



Concussions: Heading for Change Teacher's Guide



“It’s not just about football, it’s about all sports and sports performance.” – Dr. Tim Gay, Physics Professor, University of Nebraska-Lincoln

Synopsis

“Concussions: Heading for Change” is a 2014 documentary that details efforts to research, understand and treat minor brain injuries that can have major consequences for young athletes. Through interviews with experts, summaries of research, and first-hand accounts from two former athletes who experienced life-changing brain injuries, the program shows how growing awareness of the serious consequences of concussion led to the creation of the University of Nebraska-Lincoln’s unique brain research laboratories located in Memorial Stadium, as well as to passage of the Nebraska Concussion Awareness Act to help detect and treat concussions in school age athletes and to educate parents and athletic personnel. Viewers learn that concussion is a mild brain injury that can happen to anyone, not just to football players.

Former UNL linebacker Blake Lawrence recounts his experiences during the 2008 season, when he sustained his first concussion. Concussion injuries can result from direct or side impacts, or from motion that causes the head to move rapidly back and forth or side to side. Rotational motion that causes the brain to spin on its axis can also cause concussion. Symptoms of concussion include disorientation but not necessarily loss of consciousness. Treatment approaches center on rest and prevention of further injury. Recovery can take two to six weeks. Returning to activity too soon puts the brain at risk for Second Impact Syndrome, a series of concussions that can do long-term damage. Blake Lawrence suffered two additional concussions within a year of his first one. After a talk with his coach, he decided if he had one more, he would leave football. Statistics show sports concussions on the rise. Partly this increase is related to concussion awareness and better diagnosis. It is also related to increases in the size of athletes and the speed at which they run. Lawsuits against the NFL and NCAA have heightened public awareness of concussion risks.

When expanding Memorial Stadium in 2011, the University of Nebraska-Lincoln made the decision to include two research labs where academics and athletics personnel could collaborate: The Center for Brain, Biology and Behavior and the Nebraska Athletics Performance Lab. The goal of creating these facilities is to understand the long-term impact of concussions and help find rehabilitation strategies for recovery.

Education is another goal, to promote new awareness to dispel outdated ideas such as the notion that a player could take a hard hit and go back to play almost immediately. Another myth to be tackled is the idea that concussions only happen to pro or college level athletes. Brady Beran, a high school soccer and football star, found his life completely changed in 2004 when he sustained a hard hit during a football game, returned to play despite unsteadiness and finally collapsed on the sidelines. Surgery, a medically-induced coma, and a long course of rehabilitation followed. In 2011, Nebraska passed the Nebraska Concussion Awareness Act. At that time, Nebraska was the 13th state to pass similar legislation. Legislative Bill 260 details the process for identifying and evaluating students who have sustained concussions and also calls for concussion education for parents, coaches and school personnel. The program concludes with athletes and experts in agreement: When it comes to concussion, awareness is invaluable.



“A concussion is an impact to the brain that results in a change in mental status.” –Dr. Lori Terryberry-Spohr, PhD, Madonna Rehabilitation Hospital

Vocabulary

trauma- a physical injury

TBI- traumatic brain injury resulting from a mechanical force; has the potential to impair thinking, movement, and mental activity

syndrome- a group of symptoms and signs that happen together, causing or indicating a particular condition

whiplash- usually refers to a neck injury that results from a violent back-and-forth movement that is similar to the cracking of a whip

white matter- the whitish nerve tissue of the brain and spinal cord

Linear acceleration- the rate velocity changes without a direction change

lateral- from the side

rotational acceleration- involves a spinning object and the change in its angular velocity over time

EEG- electroencephalogram, a test of the brain's electrical activity that involves attaching electrodes (small metal discs) to the scalp

NCAA- National College Athletics Association

NFL- National Football League

Talk About It Discussion Questions

“We know very little about the brain, and we probably know a lot less about concussion.” – Dr. Dennis Molfese, PhD, Director, Center for Brain, Biology, and Behavior

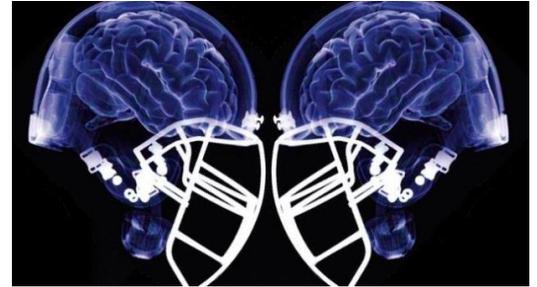
What are some activities once thought to be harmless have later been found to have long-term effects on health?

- Getting a suntan
- Smoking
- Eating various foods

“You can fall over a hurdle. I mean, things happen.”—Dr. Lori Terryberry-Spohr, PhD, Madonna Rehabilitation Hospital

What are some non-sports activities that involve the risk of concussion?

- Dance
- Household maintenance that involves ladders or heights
- Driving a car



“It’s not just going to stay in sports.” Dr. Tim Gray

What are benefits of studying sports concussion that will help non-athletes?

- better understanding of treatment and recovery for non-sports injuries such as car crash injuries
- Improved safety practices
- Improved safety equipment

Action Ideas for Concussion Awareness

- In small groups, design a campaign to increase student awareness of concussion prevention ideas.
- Have students seek out statistics and testimonials to include.
- Have students brainstorm ideas for new safety equipment to protect people from various forms of trauma.
- Create sketches of the imaginary inventions.
- Share these ideas with other class members.
- Have students divide into teams and prepare to debate a hypothetical resolution to ban all sports that involve a risk of concussion.

More about...

Concussion symptoms

- <https://www.cdc.gov/traumaticbraininjury/symptoms.html>

Brain injury

- <http://emedicine.medscape.com/article/326510-overview>

EEG

- <http://www.mayoclinic.org/tests-procedures/eeg/basics/definition/prc-20014093>

Concussion Prevention

- https://www.cdc.gov/headsup/basics/concussion_prevention.html
- <http://sportsconcussion.bianj.org/concussion-prevention/>

linear acceleration

- <http://www.medilexicon.com/dictionary/426>

rotational acceleration

- <http://whatis.techtarget.com/definition/angular-acceleration-rotational-acceleration>

Center for Brain, Biology and Behavior

- <http://cb3.unl.edu/cb3-in-the-news/>

Nebraska Athletic Performance Lab

- <http://www.huskers.com/ViewArticle.dbml?ATCLID=207732860>

Nebraska Concussion Awareness Act

- http://nebraskalegislature.gov/bills/view_bill.php?DocumentID=11869
- <http://dhhs.ne.gov/publichealth/concussion/Documents/LB260-FAQ.pdf>

NFL Concussion Settlement

- <https://www.nflconcussionsettlement.com/>
- <https://www.nytimes.com/2017/06/16/sports/football/nfl-concussion-settlement.html>

Credits

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