

SPORTS DENTISTRY

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ABSTRACT

Sports injury is nothing but an intentional or unintentional damage to the body. The impact of violence and accidents during sports has made dental trauma as a major public health problem and also a major linking channel between sports and dentistry. Oral health can hinder the performance of an individual and in some it can also lead to low self esteem. Most of the dental trauma can be prevented if associated risk factors are taken care of. Essential screening of oral cavity prior helps in prevention of dental injuries and preventive devices like mouthguards etc. can be really beneficial.

Key Words: Sports, Dentistry.

Sports is the vigorous physical activity involving exertion and skills. It helps in maintaining the physical and mental health of the individual. So, some choose it up as a profession and some pick it as an antidote to stress of fast moving life.

Oxford describes sports as a game or competitive activity in which individuals come together for competition or for amusement.^[1] Irrespective of the reason of playing that is competition or amusement "Injury is part of the game" and is inevitable.

Sports injury is nothing but an intentional or unintentional damage to the body. Injury can be any form of trauma related like muscle injuries, fractured bone, lacerations or broken teeth. In comparison to different forms of injury dental or oro-facial injuries are the most common of all and can be in any form of soft tissue or hard tissue injury e.g. tooth avulsion, intrusions, alveolar fractures, lip lacerations etc.

Apart from these traumatic injuries sports person like all others also suffer from basic dental problems like dental caries and wasting diseases, erosion being the most common. To avoid dehydration they consume lot of energy drinks which not only leads to acidic pH of saliva leading to wearing of teeth (erosion) but also staining of restorations. Swimmers have constant exposure to chlorinated water which also leads to gradual wearing of tooth. Dawes C has mentioned in his study that swimming athletes has shown several loss of tooth enamel in two weeks especially anterior teeth.^[2]

The impact of violence and accidents during sports has made dental trauma as a major public health problem^[3] and also a major linking channel between sports and dentistry.

Every athlete is expected to perform best and this is possible only if the sports person is healthy by all means. Oral health can sometimes hinder the performance and in some it can also lead to low self esteem, anger, depression and mood disturbances.^[4] Most of the dental injuries in sports person can be managed with little to no disruption in daily life and so dentistry must be able to meet specialized needs of the people by providing them with the quality care.^[5]

The Council of Clinical Affairs of American Academy of Pediatric Dentistry recommended^[3]

- Dentists should play an active role in educating the public on the use of protective equipment while playing sports to prevent injuries and cut down the health care cost.
- Continuation of preventive measures practiced in youth, high school, and college level while playing sports like football.
- Making the use of mouthguards mandatory.
- Advocating the coaches before initiating practices for a sporting season to consult a dentist for immediate management of injuries.

Sports dentistry is the prevention of oro-facial injuries and related oral diseases.^[3] It is a specialized field with a wide scope and so keeping this in mind literature has been reviewed

in context to prevalence of sport injuries, risk factors, prevention and treatment modalities available.

Incidence of orofacial Injuries in sports

- National youth sports foundation for the prevention of athletic injuries estimates 10% chance sustaining an injury to face or mouth.^[5]
- Studies have shown that 13-39% of the dental injuries were sports related and 11-18% maxillofacial injuries are reported during all sports incidents.^[5]
- Soft tissue injury is most common type of sports related facial trauma followed by fracture of bones like nose, zygomatic bone and mandible.^[5] Prevalence of zygomatic bone fracture (30.8%) is highest among cyclists.^[2]
- Male:Female ratio of oro sports injuries is 2:1.^[5]
- In children 13% of oral trauma is because of sports.^[5]
- Luxation injury are more common in primary dentition where as crown fracture are more common in young permanent dentition.^[3] Maxillary anterior most affected by dental trauma (52-90%) due to anatomical location.^[5]
- Sports generated facial injury account for 8% of all facial soft tissue injuries and approximately 11-40% of all sports injuries include the face.^[6]
- Children, middle aged and women sports persons are considered the most volatile group of injury.^[6]

RISK FACTORS

Most of the dental trauma can be prevented if associated risk factors are taken care of. Sports injuries are associated with various risk factors like sports training mistakes, age, body's response, climatic conditions etc.

Study by Robey et al concluded that risk of football injury is more in high school indicating it increases with age.^[7] Similar results were also obtained by Blyth^[3] whereas on the contrary study by M Loes^[3] and Egstarnd^[8] concluded that majority of sports injuries occurred in adolescent and with increasing age the risk decreased. Male participate more in vigorous sports as compared to females so is a potential risk factor. Sports people more prone if any previous injury has not healed properly.^[3] There can be various miscellaneous factors that lead to sports trauma like nutritional status, genetics disorder etc.

