Journal of Advanced Medical and Dental Sciences Research

@Society of Scientific Research and Studies *NLM ID: 101716117*

Journal home page: www.jamdsr.com doi: 10.21276/jamdsr Indian Citation Index (ICI) Index Copernicus value = 100

(e) ISSN Online: 2321-9599; (p) ISSN Print: 2348-6805

Original Research

Knowledge, Attitude and Practice (KAP) Regarding Prevention and Management of Dento-Facial Trauma Amongst Children Playing Contact Sports in Sports Complexes of Pune City: A Questionnaire Study

[1]Agarwal Rashmi G, [2]Satyanarayana Naidu S, [3]Milind Rajan, [4]Prachi Hazari, [5]Vinitha Vijayan, [6]Harshada Katkur

[1]Former PG student, Department of Pediatric and Preventive Dentistry, Dr D Y Patil Vidyapeeth's Dr.D Y Patil Dental College and Hospital, Pimpri, Pune, Maharashtra, India;
[2]Lecturer and Mentor, Department of Conservative dentistry and Endodontics, Asian Institute of Advanced Dentistry, Hyderabad Telangana, India;
[3]PhD Scholar, Department of Pediatric and Preventive Dentistry, Datta Meghe Institute of Higher Education & Research (DMIHER), Sharad pawar Dental College and Hospital, Sawangi, Wardha, Maharashtra, India
[4]Reader, Department of Pediatric and Preventive Dentistry, Nanded Rural Dental College and Research Centre, Nanded, Maharashtra, India
[5]MDS (Public Health Dentistry), Admin and Dental Assistant, Dental Clinic, Sydney, NSW;
[6]Intern, Pandit Deendayal Upadhyay Dental College, Solapur, Maharashtra, India

ABSTRACT:
Dento-facial trauma can cause tooth loss, maxillary or mandibular fractures which may lead to malocclusion,impaired aesthetics or be a major cause for devastating defects which may affect appearance, speech, and the ability to eat.Traumaticdento-facial injuries are very common and appear worldwide to affect approximately 20-30% of permanent dentition.Most injuries affect the upper jaw, with the maxillary anterior teeth being most prone to injury.Children, and adolescents are engaged in recreational and competitive sports activities for both physical and psychological well-being.Studies have shown that 1339% of all dento-facial injuries are sports related.As compared to other sports, contact sports were reported to increase the risk of dento-facial trauma.Sports related dento-facial injuries are unscheduled and often need immediate treatment. The time period following such injuries plays critical role in the prognosis of such injuries.For this, it is required that children have proper knowledge and awareness about sports related dento-facial injuries, its management and prevention which will help them to carry out expedite procedures in a timely fashion.Preventing and reducing dento-facial trauma can be done by using different guards for the face and mouth, such as faceguards, helmets and mouth guards of different materials.Hence, it is of utmost importance to assess the knowledge,attitude and practice of children regarding the emergency management and prevention of dento-facial trauma.
Keywords: Dentofacial Trauma, Mouthguards,Contact Sports

Received: 26 July, 2025 Accepted: 28 August, 2025 Published: 05 September, 2025

Corresponding author: Milind Rajan, PhD Scholar, Department of Pediatric and Preventive Dentistry, Datta Meghe Institute of Higher Education & Research (DMIHER), Sharad pawar Dental College and Hospital, Sawangi, Wardha, Maharashtra, India

This article may be cited as: G Agarwal R, S Satyanarayana N, Rajan M, Hazari P, Vijayan V, Katkur H. Knowledge, Attitude and Practice (KAP) Regarding Prevention and Management of Dento-Facial Trauma Amongst Children Playing Contact Sports in Sports Complexes of Pune City: A Questionnaire Study. J Adv Med Dent Scie Res 2025; 13(9):21-24.

INTRODUCTION

Sports and physical activity play a vital role in the growth, physical health, and psychological development of children and adolescents. Regular participation enhances quality of life, self-esteem, body satisfaction, and cognitive functioning, while reducing the risk of chronic diseases and antisocial behavior[1-5]. However, involvement in contact and collision sports exposes children to a significant risk of injuries, particularly those affecting the orofacial region[6-7].

