



## Research Article

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# Evaluation of Knowledge About Dental Trauma Among Sports School Students

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## Abstract

**Aim:** To evaluate the level of knowledge of the sports school students about the traumatic injuries to teeth, its prevention and management. **Materials and Methods:** A cross sectional study was carried out among 155 children of age group 13- 17 years who were the inmates of sports school in Kannur district. A structured interview was used to determine the prevalence of dental injuries associated with the sports activity they were engaged, its preventive measures, management and the awareness of the use of mouth guards were also assessed. **Results:** Among the participants only 18.7% of the group were suffered from accidents involving the teeth and oral region. Out of the total participants, majority had tooth fracture. Only 9.03% of total participant would take a chance to replant the tooth. The transport media chosen for avulsed tooth were, 15.1% in a flask with saline, 14.2% in a flask with water, and only 4.2% in a flask with milk. Out of the total participants, 69.6% know about the usage of mouth guards during sports practice and only 10.3% use it during sports activity. **Conclusion:** There is a lack of knowledge on prevention and management of sports related dental injuries among the sports school students of Kannur district. Hence there is a need for developing awareness programs and training on first aid to dental trauma related to sports activities among the sports students.

**Keywords:** Awareness, Dental trauma, Mouth guards, Sport injury, Sports students

## INTRODUCTION

Sports school is a specialised educational and training institution for preparing highly skilled athletes. Many sports school are boarding institution that combines sports training with general education on the secondary basis. Since the students of these institutions are involved in other various physical sports activities on daily basis, the incidence of sports related dental injuries also may be high. Therefore it is desirable for these students to be aware of the dental injuries their prevention and management.

Dental injury can vary from a minor injury of enamel chip to major injuries such as maxillofacial injuries and displacement of teeth. Crown fractures are the most frequent dental sports injury. The emergency care in these cases is fundamental to allow a better prognosis and to increase the survival of traumatized teeth, especially in cases of tooth avulsion [1].

The students and coaches, who have direct contact with people practicing sports, should know, about the initial emergency procedures to be performed by any person at the site of the accident [2]. Not much emphasis is given for management of dental injuries in the curriculum of sports schools and the knowledge about prevention and management is limited.

In India, prevalence of orofacial trauma varies from 4-35% amongst the adolescents as against the prevalence of 15-35% reported in other countries. The sports related injuries account for one of the major etiological factors (18.1%) for oro-facial injuries. This observation indicates that there is some inadequacy in the implementation of protective measures to prevent sports related orofacial injuries [3].

Many sports-related traumatic dental injuries are preventable; the risk-to-benefit ratio can be improved by imparting knowledge about the preventive measures. Therefore as the initial step, it is of utmost importance to assess the knowledge and awareness of people present at the site of accident regarding the emergency management of dental trauma [1].

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Very few Indian based epidemiological information exist about incidence of dental injury in sports. Therefore, this study evaluated the knowledge of physical education students in the Kannur district, Kerala on dental trauma, and the objective of the study is an attempt to know the awareness of these students about dental trauma and its prevention and management.

## MATERIALS AND METHODS

A cross-sectional study was conducted among physical education students of the Kannur district, Kerala, about the awareness and knowledge of dental trauma, its prevention and management.

The study was conducted in two sports academies, under the District sports Council of Kannur district, Kerala. A questionnaire to assess the knowledge, prevention and initial management of dental injuries was prepared and on validating was later translated to Malayalam language.

A total of 180 students of sports school belonging to age group of 13-16 years given the questionnaire. The students were asked to fill the questionnaire independently without consulting each other. The filled questionnaires were collected after 40 minutes time. Following the collection of questionnaires, a comprehensive, informative promotion lecture was delivered about dental tissues, types of dental traumatic injuries, emergency measures, and management of dental injuries. The data available was entered in Microsoft Excel and Percentage frequency distribution was used to calculate the frequency of responses to each question.

