EVALUATION OF HIGH RISK UNIVERSITY STUDENTS' KNOWLEDGE ABOUT DENTAL TRAUMA AND EMERGENCY PROCEDURES

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Abstract

Dental trauma is a common consequence of sports practice in individuals competing in all levels of sports. The aim of this study was to evaluate the level of knowledge of dental trauma and emergency procedures among university students attending to School of Physical Education and Sports.

A questionnaire was carried on 95 students with a mean age of 23.8 years. The questionnaire surveyed concepts, experiences and behaviors after dental trauma, the knowledge of immediate emergency management and the use of mouthguard.

A total of 35.8% students had experienced dental trauma. Most commonly encountered dental trauma was uncomplicated crown fracture (%52.9) and 67.6% of the subjects who experienced dental trauma applied for treatment. Only 34.7% of the students were aware that the avulsed tooth should be reimplanted and 6.3% knew that the avulsed tooth should be maintained in a liquid such as milk, water or mouth. Although most of the students were aware of the possibility of accidents during sports practice, only 8.4% reported to use a mouthguard.

This study showed a lack of knowledge in students possesing high risk factors for dental trauma, thus reinforcing the need for educational programmes to improve the knowledge of dental trauma and use of mouthguards.

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Introduction

A traumatic dental injury (TDI) is a public dental health problem because of its frequency, occurrence at a young age, costs and that treatment may continue for the rest of the patient's life[1]. Individuals competing in all levels of sports carry a high risk of orofacial injury due to falls, collisions and contact with hard surfaces[2,3].

The rates of TDIs vary considerably depending on type of sport, selected group of athletes, age of athlete, level of competition, whether the data were collected from coaches or from hospital emergency rooms or dental clinics[2] and the use of protective equipment (such as mouthguards), which is mandatory in some sports. Dental trauma especially in children and young adults, has been reported from several countries as well as Turkey with high rates between 11 and 60% [4-8]. A large number of these injuries can cause irreparable dental loss or even if treated, root resorption or ankylosis could occur[9].

The aim of this study was to assess the dental and orofacial trauma experiences and evaluate the knowledge of dental trauma and immediate emergency management and the use of mouthguard in high risk university students.

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Materials and methods

The study included a total number of 95 students attending to Ege University, School of Physical Education and Sports aged between 19-

32 years who practiced related sport modality for ten years and trained at least 8 h per week.

A questionnaire was carried out which surveyed concepts, experiences and behaviors after orofacial and dental trauma, the knowledge of immediate emergency management and the use of mouthguard (Table 1).

- Name-surname:
- Age:
- Grade:
- What is your sports modality?
- How long have you been practicing this sport activity?
- What is your average duration of sports training per week?
- Have you ever experienced any injuries to the bones of the jaws?

a)lower jaw b)upper jaw c) none

- Have you ever experienced any injuries to the soft tissues of the mouth and jaw area?

a)cheek b)lower lip c)upper lip d)tongue e)none

- Have you ever experienced an injury to your tooth during trainings or competitions?

a)yes b)no

If yes;

- What kind of dental injury?

(type of injury is to be assessed by dental examiner)
a)enamel fracture b) uncomplicated crown fracture c)complicated crown fracture
d)intrusion e)extrusion f)crown-root fracture g)luxation h)avulsion i)root fracture

- Where and how did dental injury occur?

a)training b)competition c)other(indicate)

- Did you apply for dental treatment? a)yes b)no

If yes;

- What kind of treatment was done by the dentist?

a)conservative treatment (filling-restoration) b)endodontic treatment (root therapy) c)extraction d)prothetic treatment e)none

- Do you know that it is possible to replant an avulsed tooth? a)yes b)no
- In your opinion,within what time span does a tooth have to be replanted?

a)0-2 hours b)more than two hours c)no idea

- Where should an avulsed tooth be kept after trauma till treatment?

a)milk b)water c)mouth-saliva d)no idea

- Are you aware of mouthguards as preventive measure against dental trauma?

a)yes b)no

- Do you use mouthguard during trainings and competitions? a)yes b)no

Table 1. Questionnaire form.

One of the authors (N. Ersin) took detailed history and performed basic oral examinations if required to complete certain questions regarding previous dental injuries at the time questionnaires were being filled.

The dental trauma incidence was determined in relation to the criteria of the sport type, whether the student experienced dental injury, type of dental injury, emergency management, awareness of mouthguards and use of mouthguards.

All data were analyzed by Chi-Square and Mann-Whitney U tests.

