



Pediatric Dentistry and Sports Injury: A Comprehensive Review

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ABSTRACT:

Pediatric dentistry plays a crucial role in promoting oral health and preventing sports-related dental injuries in children and adolescents. This review aims to provide a comprehensive overview of the incidence, aetiology, prevention, management, and long-term consequences of sports-related dental injuries in young athletes. Understanding the impact of these injuries on oral health is essential for both dental practitioners and sports professionals to develop effective preventive strategies and provide prompt treatment when necessary. This article emphasizes the importance of interdisciplinary collaboration between pediatric dentists, sports medicine professionals, coaches, and parents to ensure the well-being of young athletes.

Keywords: Sports injuries; mouth guards; pediatric dentistry

Introduction:

Sports and physical activity participation is essential for children's and teenagers' healthy development because it promotes physical fitness, social skills, and a sense of success. Sports come with a wealth of advantages, but they also carry a risk of damage, including oral trauma. Children who participate in sports, whether they are organized team sports or solo endeavours, may experience collisions and mishaps that result in oral injuries. Infants, kids, and teenagers are the primary patients of paediatric dentistry, a subspecialty of dentistry. It includes a variety of dental procedures as well as precautions made specifically for the special requirements and vulnerabilities of young patients. Paediatric dentists play a crucial role in safeguarding and preserving young smiles when it comes to sports injuries, making sure that athletes may enjoy their activities with the fewest possible dangers to their oral health. Parents, coaches, and healthcare professionals can collaborate to make youth sports safer by being aware of the unique difficulties young athletes encounter and the steps taken by paediatric dentists to protect their dental health. We can work to ensure that participating in athletic endeavours continues to be a positive and fulfilling experience by providing proactive dental care, education, and the implementation of preventive measures, minimizing the effects of sports-related dental injuries on the dental health and general well-being of our young athletes.¹⁻³

Incidence and Etiology of Sports-Related Dental Injuries in Pediatric Patients:

There are a sizable number of cases reported each year of paediatric patients who sustained sports-related oral injuries. From tiny fractures and chips to more serious tooth avulsions and jaw fractures, these wounds can range in severity. The physical nature of sporting activities, where collisions, falls, and direct hits to the face are frequent occurrences, is a common cause of these injuries. Due to the intensity of the physical contact, contact sports like football, basketball, hockey, and soccer are more likely to result in oral injuries. But it's crucial to remember that non-contact activities like gymnastics, skateboarding, and even swimming can sometimes result in oral injuries. These factors can increase the risk of dental trauma and affect the severity of injuries when they occur. It is crucial to address the problem across a wide range of sports since accidents and falls during these activities might result in severe oral damage. The absence of suitable protective equipment or its improper use is two of the main causes of sports-related oral injuries. Particularly important in reducing the risk of dental injuries are mouthguards. Unfortunately, a lot of young athletes either don't use mouthguards or do so improperly, leaving their teeth and nearby structures open to damage. Additionally, some anatomical and developmental variables may increase the risk of oral injury in paediatric patients. In comparison to adults, children and adolescents frequently have more developed facial bones, weaker enamel, and larger pulp chambers. With a substantial prevalence reported across numerous research and populations, dental injuries are a serious concern for young athletes. Depending on the demographics, sports, and research methods, the precise prevalence may change. But research constantly demonstrates how seriously dental injuries affect young athletes' oral health. Dental injuries make up a sizable fraction of orofacial injuries in kids and teenagers, according to the American Academy of Paediatric Dentistry. According to studies, between 13% and 39% of all paediatric patients' sports-related injuries are oral in nature. Both permanent teeth and primary (baby) teeth may be harmed in these accidents. Compared to non-contact sports, contact sports have a higher rate of dental injuries. For instance, research that looked at dental damage in basketball players discovered that more than 30% of sportsmen had suffered tooth trauma. Similar studies on hockey and soccer players have shown prevalence rates of dental injuries ranging from 10% to 35%. Young athletes are

frequently seen with tooth fractures, luxations (displacement of a tooth inside its socket), and avulsions (total displacement of a tooth from its socket). When these injuries occur, it may be necessary to seek prompt dental care to stop further damage and save the afflicted tooth.¹⁻⁶

Prevention:

It is essential to safeguard the oral health and general wellbeing of young athletes by preventing sports-related dental injuries. We can greatly lower the prevalence and severity of oral trauma by applying efficient prevention measures.

1. Mouthguards: One of the best strategies to prevent dental injuries while participating in sports is to consistently wear mouthguards that are correctly fitted. The teeth and supporting structures are protected against impacts and collisions by mouthguards, which serve as a barrier of protection. The best fit and protection are provided by mouthguards that have been specially fitted by dental professionals. However, even off-the-shelf mouthguards offer some level of protection and are advised if custom choices are not practical.

