Sports Cult in Hyderabad: Role of a Pedodontist in Protecting Winning Smile

Vallala Pranitha1, Pininti BN Mounika2, Subbaraya K Dwijendra3, Naseemoon Shaik4, Prakhya Uma Ramana5, Chiramchetty Meghana6

ABSTRACT

Aim and objective: To assess dental trauma, level of knowledge of participants about the preventive measures, and management of traumatic dental injuries during sports in children aged 6–15 years in private sports academies in Hyderabad.

Materials and methods: A cross-sectional study was carried out among 317 children aged 6–15 years and 25 coaches by a structured questionnaire to assess the prevalence of dental trauma during sports followed by an awareness program on prevention. Data obtained were analyzed.

Results: Twenty-two percent (76) of children reported an incidence of dental injuries. Thirty-five percent (111) of children were aware that reimplantation was possible. Forty-three percent (139) of children knew that mouthguards can prevent orofacial injuries, but none are using them. Seventy-six percent (19) coaches would refer the child to a general physician in cases of reported trauma.

Conclusion: In our study, most of the children and coaches lack awareness about sports-related dental injuries, their prevention, and initial management. None of the children were using mouthguards. Pediatric dentists should conduct programs at schools/sports academies to spread knowledge and awareness about sports-related dental injuries. Further studies are required in this aspect with a larger sample size.

Keywords: Avulsion, Dental trauma, Prevention, Protective devices, Sports injuries.

INTRODUCTION

Vigorous physical activities and competitive athletics offer children health benefits as well as overall development which has led to mushrooming of various sports academies.

With the increased participation of children in sports, there is an increased risk of sustaining trauma to oral soft and hard tissues (injuries to teeth and facial bones such as luxation, crown/root fractures, intrusions, avulsion, and dentofacial fractures) which can be minor or extensive and has an impact on child’s psychological status.1,2 The immediate management of traumatized tooth is important for its long-term survival and this depends on the person who is attending child at the moment of injury.

Dental trauma in sports differs from other forms of dental trauma, as it is easy to prevent and there is also a probability to dramatically reduce their occurrence by the use of mouthguards3,4 as strongly recommended by the American Dental Association (ADA). They prevent fracture of teeth by: (i) separating maxillary and mandibular teeth, absorbing and redistributing shock during direct forceful impacts (ii) reduce laceration and bruising of soft tissue, thus cushioning and distributing the force of impacts.5

Despite the high occurrence of traumatic dental injuries, sports dentistry has been a neglected field. Hence, it has evolved as an independent subspecialty that has expanded much beyond its traditional image of being limited to mouthguard fabrication and treatment of fractured teeth. According to the International Academy of Sports Dentistry (IASD), “Sports dentistry involves prevention and treatment of orofacial athletic injuries and related oral diseases as well as collection and dissemination of information on dental athletic injuries and encouragement of research in the prevention of such injuries”.

Pedodontists play a major role in sensitizing children, parents, and coaches about sports-related injuries as well as complications. The knowledge and attitude of sports coaches and children about sports-related dental injuries are very important for the pedodontist to provide proper information to them regarding prevention and initial management. So, the present study aimed to assess the knowledge and attitude of children and sports coaches about the preventive measures and management of traumatic dental injuries during sports.

MATERIALS AND METHODS

This cross-sectional study was conducted in seven private sports academies for a period of one month in Hyderabad, Telangana, India. Ethical clearance for the study was taken from MNR Institute, Sangareddy. Children who played different sports like Football, Cricket, Gymnastics, Karate, Skating, Athletics, Badminton, and Lawn
Tennis were included in the study as study participants. Necessary permissions were obtained from the academy officials in charge before conducting the survey to interact with coaches, children, and parents if they were present.