Results

The present study population composed of different sports modalities which were football (n:35), basketball (n:18), voleyball (n:14), water polo (n:9), gymnastics(n:19). Mean age of students was 23.8±2,38 years who practiced related sport modality for a mean period of 12,76±3,43 years and who had been trained at least 8 hours per week.

It was found that 55 (57.9%) students had already been affected by at least one type of dental and orofacial trauma, which was classified into the following categories: (i) soft tissue injuries (cheeks, lips, tongue), (ii) bone tissue injuries (maxilla, mandible), (iii) dental injuries (hard and periodontal tissues of the teeth) (Table 2). When the students who experienced trauma was evaulated in detail, the number of students who experienced all three types of injuries were 4 (7.3%), 12 of the students experienced combination of 2 types of injuries (21.8%) and 39 had only one type of injury (70.9%).

Number of students who had injuries to the soft tissues was 30 (31.6 %) and the most common soft tissue injury was to the lower lip (n:11, 36.7%) (Table 3).

A total of 11 (11.6%) students had expreienced injuries to the bone tissue and all of them to the mandible (Table 3).

A total of 34 (35.8%) students had experienced some kind of dental trauma to the hard and periodontal tissues of the teeth. 21 subjects had isolated dental trauma(61.8%), one had bone tissue and dental injury together(2.9%), 8 had soft tissue and dental injury together(23.5%) and 4 had combination of three types of injuries(11.8%) (Table 2).

Most commonly encountered dental trauma was uncomplicated crown fracture (n:18, 52.9%) followed by luxation trauma (n:4, 11.8%) and complicated crown fracture (n:3, 8.8%) (Table 4). 23 (67.6%) of the subjects who experienced dental trauma applied for treatment and most common treatment modality was conservative therapy (Figure 1). Among the 34

students who experienced dental trauma, 13 (38.2%) of them reported that they had experienced dental trauma during training. There was no statistical significant difference in the frequency of dental trauma between the students practicing different sports modalities.

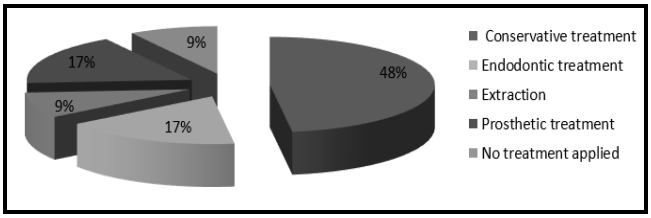

Figure 1. Distribution of the treatment modalities among the students who applied to the dentist (n:23)

Type of injury	Bone tissue injuries (n:11)	Soft tissue injuries (n:30)	Dental injuries (n:34)	n
Trauma	+	+	+	4
	+	-	+	1
	+	+	-	3
	+	-	-	3
	-	+	+	8
	-	-	+	21
	-	+	-	15
At least one type of trauma				55 (57.9 %)
No trauma				40 (42.1 %)

Table 2. Distribution of different types of dental injuries.

Type of injury	n (%)	Tissue	n
Soft tissue	30 (31.6%)	Cheek	6
		Lower lip	11
		Upper lip	7
		Tongue	6
Bone tissue	11 (11.6%)	Mandible	11
		Maxilla	-

Table 3. Distribution of traumatic orofacial bone and soft tissue injuries.

Only 34.7% of the students were aware that the avulsed tooth should be reimplanted and 6.3% knew that the avulsed tooth should be maintained in a liquid such as milk, water or mouth. The time given for replantation of a tooth after avulsion was also asked and 33.7% of the participants' answer was until 2 hours, 33.7% of the answers was more than 2 hours while 32.6% had no idea (Table 5).

Although 50 of the participating subjects (52.6%) were aware of mouthguards as preventive measure against dental trauma, only 8.4% (n: 8) reported to use a mouthguard. There was also no statistical significant difference between the subjects practicing different sports modalities when their knowledge and use of mouthguards were compared.

Types of dental injuries	n	%
Enamel fracture	2	5.9
Uncomplicated crown fracture	18	52.9
Complicated crown fracture	3	8.8
Intrusion	1	2.9
Extrusion	1	2.9
Crown-root fracture	1	2.9
Luxation	4	11.8
Avulsion	2	5.9
Root fracture	2	5.9
Total	34	35.8%

Table 4. Distribution of types of hard and periodontal tissue injuries.