Orofacial trauma in sports may range from minor lip lacerations to severe dental fractures, avulsions, and maxillofacial injuries[8]. Such injuries not only cause immediate pain and functional limitations but also affect aesthetics, self-confidence, and quality of life, often requiring complex and costly treatment[9-11]. The socioeconomic burden of managing traumatic dental injuries, particularly avulsion and replantation procedures, has also been highlighted[12].

Epidemiological studies report that sports account for a significant proportion of dental injuries in children and adolescents, with prevalence ranging from 18% to 30% depending on the population studied[13-15]. High-risk activities include football, basketball, boxing, martial arts, and wrestling[16,17]. Despite this, knowledge, and awareness regarding prevention and first aid remain limited. In India, studies have shown that although athletes and coaches recognize the importance of mouthguards and prompt management, actual compliance with these preventive practices is poor[18,19].

Preventive strategies such as using mouthguards, helmets, and face guards have been proven to significantly reduce the incidence and severity of sports-related dental trauma[20-22]. However, barriers such as discomfort, esthetic concerns, limited access, and lack of awareness often hinder their use[23,24]. Furthermore, appropriate first aid measures—such as timely reimplantation of avulsed teeth, cleaning with suitable solutions, and transport in recommended storage media—are crucial for prognosis, yet poorly understood by children and their trainers[25-27].

The present study was conducted to evaluate the knowledge, attitude, and practice (KAP) toward prevention and management of dental trauma among children playing contact sports in sports complexes of Pune city. Findings from this study will help identify gaps in awareness and practices, and may serve as a foundation for implementing preventive and educational strategies to reduce the burden of sports-related dental trauma.

MATERIALS AND METHODS

A cross-sectional study was conducted to assess knowledge, attitude, and practice (KAP) regarding prevention and management of dental trauma among children playing contact sports in various sports complexes across Pune city, including Chonde Patil, NCL, Shree Chatrapati Balewadi, Yerwada, Warje, Boxing Stadium, Vilasrao Deshmukh, Indian Sports Academy of Martial Arts, and Poona Golf Course Club. As written informed consent from all participants was not feasible, the requirement was waived. Based on data from Dhindsa et al., the sample size was calculated using the standard formula ($N = 4PQ/d^2$), yielding a minimum of 265 participants.

RESULTS

The present study was undertaken to assess knowledge, attitude and practice towards prevention and management of dental trauma among children playing contact sports in sports complex of Pune city. The knowledge, attitude and practice were assessed using a questionnaire tool consisting of thirty-eight item questions. The questionnaire was validated and distributed among 1200 children ages 12-16 years to get a response from a minimum of 265 children practicing sports in the Pune city sports complexes. The data was analyzed in the form of numbers and percentages. The bar diagram represents the frequency distribution of the responses for the Question no.38. The x-axis represents the participants giving the type of responses and the y-axis represents the number of the participants giving the responses. 27 agreed that agreed that coaches need to be aware of dental injury and emergency dental injury management whereas 233 strongly agreed that coaches need to be aware of dental injury and emergency dental injury management.

Overall, it was observed that the children were having a moderate level of knowledge regarding management of injury while playing sports. the attitude of the children was observed positive but the practice was not remarkable.

DISCUSSION

Sports participation during childhood and adolescence offers numerous health and psychological benefits, but it also predisposes young athletes to orofacial trauma, especially in contact and collision sports[2]. In the present study, more than half of the surveyed children reported playing contact sports such as football, martial arts, boxing, and wrestling, which aligns with earlier epidemiological reports identifying these as high-risk activities[16-17]. A considerable proportion of participants had sustained facial or dental injuries, similar to findings from Indian and international studies[14,18.]

Dental avulsion and crown fractures were among the most reported injuries, corroborating findings from previous studies[14,18]. Although many children in this study recognized that an avulsed tooth could be replanted, knowledge regarding the critical time for reimplantation, appropriate cleaning methods, and storage media remained inadequate. Similar gaps in awareness have been reported in Saudi Arabia, Turkey, and India[25,28]. According to the International Association of Dental Traumatology (IADT), immediate reimplantation within one hour and storage in media such as Hank's Balanced Salt Solution (HBSS) or milk is recommended for optimal prognosis[27].

Awareness of protective gear such as mouthguards and helmets was relatively high in the present study, consistent with findings from earlier surveys[29]. However, actual usage rates were low, with fewer than one-third of children reporting regular use.

