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Abstract Title: Targeting Rule Implementation Decreases Neck Injuries in High School Football: A National Injury Surveillance Study

Background

Neck injuries in football are attributed to helmet-to-helmet contact with youth players being at greatest risk. In 2014 the National Federation of State High School Associations (NFHS) implemented rules defining illegal contact against a defenseless player above the shoulders to reduce head and neck injuries in football players. This study evaluates whether rule implementation decreased rates of high school football neck injuries presenting to the emergency department (ED) pre-rule implementation (2009-2013) to post-rule implementation (2015-2019).

Methods

Data were queried from the National Electronic Injury Surveillance System for high school football players 14 to 18 years old diagnosed with a neck injury from January 1, 2009 to December 31, 2019. Narratives in the data were reviewed for mechanism of injury, setting, loss of consciousness (LOC), and type of injury.

Results

Between 2009 and 2019, an estimated 47,577 high school football neck injuries were diagnosed in EDs across the United States. 52.0% of neck injuries were sustained during competition compared to 48.0% during practice. A statistically significant ($P=0.004$) decrease in neck injuries was realized from pre-rule implementation to post-rule implementation with yearly averages of 5,278 and 3,481, respectively. Helmet-to-helmet neck injuries significantly ($P=0.04$) decreased from pre- to post-rule implementation with averages of 851 and 508, respectively. Neck injuries sustained via other mechanisms were not affected by the 2014 rule implementation.

Conclusion

This study is the first to identify a decrease in overall and helmet-to-helmet related neck injuries diagnosed in the ED following the 2014 NFHS targeting rule implementation. These findings highlight the importance and efficacy of rule implementation in reducing sports-related neck injuries.