Evaluation of Oro Facial Injuries

Evaluation should always begin after stabilizing the condition of patients using ABC pathway.

Once the patient is stabilized start with examination procedure should be started. First the history is recorded, followed by intra / extra oral examination using clinical and radiographic parameters and constant check of vital signs of patient necessary diagnostics test should be made like x rays, CT scans etc.

Causes Of Oro Facial Trauma

Contact sports can put athletes at special risk for severe injuries. Some of the common causes that leads to trauma include.

- Biking – responsible for a greater percentage.
- Sports like basket ball, footballs etc.
- Playground activities i.e. wrestling.
- Injury in school like playing, use of water coolers etc.

Treatment

The treatment modalities depend upon the extent of injuries and the existing oral health status of patient.^[5]

Its essential to have a dental emergency kit including mouth mirror, pen light, tongue depressor, sterile gauze, wires, wire cutter, mouth guards, tooth preserving solution for avulsed tooth and emergency medication.^[5]

Prevention of sports injury

An old proverb “prevention is better than cure” holds great significance in content to sports dentistry as the intensity of injury can never be estimated. So, to prevent some great damage its better to take all the possible precautions.

Specific counseling of athletes, educating and motivating them for use of preventive services readily offered by the dental practioners, Proper training of school teachers regarding prevention can be some easy methods in reducing the prevalence of oro-facial trauma. It was observed in the study by Naveen et al that there was an improvement in the incidence of injury and emergency management after the sports injury management programs conducted for teachers by the dentists.^[3]

The best preventive tools to prevent oro facial trauma is use of mouth guards and head gears. Research is going on for the development of comfortable sport mouthguards.^[3] There is a view that usage of appliance for repositioning the mandible which can enhance the mandibular strength. Mouth guards are the shielding devices that provide a cushioning effect against trauma.

Types of Mouth Guards^[5]

- Stock mouth guards:- made up of rubber. Main advantage is that they are inexpensive but have a drawback of limited size and inhibits speech.
- Mouth formed protectors
 1. Shell liner type
 2. Preformed thermoplastic lining, most commonly used.
- Custom made mouth protectors:- They are made up of thermoplastic polymer and provide greatest protection.
- SMRT Mouth is the world's first Bluetooth-enabled mouth guard that provides biometric monitoring to athletes of all ages. Embedded sensors in the mouth guard allow parents, coaches, trainers and team physicians to monitor the athlete's biometric data in real-time.

Essential screening of oral cavity prior helps in prevention of dental injuries like maxilla mandibular relationship, mobile teeth etc.

Dr. John Stenger reported that used of custom made mouth guards improve the performance of Notre Dome football players in 1950's and 1960's.^[3]

Appliances like acrylic splint, Biteplanes, MORA (mandibular orthopedic repositioning appliances) are said to increase the strength of athletes during performance. But Greenberg in his study on objective measurement said no change in strength was observed.^[3]

Study conducted by stokes et al made comparison of laboratory and intraorally formed mouth protectors. It was concluded that both the mouth protectors prevented injury but laboratory fitted was comparatively more comfortable.^[9]

But these protective devices at times can have a devastating effect if they are not properly fabricated.

Study by Takeda et al studied the influence of occlusal supporting mouthguards to reduce the bone distortion and fractures. It was found that mouthguards with insufficient occlusion has the potential of causing fracture of mandible.^[10]

According to American dental Association more than 2,00,000 injuries can be prevented using mouthguards and face protectors.^[6] The reviewed data shows that dentistry is almost unexplored in developing countries but its demand is arising in developed nations like USA.

CONCLUSION

The scope of sports dentistry is still very narrow. Its essential to increase the awareness among athletes about various treatment modalities.

More courses should be introduced for mastering dental graduates in sports dentistry. So that better care on the sports can be provided.

As dentists its our moral responsibility to give best possible oral health care to the sports man as they are the pride of our country.

Sports dentistry is in a building stage all across the globe. It is the moral and professional responsibility of dentists; academicians' trainers etc to create awareness about prevention of oro facial trauma and promote the use of safeguard devices.

Sports authority must come out with some strict rules and regulations that makes dentist as necessary part of medical team associated with athletes and use of protective guards should be made mandatory during sports.

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