Similar poor compliance has been documented in India, Israel, and Italy[24,29,30]. Barriers to mouthguard use included discomfort, difficulty speaking, cost, and lack of availability—concerns also noted in prior studies[18]. Despite these barriers, evidence strongly supports the effectiveness of mouthguards in reducing orofacial trauma and associated treatment costs[20-22].

Overall, this study highlights a moderate level of knowledge and a positive attitude toward dental trauma management among children, but practices remain poor. Similar discrepancies between knowledge and behavior have been reported across multiple populations[31-32]. Integrating dental trauma education into school curricula, encouraging mandatory use of protective gear in sports complexes, and involving dentists in community-based training sessions for athletes and coaches are essential steps to improve outcomes[33]. By bridging the gap between awareness and practice, the long-term burden of sports-related orofacial injuries can be significantly reduced.

CONCLUSION

Most children in this study experienced trauma while playing contact sports. They showed moderate knowledge and a positive attitude toward injury management, but their actual practices were inadequate. Awareness of avulsion and protective gear was relatively good, yet knowledge about storage media, cleaning, and timely reimplantation was poor, and mouthguard use remained low. Strengthening education on dental trauma and encouraging consistent use of protective gear at the school and sports complex level are essential to improve outcomes.

REFERENCES

1. Jaroslav B, Luboslav S, Kováčová N. Interaction of physical activity, joy of physical activity and quality of life of high school students with different level of sport performance. Int J Phys Educ Sports Health. 2018;5(4):12-18.
2. Bidzan-Bluma I, Lipowska M. Physical activity and cognitive functioning of children: a systematic review. Int J Environ Res Public Health. 2018;15(4):800.
3. Frost J, McKelvie SJ. The relationship of self-esteem and body satisfaction to exercise activity for male and female elementary school, high school, and university students. Online J Sport Psychol. 2005;7(4):36-49.
4. Carmichael D. Youth sport vs. youth crime: Evidence that youth engaged in organized sport are not likely to participate in criminal activities. 2008. Available at: http://activehealthylinks.com.
5. Booth FW, Roberts CK, Laye MJ. Lack of exercise is a major cause of chronic diseases. Compr Physiol. 2011;2(2):1143-1211.
6. Taş B, Akdeniz H, Sekban G, Öztürk F. The awareness level of the parents about the benefits of the physical education lesson in secondary grade of the primary education schools. SHS Web Conf. 2017;37:01034.
7. Bailey R, Cope EJ, Pearce G. Why do children take part in, and remain involved in sport? A literature review and discussion of implications for sports coaches. Int J Coach Sci. 2013;7:56-75.
8. Gijwani D, Singh S, Mathur A, Makkar DK. Traumatic orofacial injuries and its prevention. Saudi J Sports Med. 2017;17:70-4
9. Piccininni P, Clough A, Padilla R, Piccininni G. Dental and orofacial injuries. Clin Sports Med. 2017;36(2):369-405.
10. Cortes M, Marcenes W, Sheiham A. Impact of traumatic injuries to the permanent teeth on the oral health-related quality of life in 12-14-year-old children. Community Dent Oral Epidemiol. 2002;30(3):193-8.
11. Flores MT, Onetto JE. How does orofacial trauma in children affect the developing dentition? Long-term treatment and associated complications. Dent Traumatol. 2019;35(6):312-23.
12. Ngyuyen PM, Kenny DJ, Barret EJ. Socio-economic burden of permanent incisor replantation on children and parents. Dent Traumatol. 2004;20(3):123-33.
13. Sane J, Ylipaavalniemi P, Turtola L, Niemi T, Laaka V. Traumatic injuries among university students in Finland. J Am Coll Health. 1997;46(1):21-4.
14. Häyrinen-Immonen R, Sane J, Perkki K, Malmström M. A six-year follow-up study of sports-related dental injuries in children and adolescents. Dent Traumatol. 1990;6(5):208-12.
15. Traebert J, Peres MA, Blank V, Böell RD, Pietruza JA. Prevalence of traumatic dental injury and associated factors among 12-year-old school children in Florianópolis, Brazil. Dent Traumatol. 2003;19(1):15-8.
16. Selva Mani S, Aparna S, Madan Kumar PD. Prevalence of orofacial injuries in contact sports: a systematic review. Int J PhysiotherExerc Biomed Sci. 2019;6:39-46.
17. Dorje C, Gupta RK, Goyal S, Jindal N, Kumar V, Masih GD. Sports injury pattern in school-going children in Union Territory of Chandigarh. J Clin Orthop Trauma. 2014;5(4):227-32.
18. Goswami M, Kumar P, Bhushan U. Evaluation of knowledge, awareness, and occurrence of dental injuries in participant children during sports in New Delhi: A pilot study. Int J Clin Pediatr Dent. 2017;10(4):373-8.
19. Tiwari V, Saxena V, Tiwari U, Singh A, Jain M, Goud S. Dental trauma and mouthguard awareness and use among contact and noncontact athletes in central India. J Oral Sci. 2014;56(4):239-43.
20. Newsome PR, Tran DC, Cooke MS. The role of the mouthguard in the prevention of sports-related dental injuries: a review. Int J Paediatr Dent. 2001;11(6):396-404.
21. Labella CR, Smith BW, Sigurdsson A. Effect of mouthguards on dental injuries and concussions in college basketball. Med Sci Sports Exerc. 2002;34:41-4.
22. Fernandes LM, Neto JCL, Lima TFR, Magno MB, Santiago BM, Cavalcanti YW, de Almeida LFD. The use of mouthguards and prevalence of dento-alveolar trauma among athletes: a systematic review and meta-analysis. Dent Traumatol. 2019;35(1):54-72.
23. Biagi R, Cardarelli F, Butti AC, Salvato A. Sports-related dental injuries: knowledge of first aid and mouthguard use in a sample of Italian children and youngsters. Eur J Paediatr Dent. 2010;11(2):66-70.