## RESULT

Of the 180 questionnaires distributed and returned, 25 incomplete questionnaires were excluded from the study. Therefore only 155 responses (86.11%) were taken for the study.

Of the 155 participants, most of them (77.42%) were females and (22.58%) were males. All the participants were in the age group of 13-17 years, with mean age of  $12.4 \pm 3.5$  years as given in (table 1).

**Table 1:** Showing demographic details of the participants

Total number of questionnaires distributed	Number of completed response	Percentage and no. of completed response (%)	Gender	Number	Percentage (%)
180	155	86.11	Male	35	22.58
			Female	120	77.42

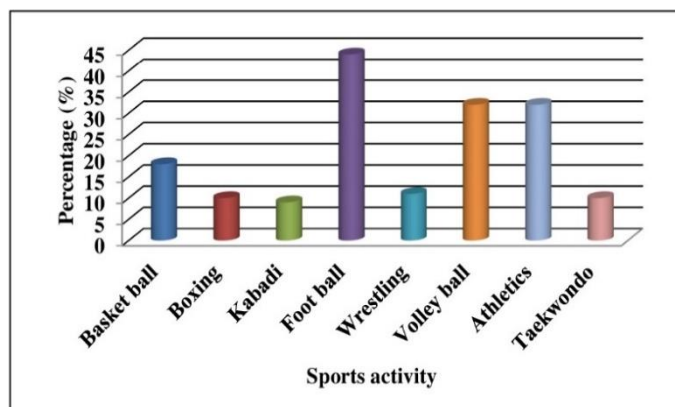
34.8% of the participants had training on first aid and among these only 4.5% had some training on first aid for dental trauma.

**Table 2:** Shows the details of the participants who undergone training for first aid

Training on first aid	54	34.8%
Training on dental trauma	7	4.5%

Figure 1 shows that the main sports activity of the participants was football (28%), followed by volley ball (20.6%), athletics (20.6%), basket ball (11.6%), wrestling (7%), boxing and taekwondo (6.4%) and kabadi (5.8%).

From table 3, 18.7% (n= 29) of the group had suffered from accidents involving the teeth and oral region. Among these 55.1% had tooth fracture, 10.3% had injured lips, 6.8% had fractured root and luxation injuries.



**Figure 1:** Showing the main sports activity of the participants

**Table 3:** Types of injuries experienced

Type of fracture	Number	Percentage of participants
Crown fracture	16	Others
Root fracture	2	6.8
Luxation injury	2	6.8
Fracture to facial bone	1	3.4
Injured lips	3	10.3
Others	5	17.6

Out of the participants who had dental injury, 44% of them had no sequela associated with it, 6.8% noted discolouration of the affected tooth and 17.2% underwent treatment as indicated by professional (table 4).

**Table 4:** Showing sequelae associated with dental injuries

Sequelae associated	Number	Percentage
No associated symptoms	13	44.8
Underwent dental treatment	5	17.5
Discolouration of tooth	2	6.8
Extraction of tooth	5	17.2
Others	4	13.7

**Table 5:** Showing attitude of participants following dental injury

Attitude	Number	Percentage of participants
No measures taken	10	34.48
Immediate dental care	3	10.34
Attended clinic the next day	4	13.79
Approached nearby hospital	8	27.51
Approached dental colleges	2	6.94

From (table 5), among the participants with dental injuries 10.3% searched for immediate dental care, 13.7% attended dental clinic on the following day, but 34.4% of participants did nothing after the dental trauma.

Regarding knowledge about tooth avulsion only 9.03% of total participant said that they would take a chance to replant the tooth, (34.8%) do not know what to be done before tooth is replaced back to the socket, 13-16% would rinse the tooth with tap water or rub it with a gentle tooth brush under running water before replantation. Figure 2.

