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Do American football players in Turkey protect themselves from dental or orofacial trauma?

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Abstract – *Background/Aims:* Dental and orofacial trauma in contact sports differs from other sources, as it is possible to prevent it and reduce the dental and orofacial trauma by using protection devices. The aim of this study was to evaluate the occurrence of dental or orofacial trauma in American football players of Turkey National League as well as to investigate if the players were aware of mouthguards (MGs) and had used any. *Material and methods:* An epidemiological survey was carried out through interviews with 78 American football players in four clubs competing in Turkey National League. Thirteen players had already been affected by orofacial trauma. *Results and Conclusions:* Results revealed that 67 of 78 Turkish–American football players were aware of MG, while 46 of 78 players also demonstrated its use. It should be concluded that from the moment a youngster starts practising football, he should be encouraged to wear an MG to get used to the sensation and, would automatically consider it as a part of the game. A great responsibility lies on dentists, to inform their patients about the importance of wearing MG and the consequences, if it is not worn.

Sports activities offer a variety of health benefits to youngsters. However, participating in such activities also places the athletes at a risk of dental or orofacial trauma (1–5). Currently, dental trauma in contact sports differs from other sources of trauma, as it is possible to prevent it and reduce the dental and orofacial trauma by using protective devices such as helmets, face guards and mouthguards (MGs) (6, 7). The use of MG in contact sports is highly recommended because of their ability to absorb shock to the mouth, and in this way it protects the teeth (8). The need for a protector has been realized since 1927 (9), whereas actual systematic research began in 1929 and was limited to football players (10). In 1945, it was shown that 52% of all football injuries occurred in the face and oral cavity. Many people awakened by this alarming percentage realized the need for protection to the head, face and teeth, whereas an early attempt and research to provide this protection widely involved first the US states, Wisconsin (11), Missouri (12), Illinois and Indiana (13), between 1950 and 1958. In 1962, the National Alliance Football Rules Committee adopted a rule saying 'Each player should wear an intra oral mouth and tooth protector which includes an occlusal and a labial portion' (14). Regarding the vision of dentists, currently, the above statement is supported by the American Academy of Pediatric Dentistry (15) while the European Academy of Pediatric Dentistry only states that pediatric dentists must know how to construct an MG (16).

Maxillofacial and dental injuries were studied on registered players of American football in Finland between 1979 and 1985. In American football, where facial protection is complete and mandatory, maxillofacial and dental injuries accounted for only 1.4% of all accidents (17).

Over the past two decades, American football in Turkey has undergone rapid expansion among youngsters. To our knowledge, American football is emerging in Europe, but preventive methods have not been reported. The purpose of this study was to evaluate the occurrence of dental or orofacial trauma in American football players of Turkey National League as well as to investigate if the players were aware of MG and had used any.

Material and methods

The study population included four of six invited Turkish clubs in the Turkey National League from three different cities (Istanbul, Eskisehir and Konya). Information collected in March 2007 was obtained from personal interviews and questionnaires completed by 78 active American football players.

The questionnaire was modified from the trauma sheet earlier presented by Caglar et al. (1, 2). The items included were: name; age; club; city; number of years practising the sport; the occurrence of any dental or orofacial trauma divided into the following categories: injuries to the (i) soft tissues (lips, oral mucosa), (ii) hard or periodontal tissue of teeth, (iii) bone tissue (including maxilla, mandible); having any orthodontic treatment at the moment; players' awareness concerning the need for using MG while training; and regular use of MG, if any. The statistical evaluation was performed regarding league club, awareness of dental trauma, protection methods, trauma history and MG usage. Chi-square test

was applied for statistical analysis using SPSS software version 10.0 for Windows and the level significance was set at 5%.

Results

The results revealed information from 78 of 90 players in four clubs. Mean age and year of practice were 23.5 years (SD = 3.3) and 3.6 years (SD = 2.8) respectively (Table 1). Thirteen players (16.6%) had already been affected by dental or orofacial trauma, where soft tissue injuries (12 of 26 diagnoses) and bone tissue injuries (10 of 26 diagnoses) were in majority (Table 2). Among these 13 players, seven stated that they were not protected by an MG when trauma occurred; however, 11 were currently using MG. Among the players wearing MG, no statistical correlation was found between those who had and those who had not sustained a previous dental trauma ($P > 0.05$). Among these 67 players who were aware of MG protection method, three stated that they were informed by their dentists, three by the internet and 61 by their coaches. Forty-six players reported that they were wearing an MG either in training or in competition. Out of 46, six players wearing MG, only one player was wearing a custom fabricated-MG adjusted by his dentist, letter were using stock made MGs. Brands of stock MGs used among players included Adams, BrainPad, Fox40, Muller, ProBrain Pad and Shockdoctor.

