

# Dental Health Status and Attitudes of Licensed Soccer Players

## Lisanslı Futbolcuların Diş Sağlığı ve Diş Sağlığı Konusundaki Tutumlarının Belirlenmesi

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**ABSTRACT Objective:** Oral health is one of the most important aspects of athletes' health and performance. In this study, reported behaviors related with oral health as well as DMFt and DMFs of the licensed athletes playing in Soccer clubs of a city were examined. **Material and Methods:** This study was conducted about licensed soccer players in a sport club of a city. Players' reported behaviors about oral health were determined by a questionnaire which was filled by face to face interviews. As indicator a for oral health, DMFt and DMFs were calculated. **Results:** In total, 453 athletes were interviewed. 60.9% were amateurs, 39.1% were professionals and 92% were high school and above graduates. Of those interviewed, 24.5% reported that they have fear of dentist, 19.1% have enough knowledge about oral health and 90.1% stated that oral health was important for their professional lives. Only 96.5 % reported that they used oral health services adequately. 84.8% of participants have at least one decayed tooth (DMFt>1) and 28 % have at least one missing tooth. In the group, it was found that DMFt=3.63+2.92, DMFs=5.04+3.96 and the number of missing teeth=0.48+0.96. **Conclusion:** Although majority of the participants knows the importance of oral health, their oral health status has been assessed to be unsatisfactory. The limited number of participants, reported that they had enough information about dental hygiene, and this can be an indication of a considerable service gap in the preventive dental services.

**Key Words:** Dental health survey; soccer; dental caries

**ÖZET Amaç:** Ağız sağlığı sporcu sağlığının ve performansının çok önemli bir bölümünü oluşturmaktadır. Bu çalışmanın amacı, bir ilimizin futbol kulübündeki lisanslı oyuncuların ağız sağlıklarını DMFt ve DMFs indekslerini kullanarak değerlendirmektir. **Gereç ve Yöntemler:** Bu çalışma bir ilimizin futbol kulübündeki lisanslı futbolcular üzerinde gerçekleştirildi. Futbolcularla yüz yüze görüşülüp sorular soruldu. Ağız içi muayeneleri yapıldı ve kayıt altına alındı. Ağız sağlığı durumlarını belirlemek için DMFt ve DMFs indeksleri kullanıldı. **Bulgular:** Toplam 453 sporcu muayene edilip değerlendirildi. %60.9'u amatör, %39.1'i profesyonel ve %92'si lise mezunu veya daha üst eğitim seviyesinde idi. Değerlendirilen grubun % 24.5'i diş hekimi fobisi olduğunu belirtti, %19.1'i ağız hijyeni hakkında yeterli bilgiye sahip olduğunu bildirdi ve %90.1'i ise profesyonel yaşamlarında ağız sağlığının öneminin farkında olduklarını belirtti. Muntazam bir şekilde ağız sağlığı kontrolünü yaptıranlar %96.5 olarak belirlendi. En az bir adet diş çürüğü görülenlerin oranı %84.8 (DMFt>1) ve en az bir adet diş kaybı görülenlerin oranı ise %28 olarak tespit edildi. Araştırdığımız grupta, DMFt=3.63+2.92, DMFs=5.04+3.96 olarak bulundu ve kaybedilmiş dişlerin oranı da =0.48+0.96 olarak saptandı. **Sonuç:** Katılımcıların çoğunluğu tarafından ağız sağlığının önemi bilinmesine rağmen, ağız sağlığı bulguları tatminkâr bulunmamıştır. Az sayıda katılımcı ağız hijyeni hakkında yeterli bilgiye sahip olduklarını bildirmişlerdir. Bu sonuç koruyucu diş hekimliği uygulamaları konusun da önemli bir eksiklik olduğunun göstergesi olarak değerlendirilmiştir.