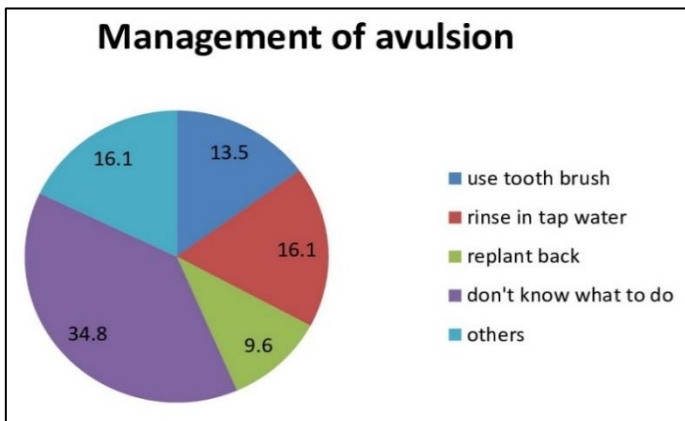


Figure 2: Showing methods of management of avulsion

On the participants knowledge about transport of avulsed tooth to dental professional 15.1% of the participants would put the tooth in a flask with saline, 14.2% in a flask with water, 7.5 % wrapped in paper, cloth or plastic, 4.2% in a flask with milk, 3.3% inside the patients mouth and 1.6% would carry it in hand. Figure 3.

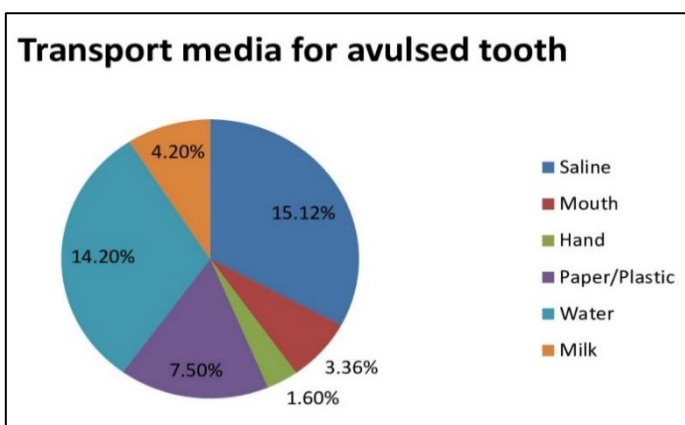


Figure 3: Showing choice of transport media for avulsed tooth

Among the participants,90.3% believed that deciduous teeth should not be replanted and only 27.7% had an opinion that the permanent tooth should be replanted .

The response regarding mouth guards it was found that, only 10.3% used it during the sports activity. Regarding the knowledge about mouth guards 55% of the participants knows about mouth guards 44.6% of the had never heard about mouth guards. Figure 4.

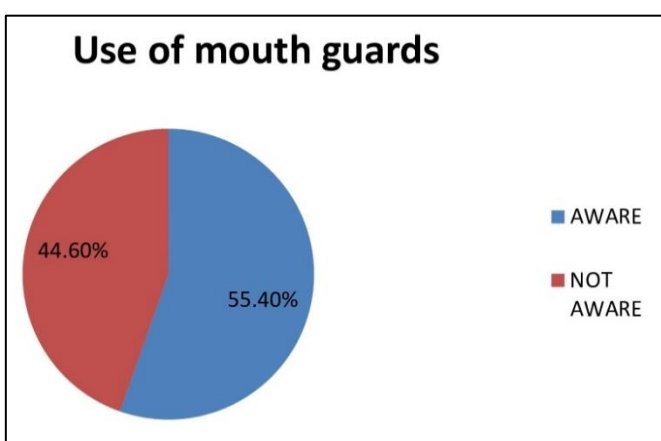


Figure 4: Shows the knowledge of participants about mouth guards

It was also observed that 74.1% think that there is need for informative campaign for dental trauma, its prevention and management.