Regarding orthodontic therapy, only two of the players wearing brackets had used MG and did not represent any trauma history.

Distribution of American football players regarding the protection methods is listed in Table 3. The 32 players who did not use MG reported causes such as gag reflex, difficulty in speech and breathing. Of 78 players interviewed, 10 stated that they were aware of an emergency kit (general) at the club. All 78 players wished a dental protection programme to be performed.

Table 1. Mean age and years of practice of American football players in the Turkish National League

Club, City	No. of players	Mean age ± SD	Years of practice ± SD
Galatasaray Tigers, Istanbul	26	24.4 ± 3.5	4.6 ± 4.2
Yeditepe Eagles, Istanbul	21	22 ± 2.9	2.9 ± 1.8
Anadolu Rangers, Eskisehir	7	23.2 ± 1.6	4 ± 2.1
Selcuk Kartallar, Konya	24	23.9 ± 3.5	3 ± 1.1
Total	78	23.5 ± 3.3	3.6 ± 2.8

Table 2. Distribution of dental and orofacial traumatic injuries among 13 American football players in Turkey

Type of injury	Tissue	No. of diagnoses
Soft tissues	Lips	7
	Oral mucosa	5
Hard and periodontal tissue of teeth	Tooth 13	1
	Tooth 21	2
	Tooth 11	1
Bone tissue	Maxilla	3
	Mandible	7

Discussion

MG offers protection to the dental and periodontal tissues during contact sports and decreases the number and severity of injuries caused by fall or blow to the oral region. (1, 18) In preventing dental or orofacial trauma, MG is mandatory among all American football players because of the nature of the sport.

In Turkey, six clubs compete in American Football National League. The questionnaire was sent to all six clubs; however, two of them did not reply to participate in the study. The participation rate in the study is considered a meaningful representation of the value given by the clubs to use of MG.

Regarding dental or orofacial trauma, bone tissue injuries were higher indicating the necessity for combined use of external protective device (which is consistently worn in the present group) and MG. This consequence could be probably because of the impact of nature of the sport.

Undergoing orthodontic treatment presents a particular problem as players are potentially at greater risk of injury because of increased tooth mobility and the presence of orthodontic appliances (7). In this study, only two of the players wearing orthodontic brackets had used MG and did not represent any trauma history.

Turkish Association of Baseball and Softball states that for every American football player, it is mandatory to wear a face guard (19) and an MG (20). Both protective methods are mandatory; face guard use is 100%, whereas MG use is only 58.9% among the players. It should be noted that protection issues are better evaluated by the association as results from ice hockey players in Turkish league presented only 23% of MG usage. (1) However, as the letter of the players do not wear an MG, they should not have permission to participate actively in the game until they wear MG.

Table 3. Distribution of American football players in Turkey regarding their use of protection devices

	Awareness of protection methods									
	Emergency training		Face guard		MG		Usage of MG		Usage of face guards	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Players	27	34.6	78	100	67	85.8	46	58.9	78	100

MG, mouthguard.

Despite its protective role, poor MG usage might be because of stock made MGs, which are not individualized and which probably cause gag reflex, difficulty in speech and breathing as mentioned by the players. However, it is also clear that the players do not have enough information regarding the benefits of wearing MG and that it is mandatory to use; there is no legal penalty if it is not used.

On the basis of the results of our study, Turkish–American football players represented a moderate awareness on dental trauma protection (34–100%). Players and coaches are well trained regarding use of an external protective devices such as face mask and MG; MG usage is less when compared with use of face mask. Players, coaches, dentists and parents should also be trained about dental trauma and protection methods such as the utilization of MG (21, 22). It should be concluded that from the moment a youngster starts to practising football, he should be encouraged to wear MG to get used to the sensation and he would automatically consider it as a part of the game. A great responsibility lies on dentists, coaches and guardians in checking the players' sports activities and contacting clubs. Dentists should inform their patients regarding preventive measures; they should additionally control if their young patients are in contact sports such as football and thus inform and motivate them to wear MG (22).

It is believed that an information programme on the importance of MG and external protection is vital for the American football players. Additionally, an obligatory educational programme should be included in the dental curriculum to provide further consciousness and MG protection to all contact sport playing children.

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