Technologies To Reduce Concussion In Sports

A concussion is known in the scientific world as an alteration of neurological function or a brain injury. People have known about concussions since the early 1900's but have not understood the severity of these brain injuries until recently. Studies have shown that a concussion is most likely not caused from just one single hit but from a culmination of the hits throughout a season. The first headgear produced to protect a persons head from a blow likely to cause a concussion was created by a man named Joseph Reeves. Joseph was in the U.S. Navy in 1893 when he wore the first ever helmet in an American football game(AntiqueFootball). He wore the helmet he made in one of the most prolific games in all of football, Army vs. Navy.

After Joseph Reeves wore his version of the football helmet, more athletes began to wear headgear for their football games. In 1939, John T. Riddell, the founder of what is now the most successful football helmet companies in the world, had an idea of replacing the flimsy and not very protective headgear with a new material(Michelle). He would use plastic on the outside of the shell and a cushiony material on the inside of the helmet to soften the blow on the athletes head. Before the helmet was even worn on the field, it was used in battle. World War II was being fought at the time of Riddell's invention, this allowed Riddell to sell his product to the government to protect the soldier's heads. In 1963 the first helmet that used air inflation to better fit the athletes head was made. It was called the TAK-29(Michelle). The first helmet created by Riddell to actually reduce concussion prevalence was the Riddell Revolution(Michelle). John T. Riddell started a movement in football by creating the first plastic helmet which then lead to fitted helmets which then lead to more and more advances in the protective headgear industry. These advancements would allow for researchers to collect data on the amount of force put on a players head and neck during a given hit and allow them to diagnose what exactly causes a concussion.

In a report given to congress in 1999, it says that deaths from a Traumatic Brain Injury or TBI decreased by 20% since 1980(Thurman). This was a result of the improved knowledge and technology of how to treat and respond to someone with a concussion or TBI. But the report also states that out of the 1.5 million people that sustained a TBI or concussion 50,000 people died(Thurman). In an updated report to Congress on TBI and concussions in 2018 it states, "From 2001 to 2012 the rate of sports related hospital visits increased significantly among males, particularly among those 10-14 years of age (139.9% increase) and those 15-19 years of age (119.3% increase). Among males, the largest number of hospital visits for sports- and recreation-related TBI occurred as a result of injuries while bicycling, or playing football or basketball"(Schuchat 20). This statistic shows that even though technology and methods of prevention are being used everyday and advanced, their is still no real answer to the very common TBI or concussion. In 2013, the NCAA revamped its penalty for targeting which is the use of the crown of the helmet as a weapon against another plays head(Cortez). The penalty's new guideline includes that any player who gets penalized while receive automatic disqualification. This penalty was created to lower the amount of head to head hits during a game. A recent study showed that before the rule was in place in 2009-2010, a concussion occurred 1.64 times for every 1000 athletes(Geier). But the season the new rule was put in place in 2013-14, the study concluded that a concussion happened 2.87 times per 1000 athletes (Geier).This study shows contradicting evidence to what the NCAA thought was going

to happen when they implemented the rule. This also shows that even with new rules and improving technology, there really is no solution or answer to how or why concussions happen so frequently to athletes especially in football.

Current technology that will help reduce the amount of concussions in sports and football specifically includes Baseline Testing, improved mouth guards, and the newest and safest helmet called the Vicis Zero 1. The Vicis helmet is made of layers which redistribute the forces put of the helmet rather than sending it all around a players head which is most likely the cause for a concussion(Skiver). The helmets are also sized to fit the players which allows for ultimate comfort while they are playing. The current Baseline testing tests the brains learning and memory skills and its ability to concentrate. It also test the athletes balance and concussion like symptoms. With this new technology, athletes are being put in safer environments to help them continue playing football and other sports without worrying about getting a concussion or TBI.

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