Avulsed tooth can be replantated		The tooth can be kept in milk, water or mouth-saliva		Time for replantation	
Yes	33 (34.7%)	Yes	6 (6.3%)	0-2 h.	32 (33.7%)
No	62 (65.3%)	No idea	89 (93.7%)	More than 2 h.	32 (33.7%)
				No idea	31 (32.6%)

Table 5. Level of knowledge about management of dental avulsion and replantation.

Discussion

Sports activities are unfortunately associated with injury risks that include orofacial soft- and hard-tissue trauma and such accidents often have life-long consequences.

The incidence varies according to the type of sport, being even higher compared with the global population[10,11]. The present study was

planned to assess the dental and orofacial trauma experiences and evaluate the knowledge of immediate emergency management and the use of mouthguards in School of Physical Education and Sports students practising various sports activities.

There are diverse findings about the incidence and prevalence of dental trauma in various sports ranging betweeen %10-37 depending on the type of activity and either professional or amateur level of the athlete[7, 17].

Amateur athletes often suffer more from maxillofacial injuries than professional athletes. Mourouzis and Koumoura[13] showed that only 10% of the patients suffering from maxillofacial injuries during sports were professional athletes. In this present study more than half of the students had already been affected by at least one type of dental and orofacial trauma. A total of 34 (35.8%) students had experienced some kind of dental trauma to the hard and periodontal tissues of the teeth. These rates are more or less parallel with the previous studies[14,15].

Most of the participants in our study were football, basketball,volleyball or water polo players who are at medium risk of dental or orofacial injury related with the nature of the sport. No significant difference among the different sports modalities was found regarding the frequency of dental trauma. However this might be due to the relatively small number of participants in various sports and higher numbers can yield more information about the risk for each type of sports.

At a rate of 8.3 injuries/1000 playing hours per player handball belongs to the sports activities with a medium risk for suffering dental trauma [16]. Basketball, a sport similar to handball, one finds that 30% of players suffered from an orofacial trauma[17]. Basketball also has a great incidence of such injuries because players wear neither a helmet nor a protective visor[18-22].

The danger is not limited to the sports competitions. Up to 25-30% of the accidents occur during training[23]. In our study group, 13 (38.2%) of the 34 students who experienced dental trauma had the accidents during training.
The types of the dental injury was also investigated. The results of a study conducted by Labella and colleagues[24] were in accordance with the results of our study; both studies showed that uncomplicated crown fractures were the predominant type of dental injury.

In addition to a high trauma frequency compared with many other outpatient injuries, TDIs are more time-comsuming and costly to treat. For example, the avarege number of visits treated on an outpatient basis during 1 year because of TDIs to permanent teeth has been shown to range from 1.9 to 9.1[25,26]. Given the young age of the student athletes the lifelong treatment will add up the costs. On the other hand, despite these facts the primary goals of treatment after a traumatic dental injury should be; if possible to sustain the vitality of pulp and restoration of aesthetic and function of the teeth. Likewise, most common treatment choice in our study was conservative treatment by 47.8% and only 8.7% of dental trauma patients had an extraction for treatment which also represents the dentists effort to preserve the teeth. Another possible explanation is that a crown fracture which is the most common type of TDI's can be treated successfully by means of conservative therapy, but one must also be aware that reversible damage to the pulp and the periodontium is not uncommon.

The state of knowledge among the individuals questioned about replantation of avulsed teeth was another aspect of our study to assess the level of information on emergency management of dental trauma. The results of a study showed 65 of the 112 interviewees were aware of the fact that an avulsed tooth can be replanted[27]. However in this present study, only 34.7% of the students were aware that the avulsed tooth should be reimplanted and 8.3% knew that the avulsed tooth should be maintained in a liquid such as milk, water or mouth. This result may be considered unsatisfactory because the high subsequent cost, which those questioned were not aware of, can be substantially decreased through a physiological tooth rescue. This is one of the important results of this study which draws attention to the lack and importance of education about dental trauma.

Athletic mouthguards have been recommended for decades with varying levels of athlete acceptance. The results of this study has shown that only 52.6% of the paticipants were aware of mouthguards as preventive measure against dental trauma, and only 8.4% (n: 8) reported to use a mouthguard which is a very low level. More widespread use of mouthguards among student athletes will require increased

public acceptance and awareness, which can be gained through increased health education and promotion.

Conclusions

It could be concluded that student athletes possess higher risk factors for orofacial and dental trauma and there is a lack of knowledge about dental trauma and use of protective measures. This study showed the need for educational programmes to improve the knowledge of dental trauma and the use of protective devices during sports activities.

Declaration of Interest

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