## DISCUSSION

Sports practice represent one of the main causes of dental injuries [4]. The present study accounts that about 18.7 % of the athletes suffered from dental trauma or trauma in the orofacial region. This result is similar to the studies done by Tulunoglu and Ozbek and Persic et al where 22.3 and 20.4% of sports participants were reported to have experienced orofacial injuries [5,6].

All sports have some risk for dental injury, but “contact sports” presumably incur more risk. Basketball, football, hockey, martial arts, and boxing carry the highest risk. In the present study it has been observed that most of the participants are engaged in contact sports like foot ball, and volley ball [7].

Orofacial injuries vary, but the most common are soft tissue injuries (eg, lacerations) as the face is often the most exposed part of the body in athletic competition [7]. Crown and root fractures are the most common injury to the permanent dentition in sports practice and it presents in different ways and the injury occurs due to direct trauma to the tooth and supporting structures [8]. In the present study majority of the participants had experienced crown fractures.

The most severe form of displacement injury, tooth intrusion occurs when the tooth has been driven into the alveolar process due to an axially directed impact. Pulpal necrosis occurs in 96% of intrusive displacements and is more likely to occur in teeth with fully formed root [8]. In the present study , those individuals who had been suffered from luxation injuries had reported with discolouration of the tooth as the sequelae of trauma.

The state of knowledge about the emergency management of dental trauma can be assessed by evaluating knowledge of participants in managing a case of avulsion. None of the participants of the study experienced avulsion injury but the evaluation of their knowledge about avulsion is seen inadequate. Majority of the participants don't know what to be done with the avulsed tooth.

The extra oral dry time and the root surface periodontal cell viability determines the prognosis of the avulsed tooth [9]. Therefore, the root surface cleaning, conditioning and the transport media for avulsed tooth is critical. In the present study, some of the participants would prefer cleaning the root surface with tooth brush, which hampers the periodontal cell viability.

The pH and the osmolality of the storage media are more important than its chemical composition .The best , easily available transport media for avulsed tooth is the milk, as it is pasteurized and its pH and osmolality compatible with PDL cells, but in this study only very few preferred milk as a transport media . In this study , majority of participants had preferred saline solution as a transport media for avulsed tooth, even though the pH and osmolality is compatible to PDL cells, it lacks nutrients for cell metabolism so it is the least advised among the transport media .The tap water which is an another option preferred would protect the tooth from dehydration but since it is hypotonic,it causes cellular swelling [10].

The risk of oral injuries during sports activities could be reduced substantially by the use of mouth guards [11]. In a meta-analysis, the overall risk of an orofacial injury was 1.6 to 1.9 times higher when a mouth guard was not worn [12]. Mouth guards protects by separating the cheeks and lips from the teeth, reduces soft tissue lacerations and prevents traumatic contacts of opposing arches , and it also offers a resilient,protective surface to distribute and dissipate transmitted forces on impact [13].

In the present study only 55% of the participants had knowledge about the mouth guards and only 10.3% use it during the sports activity. Nearly half of the total participants had never heard about it. Mouth guards has now been a mandatory requirement for contact sports. Therefore, collaboration of the sports authorities and dental professionals should be done to create awareness in usage of mouth guards and its importance.

Immediate evaluation and proper management of the most common injuries to dentition can result in saving or restoration of tooth structure [14]. Studies also recommends, to develop interaction between general dentists and the school teachers so as render the best treatment for ensuring a good prognosis for the traumatized teeth in particular and oral health in general [15]. Therefore initiatives should be taken by the sports authorities in association with dental professionals to conduct training programs on management of dental traumatic injuries in sports related specialized institutions . In addition to it, it could be informative for the students if the training for the management of dental traumatic injuries is added to the academic curriculum.

## CONCLUSION

This study concludes that there is a lack of knowledge on prevention and management of sports related dental injuries among the sports education students of Kannur district. Hence there is a need for developing awareness programs and training on first aid to dental trauma to the professionals related to sports activities.

**Conflicts of interest:** None

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