A study-specific questionnaire was designed. The validity of the questionnaire was assessed, by asking 20 pedodontists to indicate their level of agreement to the question statements using a five-point rating scale (extremely appropriate, appropriate, no idea, inappropriate, and extremely inappropriate). Some of the test questions were modified to improve the clarity of the questions and to validate the items of the questionnaire, the questionnaire was tested. The validity of every question was 75–91%, and the overall validity of the questionnaire was 83% which has been considered well accepted for the study. The Cronbach’s alpha was used to determine the reliability of the questionnaire, and the response of 20 pedodontists to the same questionnaire within 2 weeks has been analyzed. Cronbach’s coefficient for the reliability of the overall questionnaire was 0.86, which was acceptable for the study. The anonymity of the study subjects was maintained by not collecting their personal information. They have been allowed to participate voluntarily in the study and given free choice to withdraw from the study at any given point in time.

Questionnaire for participant child contained nine questions (Table 1) regarding the type of sport they had been practicing, injuries incurred, management of avulsed tooth and knowledge regarding mouthguards. The questionnaire for coaches contained 15 questions (Table 2) including their experience in sports training, management of injuries, and their awareness regarding the prevention of dental trauma using mouthguards.

If participants had difficulty understanding any question, an explanation was given to them. The filled questionnaires were collected after 10 minutes followed by an informative lecture in simple language in English as well as Telugu (Mother tongue) on a short introduction to dental tissues, traumatic injuries, emergency measures, management, and the importance of mouthguards. After the lecture, a question and answer session was conducted to encourage the interaction of participant children and coaches.

The collected data were entered into Microsoft Excel sheets and statistically analyzed using SPSS version 22 (IBM corporation, Washington DC, United States). The data were expressed as percentages.

**Results**

Out of total participant children, 76% (243) are males and 24% (74) are females. The distribution of participant children is given in Figure 1.

Out of the total participant children, 22% (76) had sustained orofacial injury and 78% (239) had never sustained any form of orofacial injury during sports. The type of injury varied from bruise (3%), soft tissue lacerations (12%), fractured tooth (6%), avulsion of teeth (1%), and fracture of facial bones (<1%) (Fig. 2).

Out of the total participant children, 35% (111) knew that it was possible to reimplant the teeth with the majority of 65% (206) being unaware of reimplantation. Participants with knowledge of reimplantation (35%) as the first-aid step in dental trauma however were unaware of the importance of time while reporting to the dental office (71%). Forty-seven percent (53) responded that they would carry the tooth by wrapping it in a paper/cloth (Figs 3 and 4).

### Table 1: Questions for participant children

| S. no. | Questions |
|--------|-----------|
| 1      | Name the type of sport you participate |
| 2      | What were the type of injuries you observed/sustained during playing? |
| 3      | In case of injuries, have you been to dentist? |
| 4      | Do you know that it is possible to put the teeth back into your mouth (Reimplant)? |
| 5      | Is there any sort of education regarding sports injuries in your academy? |
| 6      | How would you carry/store the tooth to your dentist? |
| 7      | Are you aware that mouthguards can prevent dental injuries? |
| 8      | Do you use mouthguards? |
| 9      | Never had an injury/it is not important for me |

Out of total participant children, 139 (44%) were aware that mouthguards can prevent orofacial injuries. None of the participants used mouthguards and the various reasons are summarized in Table 3.
Role of a Pedodontist in Protecting Smile

Coaches with teaching experience ranging from 2 to 12 years participated in the study.

- 64% (16) never faced an incidence of orofacial trauma during their game practice session.
- When asked about awareness regarding mouthguards, 60% (15) of coaches felt that the non-use of protective devices can cause injuries sometimes (Table 4).
- 76% (19) of coaches considered the use of protective devices based on the type of game (Table 5).
- 56% (14) of instructors felt that the use of mouthguards will reduce the efficiency of players (Fig. 5).
- In cases of reported trauma, 76% (19) of coaches would refer the child to a physician (Fig. 6) and only 10% (3) were aware of dental specialties (6% oral surgeon + 4% pedodontist).

