Original Research

Prevalence of Traumatic Dental Injuries among Contact Sport Practitioners in Northeast of Iran in 2012

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Abstract

Introduction: Contact sports may lead to dental injures, which may often be prevented by using mouthguards. The purpose of this study was to evaluate the prevalence of traumatic dental injuries (TDI) in professional contact sport athletes and to determine the awareness regarding use of mouthguards in this group. **Methods:** A questionnaire containing a number of questions regarding the demographic data of participants, experiences of trauma and their behavior after that and use of mouthguard, was distributed amongst 100 contact sport athletes. **Results:** eighty athletes returned the questionnaire. The age range of most of the participants (44.2%) was between 20-30 .Also most of them had been practicing in contact sports for 1 to 5 years (37.3%). 26.2% of the athletes had experienced some sort of dental trauma. There was no significant difference between the injuries in males and females ($p > 0.05$). Luxation injuries were the most common type of TDI (47.7%), followed by crown fractures (42.1%) and avulsion (10.5%). 89.7% of athletes had already been informed about using mouthguards, however only 10.3% reported having used them. **Conclusion:** According to the results of this study, the rate of TDI among contact sport practitioners in Iran is high; however the use of mouthguards by athletes is low. Dentists and sports authorities should promote the use of mouthguards in contact sports to decreases the risk of dental trauma and tooth loss.

Key words: Dental trauma, Prevalence, Sport, Mashhad, Iran

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Introduction

Sport activities are one of the main etiological factors for traumatic dental injuries (TDI) (1-3). Due to the development of sport activities in the world, the risk for TDI among athletes has also increased. Furthermore, professional athletes have a higher risk of TDI (4, 5).

Contact sports are those in which players, through physical contact, try to prevent the opposing team or person from winning (6).

Not only TDI occur during the competition but also during training sessions. The intensity and frequency of the contact are the main determinants of TDI (7).

There is higher risk of dental trauma in direct contact sports including boxing, soccer, basketball and hockey (8-12).The consequence of these injuries can be dental loss or even in cases that treatment has been performed, root resorption or ankylosis can still occur (13).

In order to prevent sport related dental injuries, using mouthguards to protect dental and periodontal tissues is an appropriate measure in reducing the occurrence of trauma (14, 15).

There are three types of mouthguards: (i) prefabricated(stock) mouthguards, which are available in different sizes; (ii) boil and bite mouthguards which are immersed in hot water and formed in the mouth; (iii)

custom made mouthguards which are built on the model of patient's mouth by dentists (16,17).

The purpose of this study was to evaluate the prevalence of TDI in professional contact sport athletes, and to determine the awareness regarding use of mouthguards in them.

Materials and Methods

This cross sectional study was performed among professional contact sport athletes in Mashhad (a city in northeast of Iran) in May 2012 and was approved by Ethics Committee of Mashhad University of Medical Science.

All of the professional athletes listed in Sport Organization of Mashhad who agreed to participate in the study completed a questionnaire that was validated by an expert panel discussion in the Department of Endodontics of Mashhad Dental School. To ensure anonymity, the participant's names were not recorded on the questionnaire.

The questionnaire had three parts: part I contained questions about sex, age, sport activities and history of activities (Table 1); part II contained questions about any experience of dental trauma, type of dental injury, any dental treatment following the trauma and any delay for seeking treatment after trauma (Table 2); part III contained questions to assess the knowledge of the athletes about using mouthguards (Table 3).

After completing the questionnaire, one calibrated dentist clinically examined athletes for signs of previous dental trauma which might have been ignored by the participants. Before the clinical examination, wet gauze pads were used to clean the tooth surfaces and a visual examination with a plane dental mirror was conducted.

Statistical analysis

The statistical analysis was performed using the SPSS software Ver. 11.5. Data were analyzed using Chi-Square. The level of significance was set at 5%.

Table 1. Questions in part I of the questionnaire distributed among sports practitioners

1. Sex:
( ) male
( ) female
2. Age:
( ) under 20
( ) 20–30
( ) 30–40
( ) 40–50
( ) 51 or more
3. Sport activity
4. Time of sports practice:
( ) < 1 year
( ) 1–5 years
( ) 6–10 years
( ) 11 years or more

Table 2. Questions in part II of the questionnaire distributed among sports practitioners

1. Have you suffered any kind of trauma in any teeth?
( ) yes ( ) no
(if yes, answer questions 2 to 4)
2. What kind of lesion did you have?
( ) fractured part of the tooth
( ) fractured the root of the tooth
( ) the tooth was loose but did not fall out of the mouth
( ) the tooth fell out of the mouth completely
3. How did you proceed?
( ) did nothing
( ) went to hospital or dental clinics
( ) went to personal offices
4. If you seek treatment, when?
( ) at the day of accident
( ) 1-7 days after accident
( ) during the first month after accident
( ) when pain and discomfort occurred

