spontaneously.
- Concussion may result in neuropathological changes but the acute clinical symptoms largely reflect a functional disturbance rather than a structural injury.

Concussion - Defined

- Concussion is a bump or blow to the head or body that interrupts the normal functioning of the brain.

- Concussion is a mild traumatic brain injury.

- Every head injury is not a brain injury, and every brain injury is not a head injury.

Concussion

- Concussion may or may not involve a loss of consciousness.

- Typically, concussions do not show up on CAT or MRI scans.

- Most concussion symptoms resolve themselves within a short period of time. However, a small percentage of individuals experience enduring symptoms.
Concussion – Statistics

- CDC estimates 1.6 to 3.8 million sports related concussions occur annually
- 75% “Mild” with 9% requiring hospitalization
- Sports and recreation related brain injuries cause 900 deaths per year

Consequences of Concussion

BRAIN INJURY ASSOCIATION OF MISSOURI
Symptoms of Concussion

- Headache
- Visual Disturbance
- Dizziness
- Noise/Light Sensitivity
- Nausea
- Personality Changes

Cognitive Symptoms

- Attention Problems (e.g., easily distracted & divided attention)
- Learning and memory dysfunction
- "Fogginess"
- Fatigue
- Cognitive slowing or diminished speed of processing
Sleep Disturbance

- Difficulty falling asleep
- Sleeping less or more than usual
- Sleep patterns are reversed

Younger Athletes

- Younger athletes...
  - Appear to be more vulnerable to concussion
  - May experience more severe symptoms
  - Require longer to recover from concussion
- Children who have history of neurologic compromise (e.g., learning disability) also appear to require longer to recover from a concussion
Risks of Concussions

- Sustaining another concussion
- Post Concussion Syndrome
- Second Impact Syndrome
- Lifelong Disabilities
- CTE

Sustaining Another Concussion

- The athlete may not fully disclose all symptoms experienced.

- Even after being cleared for play, the youth may be slower to react and are at risk of another concussive incident.
Post Concussion Syndrome

- Symptoms can get worse and last for several weeks or month.
- More common with repeated concussions.

Second Impact Syndrome

- Results from incurring a concussion while still recovering from a prior brain injury
- Controversial
- Death can occur
Long Term Changes

- Cognitive
- Physical
- Perceptual/Sensory
- Emotional/Mental Health

CTE

- CTE - Chronic Traumatic Encephalopathy

- Progressive degenerative disease linked to repeated concussions

- Early stages of research — This condition is not widespread.
Concussion Assessment and Return to Activity

Initial Assessment

- Determine if individual may have sustained a concussion

- Presence of symptoms (not force of impact) is used to identify a concussion.
Initial Assessment

- Observed symptoms
- Reported symptoms
  - Person Injured
  - Individuals nearby or watching

Initial Assessment

- Altered mental status
- Disorientation, confusion, decreased attention and concentration, speed of processing, learning and memory, etc.
- Sensory disturbance (vision, decreased balance) – Coordination Test
- Assessment – CDC Check-List
## Follow-up Assessment

- Assessment of cognitive symptoms (Screening to Comprehensive)
- Assessment of physical/sensory/emotional symptoms (Screening to Comprehensive)
- Computerized neurocognitive screening measures (baseline testing)
- Neuropsychological Evaluation — Comprehensive assessment of functional status, including cognitive and emotional well-being

## Concussion Management

- **Cognitive and Physical Rest**
  - Light exercise and cognitive activity after 1 or 2 days

- Expect gradual resolution of symptoms in 7 to 10 days (longer for younger athletes or persons with history of neurologic compromise such as prior concussion or learning disability)
Concussion Management

- Graded Exertion Protocol outlines general timeline to manage symptoms & RTP
- Clearing of symptoms may occur relatively soon (days) or endure for a period of time (weeks to months)

Return to Play (RTP)

- RTP is a complex determination dependent upon multiple variables (e.g., player and history of concussions), age of student, activity, time since last symptom, etc.
- Premature RTP – Increased risk of harm and injury
- Delayed RTP – difficult to re-engage “shell shock”
Considerations

- Helmets and mouth guards do not prevent concussion
- "Biggest hits" may not correlate with the severity of a concussion

Considerations

Concussion can result in multiple symptoms that compromise the academic performance, social functioning, and quality of life of student athletes
Questions

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Resources

- Brain Injury Association of Missouri
  http://www.biamo.org/
- Brain Injury Association of America
  http://www.biausa.org/
- Center for Disease Control (CDC)
  http://www.cdc.gov/concussion/
- Center for Disease Control (CDC) Coaches Guide
Resources

- Missouri State High Schools Activity Association

- National Athletic Trainers Association
  http://www.nata.org/health-issues/concussion

- American Academy of Pediatrics