2. Education and Awareness: It is essential to increase the importance of oral health and the dangers of dental injuries among players, parents, coaches, and healthcare professionals. Stress the need of wearing mouthguards and other protective gear, as well as get regular dental checkups to take care of any existing dental conditions that could make people more susceptible to injury.

3. Sports-Specific Advice: The risk of oral injury varies depending on the sport. Adapt preventive measures to the particular needs of each sport. For instance, additional protective gear, such as full-face helmets or visors, may be necessary for games involving direct contact, like football or hockey. Targeted preventive measures can be used by understanding the specific dangers connected with each sport.

4. Properly Maintained Playing Fields and Equipment: To lower the chance of accidents and falls that might result in oral injuries, it is crucial to ensure the safety and upkeep of playing fields, courts, and equipment. Sports facilities and equipment should undergo routine maintenance and inspection to reduce risks that could result in dental damage.

5. Supervision and instruction: Proper supervision and instruction in sports safety procedures and practices can aid in preventing collisions and incidents that result in oral injuries. Teaching athletes good technique, fair play, and injury avoidance methods should be coaches' and trainers' top priorities.

6. Dental Evaluation and Treatment: Prior to participating in sporting activities, dental examinations can detect and treat pre-existing dental problems. To reduce problems and improve results after a dental accident, prompt and adequate dental care is essential.

Management:

In order to reduce complications, alleviate pain, and protect oral tissues, the care of sports-related dental injuries necessitates swift and proper action. After sustaining a dental injury while participating in sports, it is critical to seek treatment as quickly as possible. Speak to a paediatric dentist or other dental expert who has handled dental trauma. Early diagnosis and care greatly increase the likelihood of effective therapy and tooth preservation. In order to achieve coordinated care and continuous support for the young athlete, it is critical to include parents, coaches, and medical experts in the management process. Young athletes with sports-related dental injuries might increase their chances of favourable results and long-term oral health by taking the proper management steps and receiving prompt dental care.⁷

Interdisciplinary approach to pediatric dentistry and sports injuries:

For complete and ideal care of young athletes, an interdisciplinary approach to paediatric dentistry and sports injuries is essential. Young athletes' dental and general health needs can be met holistically through collaboration between dental practitioners, sports medicine experts, coaches, parents, and other healthcare providers. The main components of an interdisciplinary approach are as follows:

1. Education and communication: It's crucial for all parties involved to communicate effectively. Oral specialists may inform coaches, parents, and players about the dangers of oral trauma, the value of preventive measures, and the proper way to handle it. Dental practitioners can learn from sports medicine experts about the particular requirements and dangers related to certain sports activities.

2. Pre-Participation Screening: To conduct pre-participation dental screenings, dental practitioners can work with experts in sports medicine. Before participating in sports activities, these screenings evaluate the oral health of young athletes, identify any pre-existing dental conditions that could increase the risk of dental injuries, and address any treatments that may be required.

3. Custom-Fitted Mouthguards: The creation and fitting of custom mouthguards are crucially dependent on dental professionals. By collaborating with coaches and sports medical professionals, they can make sure that young players have access to mouthguards that are properly fitted and provide the best possible protection against dental injuries.

4. Injury Assessment and Referral: An interdisciplinary approach enables quick examination, precise diagnosis, and appropriate referral to pertinent specialists in cases of sports-related dental injuries. Sports medical experts and dental professionals can collaborate to determine the extent of the injury, take care of any urgent issues, and plan for continued therapy and post-treatment care.

5. Rehabilitation and Return to Play: Sports medicine experts and dental professionals can work together on the rehabilitation process to make sure the athlete's oral health and general well-being are taken into account during the return-to-play phase. This may entail keeping an eye on the healing process, making necessary adjustments to treatment schedules, and putting preventative measures in place to lower the risk of further accidents.

6. Prevention Programs and Policies: To create and implement prevention programs and policies that seek to lower sports-related dental injuries, a multidisciplinary approach can be helpful. This may entail promoting the use of mouthguards, raising awareness of oral health issues, and collaborating with governing bodies and sports organizations to enforce safety regulations.8-11

Conclusion:

An interdisciplinary approach maximizes the efficacy of preventative measures, improves injury treatment, and improves the general well-being of young athletes by fusing the knowledge and viewpoints of dental professionals, sports medicine specialists, coaches, and parents. These coordinated efforts make sure that young athletes can participate in sports while lowering the risk of dental injury and supporting long-term oral health. The future of paediatric dentistry and sports medicine holds significant potential for improved outcomes, stronger preventive measures, and a greater focus on the general health and well-being of young athletes as research, technology, and collaborative efforts advance. By accepting these possibilities, we may work towards a future in which dental accidents are reduced, oral health is given top priority, and young athletes can participate in sports with confidence and excellent oral health.

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