Table 3. Questions in part III of the questionnaire distributed among sports practitioners

1. Are you aware of mouthguards for use during sports practice?
( ) yes ( ) no
2. Do you use or have you used mouthguards?
( ) yes ( ) no
3. If not, why?
( ) difficulties during communication
( ) difficulties during breathing
( ) esthetics
( ) because I never heard of it

Results

A total of 100 professional contact sport athletes were given questionnaire; 80 athletes agreed to participate in the study and returned the questionnaire (response rate 80%). There were 56 male and 24 female participants in the study. The most common age range was 20-30 (44.2%) and most of the athletes had been professionally exercising for 1 to 5 years (37.3%). 26.2% of the athletes had experienced some kind of dental trauma out of which 26.8% were male and 29.2% were Female (Table 4) .There was no significant difference by sex. ($p > 0.05$). Types of injuries in the athletes were listed in (Table 5). 22/7% of the athletes with TDI were not referred to a dentist after trauma and as a result left untreated. The type of treatment sought and the center referred to is listed in (Table 6).

Table 4. Distribution of dental trauma incidence by sex

History of Dental Trauma	Male	Female	Total
Yes	15(26.8%)	7(29.2%)	22(27.5%)
No	41(73.2%)	17(70.8%)	58(72.5%)
Total	56(100%)	24(100%)	80(100%)

Table 5. Distribution of dental trauma incidence by type of trauma

Incidence of trauma by type	Luxation	Crown Fracture	Avulsion	Root Fracture	Total
Number	10(45.5%)	8(36.4%)	4(18.1%)	0(0%)	22(100%)

Table 6. Distribution of seeking treatment after trauma

Referred location after trauma	Hospital or Public Clinics	Dental Office	No Treatment	Total
Number	4(18.2%)	13(59.1%)	5(22.7%)	22(100%)

20% of the athletes with TDI were visited by a dentist on the day of accident, 46.7% within 1 to 7 days after accident, 20% within the first month and 13.3% when pain and discomfort occurred. Of the 80 participants, 89.7% had been informed about using mouthguards for sports practice, however only 10.3% reported to have used any kind of mouthguard. Difficulties in breathing and lack of esthetics were the main reasons for not using mouthguards.

Discussion

Contact sports in which players physically contact with each other may lead to orofacial and dental trauma and can be prevented by appropriate measures (18). In this study, the prevalence of dental injuries among professional contact sport athletes in Mashhad was 26.2%. Similarly, Ferrari and Mori et al. reported that 28.8% and 28.4% of athletes had experienced some sort of dental trauma in two different studies respectively (9,19).

Some studies found that gender is an important risk factor in occurrence of TDI in contact sports as males sustained orofacial injuries more than females (20). In contrast, some studies found no gender-based differences (21, 22). Similar to the latter group of studies, in our study, the incidence of dental trauma was not different in male and female participants ($p>0.05$).

Luxation injuries cited by 47.7% of athletes were the most common type of tooth injury, followed by crown fractures (42.1%).However, Mori et al. and Keçeci et al. reported that crown fractures were the most common type of dental injury (19,13).

In our study, 22/7% of the athletes with TDI did not seek any treatment after dental injury. Similar results were obtained in a study performed in Brazil by Mori et al. (19).

The majority of the athletes (89.7%) were aware of using mouthguards as a protective device. Tulunoglu and Ozbek found that all boxers and 72.5% of taekwondo practitioners were aware of using mouthguards (23). Ferrari and Ferreria de Mederios reported that the level of awareness of using mouthguards was 71.9% for martial arts and 51% for handball players, respectively (9). Although 89.7% of athletes were informed about using mouthguards, only 10.3% reported having used them. Some factors which influence wearing mouthguards by athletes include comfort, ability to speak, breathing and esthetics (12). The main reasons related to not using them were difficulty in breathing and lack of esthetics.

The limitations of this study were difficulties to have radiographs and lack of access to a valid and formal record of past injuries in most cases.

Conclusion

The results of our study indicated that although the rate of TDI among contact sport practitioners in Mashhad is high, the use of mouthguards among athletes is low. Dentists and sports authorities should promote the use of mouthguards in contact sports in which a considerable risk for dental trauma and tooth loss exists. Public health education to increase the awareness of protective measures and information on the risk of injury and availability of more comfortable mouthguards for injury prevention is an important matter in sports dentistry.

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