



District Health Department #10



REPORT TO THE BOARDS OF HEALTH

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Head Injuries and Concussions

Concussions are a form of a traumatic brain injury.¹ They can be caused by bumps, blows, or jolts to the head, or by any hit to the body that causes the head and brain to move back and forth quickly. These sudden movements cause the brain to bounce around in the skull, damaging brain cells or causing chemical changes in the brain.¹ Even though concussions may be described as mild brain injuries, because they are not typically life threatening, the effects of concussions can be serious.

On July 25, 2017, The Journal of the American Medical Society, or JAMA, published new findings related to head injuries sustained by football players.² Brain tissue samples from 202 deceased former football players that were part of a brain donation program were examined for signs of chronic traumatic encephalopathy (CTE,) or permanently diseased brain due to trauma. Of the 202 players examined, 177 (87%) had evidence of CTE. Those affected ranged in age from 29 to 77 years old, with an average age of 66. On average, they each played an average of 15 years of football; 2% only played high school, 27% played through college, 5% played semiprofessional, 4% played Canadian Football League, and 62% played in the National Football League. Higher levels and years of play was associated with more severe CTE, and nearly all the NFL players had CTE, which was frequently severe. Questioning of the families found that players with signs of CTE often had behavioral and/or mood symptoms, problems thinking, or signs of dementia. These problems were more likely in those that had more severe CTE. One disheartening finding was the most common cause of death in the group with mild CTE, which had an average age of 44, was suicide, at 27%. In this group, 96% were reported to struggle with mood symptoms.



Stage I CTE



Stage IV CTE

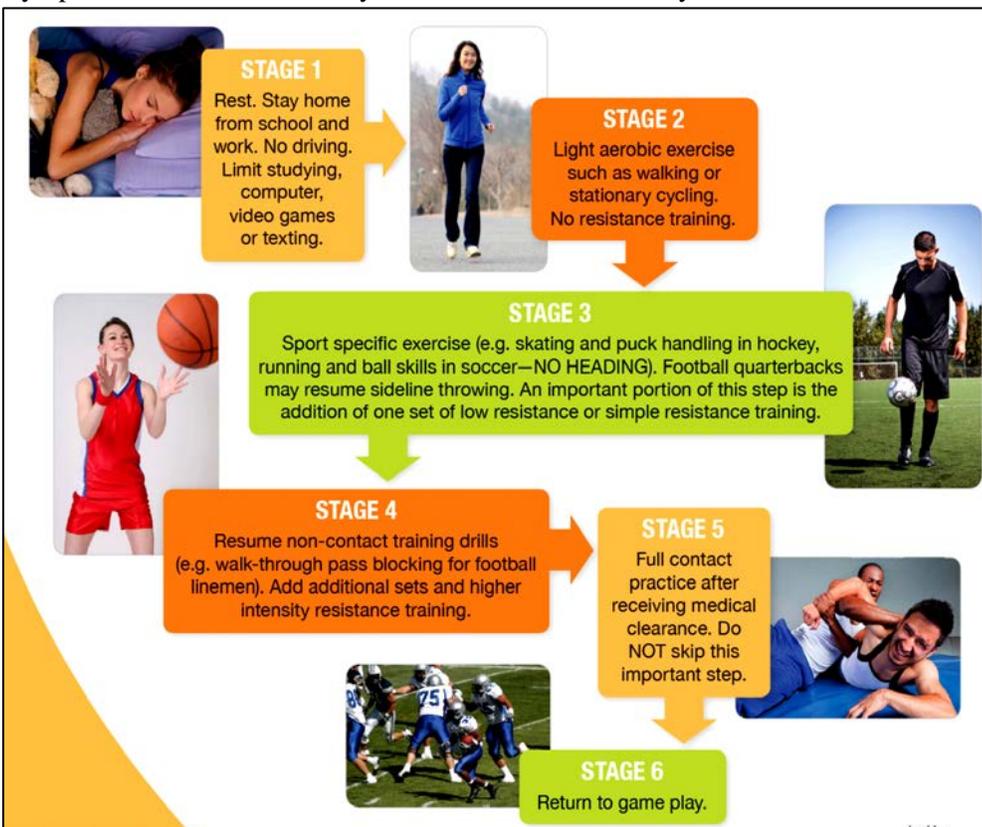
**Red/Brown = stained neurofibrillary tangle,
a sign of CTE**

