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# Dental trauma and mouthguard usage among ice hockey players in Turkey premier league

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Abstract – An epidemiological survey was carried out among the ice hockey players of Turkish Premier Ice Hockey League. The purpose of the present study was to evaluate the prevalence of dental trauma in youth and adult ice hockey players, as well as to check if the players were aware of mouthguards and had used any. The players were interviewed to determine the occurrence of dental trauma during ice hockey and mouthguard usage level. Results revealed that awareness of Turkish ice hockey players to dental trauma is neglected while the majority of players also demonstrated limited utilization of mouthguard.

**Esber Çaglar[1,2], Betul Kargul[2], Ilknur Tanboga[2]**

[1]Department of Paediatric Dentistry, School of Dentistry, Yeditepe University, [2]Department of Paediatric Dentistry, School of Dentistry, Marmara University, Istanbul, Turkey

Key words: mouthguard; dental trauma; ice hockey; epidemiological survey; Turkey

Dr Esber Caglar, Department of Paediatric Dentistry, School of Dentistry, Yeditepe University, Bagdat Cad No 238 Goztepe, Istanbul 34728, Turkey
Tel.: +90 216 3636044
e-mail: caglares@yahoo.com

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Vigorous physical activities offer a variety of healthful benefits to youngsters. However, participating in such activities also places athletes at risk for injury, including trauma to the teeth and mouth (1).

Trauma in sport players represent an important group in dental injury aetiology (2). Sane & Ylipaavalniemi indicated that the incidence of trauma varies according to the sport, being even higher when compared with the global population (3). However, dental trauma in contact sports differs form other sources, as it is possible to easily prevent it and reduce the occurrence levels by the use of mouthguards (MG) (4, 5). The use of MG in contact sports is highly recommended because of their ability to absorb shock to the mouth, protecting teeth (6).

Although dental trauma prevalence has been investigated in Turkey (7), no investigation has been carried out regarding dental trauma in the field of contact sports. Over the past decade, ice hockey in Turkey has undergone rapid expansion because of establishment of Olympic ice hockey rinks.

The objective of the present study is to determine the degree of dental trauma occurring during ice hockey playing among Turkish premiere league players and to evaluate the level of information and the usage of MGs.

## Materials and methods

The present study is based on data obtained from personal and direct interview, through questionnaires answered by ice hockey players. All data were collected in December 2003. The study population included four metropolitan city clubs (Istanbul, Izmit, Ankara) and 37 male players were approached for interview. The questionnaire consisted of the following items: name, age, club, city, period of time practising the sport, having orthodontic treatment at the moment, the occurrence of any dental trauma while practising the respective sport, players' level of awareness concerning the need of using MG while training, regular use of MG if any. Both young (15–17 years) and adult (18–29 years) players were recruited. The statistical evaluation was carried out using the aspects of league club, awareness of dental trauma, protection methods, trauma history and MG usage. The collected data were analysed using version 10.0 of the SPSS software for Windows (SPSS Inc.,

Table 1. Age, social status and year of practice of players in the premiere league

| Club (city) | No. of players | Mean age ± SD | Profession | *n* | Years of practice ± SD |
|---|---|---|---|---|---|
| I. Paten (Istanbul) | 4 | 22.5 ± 1.2 | University student | 3 | 7.2 ± 2.9 |
| | | | Professional | 1 | |
| I. Buyuksehir (Izmit) | 11 | 21.6 ± | University student | 2 | 4.6 ± 8.0 |
| | | | Highschool student | 7 | |
| | | | Professional | 2 | |
| Sirintepe (Izmit) | 17 | 14.8 ± 2.0 | University student | 2 | 2.8 ± 2.1 |
| | | | Highschool student | 15 | |
| P. Koleji (Ankara) | 5 | 22 ± 4.9 | University student | 3 | 7 ± 4.3 |
| | | | Highschool student | 2 | |
| Total | 37 | 18.8 ± 6.0 | University student | 10 | 4.4 ± 2.9 |
| | | | Professional | 3 | |
| | | | Highschool student | 24 | |

Table 2. Distribution of dental trauma among ice hockey players ($n = 11$)

| Type of injury | Tissue | No. of cases |
|---|---|---|
| Soft tissues | Lips | 5 |
| | Oral mucosa | 1 |
| Hard and periodontal tissue of teeth | Tooth 12 | 1 |
| | Tooth 21 | 2 |
| Bone tissue | Maxilla | 2 |
| | Mandible | 6 |

Chicago, IL, USA) and the level significance was set at 5%. Chi-square test was applied for statistical analysis.

