

Sports Dentistry-Unveiling Untouched Grounds of Dentistry-A Review

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Received: April 15, 2022 **Published:** May 04, 2022

Abstract

Sports dentistry is one of the branches which is being explored meticulously over the years, providing preventive measures to well defined treatment modalities for traumas and injuries associated with sports and on-field activities. In the current scenario, indulgence into sports and recreational activities has increased manifolds in not just paediatric age group but traversing to all ages and accounts for higher incidences of oral and maxillofacial trauma. Thus, general dentists and specialist dentists must have adequate knowledge to provide comprehensive dentofacial care. This article draws attention and enumerates measures to generate awareness, options for delivering preventive management devices and treatment modalities for sports related injuries.

Keywords: Abrasion, Faceguard, Orofacial Injuries, Sports Dentistry

Introduction

Sports dentistry is a branch dating back to medieval times. Sports dentistry was founded as a branch in 1958. International Academy for Sports Dentistry defines sports dentistry as the sports medicine division that deals with the prevention and treatment of dental injury and related oral diseases associated with sports and exercise [1]. Not just treatment but prevention of Oro-facial injuries is also an important component of sports dentistry.

Epidemiological studies indicate that dental trauma is a major problem among young people and that the incidence of trauma is higher than that of dental caries and periodontitis in this population [2]. Oral and facial structures are most commonly damaged during any kind of sports injury drawing in urgent requirement to visit a dentist to rule out any dental and Oro-facial injuries. Dentists practicing amongst branches such as pedodontics and preventive dental care, endodontics and oral and maxillofacial surgery should have immense knowledge to ensure and provide comprehensive dentofacial care [3]. Sports dentistry is extending its arms, not limiting its conventional concept to mere fabrication of mouth-guards and treatment of fractured tooth. Today, sports dentistry compasses vast fields where it deals with preventive, diagnostic, therapeutic, emotional and psychological aspects of trauma occurring as a consequence of outdoor and indoor sports.

Liaison of sports and dental injuries

With increasing awareness of health in the current scenario, people of all age groups are engaging themselves in various sports activities for recreational and health reasons. These activities could be a reason for inevitable dental and facial trauma as a direct consequence of sports injuries [4]. It could involve both, injuries of soft and hard tissues of oral and facial regions. Concussion, laceration, bruising, along with intrusion, extrusion and avulsion of teeth to name a few. Grievous injuries could also lead to fracture of teeth, alveolar bone, facial bones, TMJ injuries due to a blow to the chin, mandibular dislocation.

Sports players, coaches, parents and dental professional should be aware of how individuals who participate in sporting activities are at risk for dental trauma. In younger age groups, sports activities are considered to be responsible for 13% of overall oral trauma [5]. As an established fact, sports injuries accounts for higher incidences of dental trauma, there is a greater concern for the dentists and players to be aware of the emergency situation and seek immediate treatment for long-term care of orofacial injuries and usage of preventive measures like helmets, mouthguards in these sports.

The following table depicts various clinical scenarios following trauma and their classification according to the literature (Ellis and Davey's classification 1970).

Table 1: Various clinical scenarios during dental trauma and its classification.

Clinical scenario	Classified by Elli
1. Enamel cracks/ chipping of tooth limited to enamel only	Class I
2. Extended crown fracture with dentinal involvement	Class II
3. Extended crown fracture with dentinal involvement, with pulpal exposure	Class III
4. Non Vital teeth with or without loss of crown tissue	Class IV
5. Avulsion- complete extrusion of tooth out of socket	Class V
6. Crown fracture with or without loss of crown tissues	Class VI
7. Tooth luxation (displacement of tooth laterally within the socket) without crown fracture	Class VII
8. Cervical crown fracture	Class VIII
9. Traumatic injuries on primary dentition	Class IX

The most commonly occurring sports injuries certainly involves the T Zone of the face involving the nose, zygoma and mandibular bone. The maxilla, upper lips and particularly maxillary central incisors are more prone owing to their inclined placement, keeping it at high risk [6].

Prevention Of Sports Injuries

It is rightly said that prevention is better than cure. As the risk of having high intensity injury is common with most sport activities, it is of prime importance that sports personal, and their caretakers must be aware of the preventive measures. This could significantly reduce the incidence and severity of the damage attained. The commonest known preventive measure is a mouthguard which is perhaps of chief importance from a dental perspective as it prevents soft tissue injury to lips, gingiva, tongue, and buccal mucosa. This could be worn with additional precautionary devices like helmet, faceguards and headgear. It will aid in providing extra care to scalp and ears from soft tissue injuries like contusion, abrasion, laceration and bruising. Head gears in multiple forms are available to provide direct protection to the brain box, preventing it from skull fractures and consequent injury to brain, CNS and its parts from acceleration injuries and direct blow to the head. Facemasks on the other hand shields the crucial facial structures like eyes, para-nasal sinuses, nasal structures, zygoma and peri-orbital spaces, injury to which can directly involve bleeding into the cranial spaces and prove fatal.

The origin of mouth guards dates long back in 1890s when a London dentist, Woolf Krause developed it for boxers to prevent injury to the peri-oral soft tissues. Mouth guards are rigid structures that is to be hold in between teeth [7] and proves to be advantageous in numerous sports. Generally, three types of mouth guards are available.

Stock mouth guards: mostly made of polyvinyl polymer or rubber. It is available commercially in a few sizes, unable to cater desired comfort and may causing breathing issues, induce gag and inhibit speech. It is also considered as a least comfortable and effective method of prevention [8]. On the contrary, overcoming these short comings, chair side fabrication of mouth guards is gaining popularity where, the protective device is made in accordance to wearers mouth and is moulded inside the oral cavity by two known processes.

Shell-lined and boil-and-bite mouth-formers: In either case, a thermo plasticised material is moulded over the two arches and adjacent soft tissues to record intraoral dimensions. Third category involves

Custom fabricated mouth guards: via an indirect technique on a 3d model. With accurate dimensions and excellent retention these fit snugly and don't interfere with speech or breathing thus, turning out to be very secure [9,10].

Ways to increase awareness amongst sports persons and athletes

Appropriate training of schoolteachers, coaches, guardians of young children, and emergency management kits is vital [11]. Dentists should hold this moral responsibility to educate via various means like conducting awareness camps at schools, playgrounds, outdoor and indoor stadiums. Demonstrating the use and importance of mouth guards, preventive devices, curating an emergency kit (comprising of sterile gloves, cotton, gauze, first aid manual, spare mouth guard, HBSS Hank's balanced salt solution for avulsed tooth, phone directory of nearby available medical and dental centres) is a possible way to alert. A pre-screening procedure should also be conducted by dentists to rule predisposing factors for sports-dental trauma like high risk dentition including proclined maxillary teeth, disharmony of the temporomandibular joint, exfoliating or loose teeth.

Conclusion

Sports dentistry is a branch well researched yet, least explored and practiced branch. Due to the increasing participation in sporting activities, the need for a protective gear is essential. All health care professionals should work in synchronisation towards reporting sports related dental injuries to better assess the situation. Dental professionals should actively take participation in spreading awareness, conducting preventive pre- screenings and gear up for emergency dental treatment required for oro-facial injuries and also pay attention to emotional and psychological needs of the patients.

Conflict of Interest

The authors declare no conflict of interest.

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Citation: Mishra K, Khandelwal S, Bhardwaj A, Bhardwaj A, Bhardwaj S. "Sports Dentistry-Unveiling Untouched Grounds of Dentistry-A Review". *SVOA Dentistry* 2022, 3:3, 136-138.

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