Discussion

Dental injuries encountered in sports may vary from mild to severe depending on the frequency and intensity of the contact. Anterior teeth are most commonly affected which play a major role in the esthetics, phonetics, growth, and functional activities of the child. The frequency of dental trauma is significantly higher for children with increased overjet and inadequate lip coverage. Hence, initiating preventive orthodontic treatment in the early to middle mixed dentition period with overjet $>3$ mm has the potential to reduce the severity of injuries to permanent incisors.

Children engaged in sports undergo various dental injuries but the knowledge about its prevention and treatment is low among participant children, parents, and coaches. With the efforts from dentists and dental auxiliaries, a better awareness of types of injuries, treatment procedures, and the importance of mouthguards can be conveyed.

Among the participant children who had injuries in this study (22%), soft tissue lacerations (12%) occurred more frequently followed by bruise (3%) whereas hard-tissue injuries namely fractured tooth, loss of tooth, and fracture of facial bones were relatively less. This is in contrast to the study conducted by Mridula et al., where chipping/fracture of teeth occurred commonly.

In the case of trauma prevention, appropriate emergency management is extremely important. It is interesting to know that in the present study, 35% of participant children knew that it was possible to reimplant the teeth. Our findings are in accordance with...
Role of a Pedodontist in Protecting Smile

In this study, 47% of the subjects preferred storage of avulsed tooth by wrapping it in cloth/paper followed by (28%) water and (19%) milk. Mesgarzadeh et al.8 reported that 38% of study subjects used tap water and 33.5% used milk as storage media.

The risk of oral injuries during sports can be reduced substantially by using mouthguards. Forty-four percent of participant children were aware that mouthguards can prevent oro-facial injuries. Similar findings were observed in studies by Dale, Levin et al., Cetinbaş et al., and Ferrari and Ferreria de Mederios.10–13 These findings support that knowledge alone on mouthguard use does not ensure its utilization. There should be collaborations between sports authorities and dental professionals to increase awareness and promote the usage of mouthguards.

In the present study, none of the participant children used mouthguards. This is in contrast to the studies conducted by Tiwari.

Table 3: Reasons for not using mouthguards

| Reasons for not using mouthguards          | No. of participants | Percentage |
|--------------------------------------------|--------------------|------------|
| My coach does not tell me to do so         | 76                 | 24         |
| It is expensive                            | 9                  | 2          |
| Uncomfortable                              | 27                 | 8          |
| Never had an injury/not important for me   | 214                | 66         |

Table 4: Frequency of orofacial injury related to non-use of protective devices

| Frequency | No. of participants | Percentage |
|-----------|--------------------|------------|
| Always    | 8                  | 30         |
| Sometimes | 15                 | 60         |
| Never     | 2                  | 8          |

The studies conducted by Neeraja et al.8 where 48% of subjects were aware of reimplanting an avulsed tooth.

In this study, 47% of the subjects preferred storage of avulsed tooth by wrapping it in cloth/paper followed by (28%) water and (19%) milk. Mesgarzadeh et al.8 reported that 38% of study subjects used tap water and 33.5% used milk as storage media.

The risk of oral injuries during sports can be reduced substantially by using mouthguards. Forty-four percent of participant children were aware that mouthguards can prevent oro-facial injuries. Similar findings were observed in studies by Dale, Levin et al., Cetinbaş et al., and Ferrari and Ferreria de Mederios.10–13 These findings support that knowledge alone on mouthguard use does not ensure its utilization. There should be collaborations between sports authorities and dental professionals to increase awareness and promote the usage of mouthguards.

In the present study, none of the participant children used mouthguards. This is in contrast to the studies conducted by Tiwari.
Role of a Pedodontist in Protecting Smile

in the management of dental injuries. Further studies are required in this aspect with a larger sample size.