## Results

Mean age of the players was 18.8 ± 6.0 years. Age, social status and year of practice of players in the premiere league are shown in Table 1.

Some players ($n = 11$; 29.72%) had already been affected by dental trauma, which was separated into the following categories: (i) injuries to the soft tissues (lips, oral mucosa), (ii) hard and periodontal tissue of teeth, and (iii) bone tissue (including maxilla, mandible) (Table 2). It should be noted that none of the youth category players had presented a history of dental trauma. Use of MG was compared for those who had or had not sustained a previous dental trauma when playing ice hockey. Among 11 traumatized players, only four (36.6%) used MG ($P > 0.05$), while non-traumatized 26 players showed a frequency of 15.3% MG usage ($n = 4$; $P < 0.01$). In conclusion, the frequency of MG use was significantly less among players with, than those without, previous history of dental trauma.

Only nine players (24.32%) reported using an MG for ice hockey; eight adults, one youth. Dental attitudes of ice hockey players were distributed in Table 3. From the point of protection from dental trauma, again only four players stated they had a dental trauma protection education. From the players interviewed, only four stated they were aware of the dental emergency kit of their club. However, from the 37 professional players interviewed, only 21 (56.7%) wished a dental programme existed in order to learn protection from dental trauma.

## Discussion

The literature shows limited data regarding ice hockey and dental trauma relationship. Prior to 1975, craniofacial injuries were the most frequent of all ice hockey injuries in the USA (8). A sample study among the US ice hockey players indicate that at the highschool level, 10% of individuals and at college, as many as 60% have already experienced tooth loss while playing ice hockey (9). In Finland, only 10% of injured ice hockey players wore some kind of MG. In the present study, 29% of the players experienced dental trauma and only 36% of these injured players wore the MG.

Table 3. Dental attitudes of ice hockey players

| | Awareness of protection methods | | | | | |
|---|---|---|---|---|---|---|
| | Players | Trauma education | Helmet | Faceguard | MG | Usage of MG |
| Youth | 17 (46) | 2 (11.7) | 1 (5.8) | 2 (11.7) | 8 (47) | 1 (11.7) |
| Adult | 20 (54) | 2 (10) | 0 (0) | 6 (30) | 15 (75) | 8 (40) |
| Total | 37 (100) | 4 (10.8) | 1 (2.7) | 8 (21.6) | 23 (62) | 9 (24.3) |

MG, mouthguards.
Values are given as *n* (%).

MGs should be mandatory for all ice hockey players as the sport presents the risk of blows to the face. MG offer protection to the dental and periodontal tissues during ice hockey, decrease the number and severity of injuries caused by blows or falls to the oral region (10–12). Currently, three types of MGs are available: stock, mouth-formed and custom fabricated over a dental cats (1, 13). In the present study, no youth player knew any types of MG while eight adult players were aware of the MG types. MG brands used were Bauer, CCM and Joga.

Lahti et al. stated that the most common cause of accidents was a blow from the ice hockey stick. The stick as a cause of injury was approximately three times as common in the games than in training (14). Regarding the nature of dental trauma, players in the present study mostly point to sticks as the most important source. However, despite its important role, only 24.32% of the players questioned wore a MG.

Ice hockey players undergoing orthodontic treatment present a particular problem, as they are potentially at greater risk of injury because of increased tooth mobility and the presence of orthodontic appliances (5). In the present study, only one of the players were wearing orthodontic brackets and also he had used MG.

Based on the results and discussion, awareness of Turkish ice hockey players to dental trauma is negligible. Coaches, dentists and parents should be trained about dental trauma and protection methods such as the utilization of MG. It should be concluded that from the moment a youngster starts to practise ice hockey, he should be encouraged to wear a MG. A great responsibility in using MG lies on the clubs via dentists, who are actually not common in Turkish ice hockey league.

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