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Abstract

➢Concussion is one of the leading cause of traumatic brain injury in 13-22 year olds
➢The purpose of this study is to determine whether or not mouth guards provide protection from sports-related concussions in 13-22 year old athletes participating in contact sports
➢Which type of mouth guard is the most effective in preventing or reducing the severity of these injuries?

Literature Review

Each year in America, millions of athletes experience a sports-related concussion. Even though protective equipment has improved traumatic brain injuries continue to occur. A literature review was performed using full text articles found searching PubMed that discussed the pathophysiology of concussions in 13-22 year old athletes participating in contact sports, symptoms of these traumatic brain injuries, and comparison of mouth guard designs.

Research Question

➢Do high school athletes who wear mouth guards when they participate in contact sports have a decreased incidence of concussion compared with those who do not?

➢ Do athletes who wear custom-made mouth guards have a decreased incidence of concussion compared to those that use over-the-counter mouth guards?

Problem Statement

Contact sports increase athletes risk of suffering a concussion, which can lead to long-term neurological effects and decreased quality of life.

Pathophysiology

➢Concussions occur as a result of acceleration-deceleration and rotational forces that disrupt the neuronal membrane via direct blow to the face, head, or neck regardless of loss of consciousness. The brain is free-floating within the skull and moves at a different rate than the cranium upon impact thus there is contact by the helmet, skull, and brain with varying distribution of force.

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Discussion

Contact sports increase the risk for athletes to suffer a concussion. Concussions can cause a vast array of physical and neurologic symptoms from benign headaches and dizziness to more serious visual disturbances and personality changes. Multiple concussions carry substantial risk of long-term cognitive impairment and anterograde amnesia. The use of mouth guards has been recommended as a strategy to prevent oromaxillofacial injury and a possible method to prevent concussions in contact sports. Data suggests athletes who do not wear mouth guards have the same rate of concussion as those athletes that do wear mouth guards, regardless of guard type.

Clinical Application

➢The studies indicated that although mouth guards are shown to reduce dental trauma in contact sports, there is no conclusive confirmation that mouth guards reduce concussive/traumatic brain injuries
➢Educating patients, families, and coaches is an important piece in the plan of care so athletes receive appropriate and effective care in order to minimize long term effects from the injury and reduce the threat of litigation.

References

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