Detecting Concussions

By Ashlyn Melcher

Who, What, Where, When, Why and How

In sport athletes one of the many overlooked injuries are concussions. They are often overlooked after the scene of the incident, which can lead to long term brain damage. More than 2 million people a year; and a quarter of them children, experience classic concussion symptoms that are neglected. Recent studies at the time of the article determined that when high levels of Glial Fibrillary Acidic protein (GFAP) cells that surround the neurons in the brain are released, they then enter the bloodstream. After they are released they can spend up to 7 days in the bloodstream. A study was done with several blood test taken from over 600 patients, 18 years of age and older, 4 hours after the patients were admitted. The study was then conducted for the next 7 days. Half of them were diagnosed with concussions related to falls, sports, car crashes, and other activities after getting a blood test that had the released proteins from their neurons. Researchers also have found that the more severe of a brain injury, the higher concentration of proteins are released into the bloodstream.

Who, What, Where, When, Why and How...Continued

Not only did the researchers find the Glial Fibrillary Acidic protein (GFAP) proteins, but also another brain related protein called UCH-L1. When the scientists compared the CT scans from the patients and the test results done, it revealed that the blood test was able to accurately identify mild to moderate concussions 97% of the time. The UCH-L1 levels did decline after 2 days but the GFAP protein levels remained high for almost an entire week after the injury.

Impacts

The discovery and research of being able to detect concussions after an activity such as a, sport, a fall, car crashes, etc... can be detected from just taking blood. Discovering this research done can be helpful to so many families, people, and kids especially. Like I previously mentioned, concussions can be overlooked, due to times where the person may not have exact symptoms that are looked for to determine whether or not they have a concussion. The research done is very beneficial to patients since many often postpone their appointments for a few days hoping the concussion symptoms would just go away. Linda Papa, who is a doctor that is teaming up with a leading health technology company named, Royal Philips, to construct a hand held device that can test your blood on the scene of the injury and display the level of proteins within minutes. Further studies do need to be done to be approved for general use, but it is a substantial leap in the diagnosis for this overlooked injury.

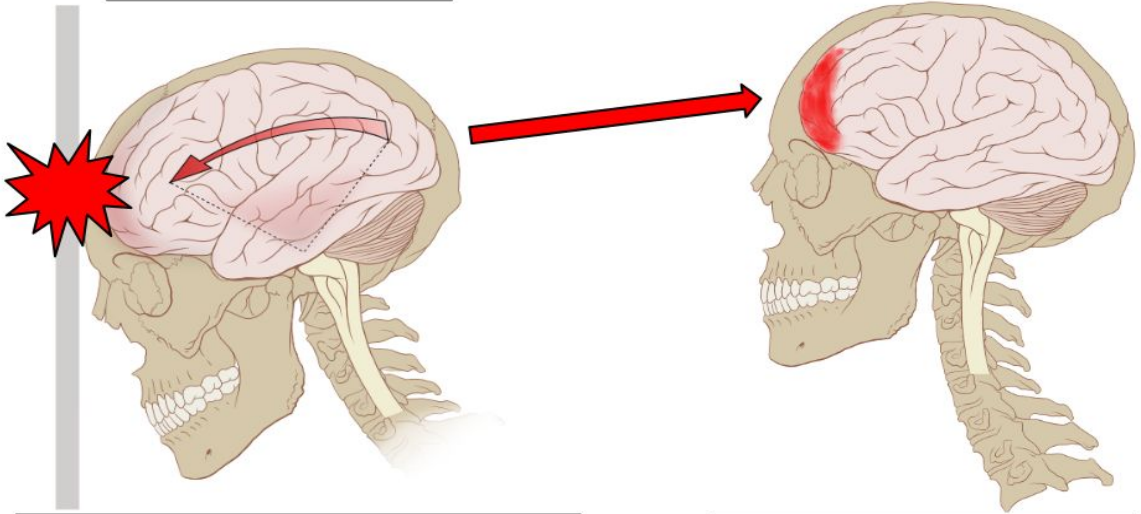
Impacts Continued

Mentioned earlier, concussions can cause long term brain and cell damage. This research and discovery that was found can help prevent many people from suffering from the pain or any long term effects that can sometimes result in when an athlete doesn't fully recover from the first concussion, and get a second blow to the head. If you are not fully recovered from the first brain injury and get a second one, massive swelling of the brain can occur, which can cut off fresh blood flow to the brain and can be fatal. Detecting a concussion is critical to one's short term and long term well being.

Diagram and a tab bit of Info

Concussion: A traumatic brain injury that changes the way your brain functions.

This can lead to bruising and swelling of the brain, tearing of blood vessels and injury to nerves, causing the concussion.



The brain is made up of soft tissue and is protected by blood and spinal fluid. When the skull is jolted too fast or is impacted by somthing, the brain shifts and hits against the skull.

Most concussions are mild and can be treated with appropriate care. But left untreated, It can be deadly.

Connections to class

The topic of detecting concussions correlates to what we have learned about cells in Ms. Wilson's class. The topic relates about cells in the way of explaining how they are affected when you receive a concussion. There are cells that surround the neurons in your brain and when you get a concussion those neurons in your brain release the proteins from your cells into your bloodstream. The releasement of the proteins can linger in your bloodstream for up to 7 days after the related concussion. The more severe the injury, the more of the proteins that become released into the bloodstream. The blood test done can detect the proteins in your bloodstream confirming if you have a concussion.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