References

1. Dennis C, Caine M, Maffulli N. Incidence and distribution of pediatric sport-related injuries. Clin J Sport Med 2006;16(6):500–513. DOI: 10.1097/01.jsm.0000251181.36582.a0.
2. Mohandas U, Chandan GD. Knowledge, attitude and practice in emergency management of dental injury among physical education teachers: a survey in Bangalore urban schools. J Indian Soc Pedod Prev Dent 2009;27(4):242–248. DOI: 10.4103/0970-4388.57660.
3. Nowjack-Raymer RE, Gift HC. Use of mouthguards and headgear in organized sports by school-aged children. Public Health Rep 1996;111(1):82–86.
4. Micheli Lyle J, Mark DJ. Sportswise: An essential guide for young athletes, parents, and coaches. Boston MA: Houghton Mifflin Company. Boston, United states: Cengage Learning, Inc; 1990.
5. ADA Council on Access, Prevention and Interprofessional Relations. ADA Council on scientific affairs. Using mouthguards to reduce the incidence and severity of sports related oral injuries. J Am Dent Assoc 2006;137(12):1712–1720. DOI: 10.14219/jada.archive.2006.0118.
6. Tavakol M, Dennick R. Making sense of Cronbach's alpha. Int J Med Educ 2011;2:53–55. DOI: 10.5116/ijme.4dfb.8dfd.
7. Gosswami M, Kumar P, Bhushan U. Evaluation of knowledge, awareness and occurrence of dental injuries in participant children during sports in New Delhi. IJCPD 2017;10(4):373–378. DOI: 10.5005/jp-journals-10005-1468.
8. Neeraja G, Bharadwaj S, Shah K, et al. Knowledge, attitude, and practices regarding oro-facial injuries and oro-facial protective devices among physical instructors in Bangalore. J Int Oral Health 2014;6(3):1–6.
9. Mesgarzadeh AH, Shahamfar M, Hefzollesan A. Evaluating knowledge and attitudes of elementary school teachers on emergency management of traumatic dental injuries: a study in an Iranian urban area. Oral Health Prev Dent 2009;7(3):297–308.
10. Dale RA. Dentoalveolar trauma. Emerg Med Clin N Am 2000;18(3):521–538. DOI: 10.1016/s0733-8627(05)70141-3.
11. Levin L, Friedlander LD, Geiger SB. Dental and oral trauma and mouthguard use during sport activities in Israel. Dent Traumatol 2003;19(5):237–242. DOI: 10.1034/j.1600-9657.2003.00196.x.
12. Cetinbaj T, Sonmez H. Mouthguard utilization rates during sport activities in Ankara, Turkey. Dent Traumatol 2006;22(3):127–132. DOI: 10.1111/j.1600-9657.2006.00397.x.
13. Ferrari CH, Ferreria de Mederios JM. Dental trauma and level of information: mouthguard use in different contact sports. Dent Traumatol 2002;18(3):144–147. DOI: 10.1034/j.1600-9657.2002.00170.x.
14. Tiwari V, Saxena V, Tiwari U, et al. Dental trauma and mouthguard awareness and use among contact and noncontact athletes in central India. J Oral Sci 2014;56(4):239–243. DOI: 10.2334/josnusd.56.239.
15. Kamalesh R, Hepsy Sharele JJ, Ganesh R. Level of awareness concerning dental trauma and its prevention among sportspersons in Chennai. JDRS 2017;8:1–4.
16. Perunski S, Lang B, Pohl Y, et al. Level of information concerning dental injuries and their prevention in Swiss basketball – a survey among players and coaches. Dent Traumatol 2005;21(4):195–200. DOI: 10.1111/j.1600-9657.2005.00310.x.
17. Priya M, Sharmin D, Amaaral D, et al. Knowledge and attitude of coaches regarding sports related oro-facial injuries in Chennai, India. J Dent Oral Disord Ther 2016;4(3):1–5. DOI: 10.15226/jddot.2016.00157.