Due to these findings and the results of other studies, concussions and head injuries are now taken very seriously. All states have “Return to Play” laws. Michigan was the 39th state to enact such laws -- Public Acts 342 and 343 of 2012, known as the Michigan’s Sports Concussion Awareness Laws.³ These laws require that coaches and all adults involved in youth athletics are properly educated about concussions, educational materials are provided to youth athletes and parents, athletes are removed from play immediately if a concussion is suspected, and written medical clearance is needed before any athlete suspected of sustaining a concussion is allowed to return to any physical activity.³

Signs and Symptoms of Concussion ¹	
<i>Usually appear soon after injury, but may not be apparent for hours/days</i>	
Signs (things that are observed happening)	Symptoms (things that are reported by concussed)
Can't recall events prior to or after a hit or fall	Headache or "pressure" in head
Appears dazed or stunned	Nausea and/or vomiting
Forgets an instruction, is confused about assignment, unsure of the game, score, opponent	Balance problems and/or dizziness, or double/blurred vision
Moves clumsily	Bothered by light and/or noise
Answers questions slowly	Feeling sluggish, hazy, foggy, or groggy
Loses consciousness (<i>even briefly</i>)	Confusion, or concentration or memory problems
Shows mood, behavior, or personality changes	Just "not feeling right", or "feeling down"

Signs of emergency ¹
One pupil larger than the other
Drowsiness or inability to wake up
Headache that gets worse and does not go away
Slurred speech, weakness, numbness, decreased coordination
Repeated vomiting or nausea
Seizures or convulsions
Unusual behavior, increased confusion, restlessness, agitation
Loss of consciousness
Additional signs of emergency in a toddler/infant ¹
Inconsolable, won't stop crying
Will not nurse/eat

Most recover within hours to weeks. However, some can develop post-concussive syndrome, which is concussion symptoms that last months to years. It can occur after only one concussion, but is more common in those that have



had multiple concussions. It is very important to rest after a head injury, as activity will worsen symptoms. Once feeling better, light activities can be started at home, stopping if symptoms return. Children can return to school gradually and only if it does not worsen symptoms. Regular activities can begin once they can be done without return of any symptoms. Once back at school and cleared by a medical professional, student athletes can begin light activity and can increase intensity every 24 hours in stages if they do not have any return of their symptoms.

Resources:

- CDC Heads Up Concussion Education and Resources <https://www.cdc.gov/HeadsUp/>
- Concussion at Play: Opportunities to Reshape the Culture Around Concussion https://www.cdc.gov/headsup/pdfs/resources/concussion_at_play_playbook-a.pdf
- Michigan Sports Concussion Law and Resources http://www.michigan.gov/mdhhs/0,5885,7-339-71548_54783_63943---,00.html
- University of Michigan Neurosciences Concussion education <http://www.uofmhealth.org/conditions-treatments/brain-neurological-conditions/concussion/concussion-education>
- American Academy of Neurology Resources <https://www.aan.com/concussion>
- Concussion Quick Check App by the American Academy of Neurology
Apple: <https://itunes.apple.com/us/app/concussion-quick-check/id613178630?mt=8>
Google: <https://play.google.com/store/apps/details?id=com.concussion.aan&hl=en>

Board of Health Healthy Living Recommendations*:

1. Learn how to spot a concussion and what to do if a concussion is suspected.
2. Model, expect, and reinforce safe and sportsmanlike play.
3. Encourage players to report symptoms of concussion and encourage teammates to support those sitting out of play if they have a concussion.

*Taken from *Concussion at Play: Opportunities to Reshape the Culture Around Concussion*

¹Centers for Disease Control and Prevention (CDC). (2017, June 22). HEADS UP: Brain Injury Basics. Retrieved August 08, 2017, from <https://www.cdc.gov/headsup>

² Mez, J., Daneshvar, D. H., Kiernan, P. T., Abdolmohammadi, B., Alvarez, V. E., Huber, B. R., ... & Cormier, K. A. (2017). Clinicopathological evaluation of chronic traumatic encephalopathy in players of American football. *JAMA*, *318*(4), 360-370.

³ Michigan Department of Health and Human Services. (n.d.). MDHHS Safety & Injury Prevention Public Safety & Environmental Health Michigan Sports Concussion Law. Retrieved August 08, 2017, from http://www.michigan.gov/mdhhs/0,5885,7-339-71548_54783_63943---,00.html