24. Levin L, Friedlander LD, Geiger SB. Dental and oral trauma and mouthguard use during sport activities in Israel. Dent Traumatol. 2003;19(5):237-42.
25. Sepet E, Aren G, Dogan Onur O, Pinar Erdem A, Kuru S, Tolgay CG, Unal S. Knowledge of sports participants about dental emergency procedures and the use of mouthguards. Dent Traumatol. 2014;30(5):391-5.
26. Khinda V, Kaur G, Brar S, Kallar S, Khurana H. Clinical and practical implications of storage media used for tooth avulsion. Int J Clin Pediatr Dent. 2017;10(2):158-65.
27. Andersson L, Andreasen JO, Day P, et al. International Association of Dental Traumatology guidelines for the management of traumatic dental injuries: 2. Avulsion of permanent teeth. Dent Traumatol. 2012;28:88-96.
28. Al-Arfaj I, Al-Shammari A, Al-Subai T, Al-Absi G, AlJaffari M, Al-Kadi A, El Tantawi M, Al-Ansari A. The knowledge, attitude and practices of male sports participants to sports-related dental trauma in Khobar and Dammam, Saudi Arabia – A pilot survey. Saudi Dent J. 2016;28(3):136-41.
29. Bhadana S, Tayal E, Indushekar KR, Saraf BG, Sheoran N, Sardana D. Knowledge and awareness of coaches and athletes regarding sports-related dental injuries and their prevention in Faridabad. Curr Med Res Pract. 2015;5(6):253-7.
30. Veeresh DJ, Shukla A, Srikanth A, Jain A, Lalani B, Lobo CW. Assessment of knowledge, attitude, and practices toward orofacial injuries among students engaged in sports from Davangere city: A cross-sectional survey. Int J Oral Health Sci. 2020;10:26-31.
31. Galic T, Kuncic D, PoklepovicPericic T, Galic I, Mihanovic F, Bozic J, Herceg M. Knowledge and attitudes about sports-related dental injuries and mouthguard use in young athletes in four different contact sports. Dent Traumatol. 2018;34(3):175-81.
32. Spinas E, Savasta A. Prevention of traumatic dental lesions: cognitive research on the role of mouthguards during sport activities in paediatric age. Eur J Paediatr Dent. 2007;8(4):193-8.
33. Gupta G, Gupta N, Chopra R, Sachdev V. Awareness towards management and prevention of dental injuries among sports instructors in Delhi, India. J Dent Specialities. 2016;4:135-8.