# SPORTS CONCUSSIONS **FACTS AND FALLACIES**













#### **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 Missouri AgrAbility Project and DHSS/TBI Grant











# **Objectives**

- □ Discuss the causes, symptoms and impact of a concussion
- □ Learn how to assess and manage concussions
- Identify community resources











# 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 shortlived 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.

Aubry et. al., Br J Sports Med 36(1): 6-10, 2002





#### 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



# 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.

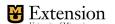




# Second Impact Syndrome

- 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 <u>may</u> 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**

- □ Rest until asymptomatic
  - □Physical AND Cognitive rest
- □ 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)





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# **Concussion Management**

- □ Once symptom free at rest graded exertion/exercise and if remain symptom free eventual Return to Play (RTP)
- □ 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





# Brain Injury Resources

- □ Brain Injury Association of Missouri
  - Support
  - Education
  - Recreation
  - Advocacy
- $\hfill\Box$  Brain Iniury Association of America





# Brain Injury Association of Missouri: Support

- Support Groups
- □ Information & Referral Service





# Brain Injury Association of Missouri: Education

- □ Survivor and Family Seminars
  - Southwest
  - Western
  - Eastern
- □ Annual Professional Development Conference
- □ Sports Concussions Seminars





Educational Presentation

# Brain Injury Association of Missouri: Recreation

- □ Donald Danforth Jr. Wilderness Camp
- □ Social Recreational Activities





# Brain Injury Association of Missouri: Legislative Advocacy

- Legislation efforts
- □ Advocacy Alerts advocacy@biamo.org





# Brain Injury Resources: Government Programs

- □ Department of Health and Senior Services
- $\hfill\Box$  Department of Mental Health





# Brain Injury Resources: **Employment Programs**

- Missouri Vocational Rehabilitation
  - Employment
- □ Missouri AgrAbility Project
  - Farming
  - Ranching





# For More Information, Contact:



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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 http://www.cdc.gov/concussion/pdf/Coach\_Guid e-a.pdf

#### Resources

- Missouri State High Schools Activity Association
   http://www.mshsaa.org/resources/pdf/ConcussionPacketHB300\_Final.pdf
- National Athletic Trainers Associationhttp://www.nata.org/health-issues/concussion
- American Academy of Pediatrics
  http://www.aapnj.org/showcontent.aspx?MenulD
  =1017