**Anahtar Kelimeler:** Diş sağlığı araştırması; futbolcu; diş çürüğü

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There have been significant achievements in prevention but many challenges to the dental profession still remain. Over the past decade, the prevalence of dental caries has declined in many developed countries although some still report quite high rates. In developing countries the opposite is true and commonly reported rises in caries rates demand urgent action. Some countries, including those of Scandinavia and the United Kingdom, have organized public health services providing oral health care, particularly to children and disadvantaged population groups.<sup>1</sup> In most developing countries, investment in oral health care is low. In these countries resources are primarily allocated to emergency oral care and pain relief; if treatment were available, the costs of dental caries in children alone would exceed the total health care budget for children.<sup>2</sup> Despite evidence of improving oral hygiene, improvement in the prevention of periodontal disease in children or adults from both developed and developing countries is not clinically significant.<sup>3,4</sup> Poor oral health may have a profound effect on general health, and several oral diseases are related to chronic diseases (e.g. diabetes). Pain, problems with eating, chewing, smiling and communication due to missing, discolored or damaged teeth have a major impact on people's daily lives and well-being. Furthermore, oral diseases restrict activities at school, at work and at home causing millions of school and work hours to be lost each year throughout the world.<sup>5,6</sup> Sports dentistry has been considered a prominent area of dentistry because dental health can limit the abilities of athletes, both professional and nonprofessional, in their training and competition. Poor oral health among athletes has been related to poor performance in training and games, poor social relationships and less success in future life. Dental decay is associated with the frequent use of carbohydrates, recommended as an energy source for exercise. Strong indications exist regarding the possibility to use saliva as a performance determinant and for evaluation and prescription of physical activity.<sup>7</sup> The high performance standards that athletes have to meet can only be attained by a totally healthy individual. Optimal dental health is a necessary el-

ement. The universality of dental disease can be altered by modern prevention modalities and self-administered hygiene.<sup>8</sup>

The people with a low family income and those with a low level of education have their teeth extracted more often.<sup>9</sup> In one of the studies, it is stated that caries measures are generally prevalence measures representing long-term accumulation of disease.<sup>10</sup> In a study in Sweden<sup>4</sup> it is stated that many athletes on an elite level should have more information about prevention of dental caries, including use of fluoride containing products besides tooth paste, for example fluoride mouth rinse solutions and fluoride sucking tablets, improved oral hygiene, and better dietary habits.

Some studies have reported that the participants had poor oral health and perceived a need for care although they used dental services infrequently and had poor knowledge of available services.<sup>10,11</sup> In a study it is stated better health-related behaviors and better oral health might be more typical of well-educated young adults.<sup>12</sup> The discrepancy between the patient's and the dentist's perception of dental treatment need can lead to problems when it comes to treatment planning and the patient's cooperation.<sup>13</sup> In developing countries, oral health services are mostly offered at the regional hospitals or (central) hospitals in cities and little, if any, importance is attached to preventive or restorative dental practices.<sup>14</sup>

Caries-related diseases have an important place among the various diseases of the organism. The spread of these pathologies leads to aesthetic, functional and economic consequences. Oral health is an integral part of the overall health, yet in athletes what is being done to prevent oral diseases and improve oral health is not enough in Turkey. The aim of this study is to evaluate the oral health conditions of soccer players.

## MATERIAL AND METHODS

This research was conducted in Turkey between January and April in 2005. In the province of Ankara, 478 licensed soccer players were playing in 24 soccer teams, of which 14 were amateurs and 10

were professionals, and we reached 453 (94.6%) of all players. Selection for samples have not yet been made, however, all the amateur and professional soccer players were tried to be reached. The questionnaire consisting of 15 questions were filled in by participants in order to state their views and behaviors for dental health. Information about their age and level of education using standard examination techniques. The epidemiological indices specified by the WHO were used to assess dental health conditions: decayed, DMF-t, DMF-s (WHO, 1987). The data were analyzed by using Epi Info 2000 program, and statistics for interrupted variables and continuous variables were represented by numbers and percentages respectively. Chi-square test was used for statistical comparisons.<sup>15,16</sup> The Declaration of Helsinki principles adopted and conducted in this research. All subjects have understood the information and obtained the subject's freely-given informed consent. Statistical significant p level set at  $p < 0.05$ .

## RESULTS

Soccer players from professional teams ( $n=170$ ) and amateur teams ( $n=265$ ) took part in this study. The mean age of players was 22.81 ( $\pm 4.22$ ) years. 6.2 percent of the players were secondary school graduates and others were high school (58.6%) and other (35.2%) graduates (Table 1).

Some of the descriptive characteristics of the research group on dental health were shown in Table 2. As it is shown in Table 2, 84.8% of the par-

Variables	n	%
<b>Educational Degree</b>		
Elementary	8	1.8
Secondary	27	6.2
High School	255	58.6
University	145	33.3
<b>Licensed</b>		
Amateur	265	60.9
Professional	170	39.1
	Mean	SD
Age	22.81	4.22

**TABLE 2:** Some selective descriptive characteristics of the research group on dental health.

Variables	n	%
<b>Decayed teeth</b>		
No	66	15,2
Yes	369	84,8
<b>Missing teeth</b>		
No	313	72,0
Yes	122	28,0
<b>Filled teeth</b>		
No	324	74,7
Yes	110	25,3
	Mean	SD
DMFt	3.63	2.92
DMFs	5.04	3.96

ticipants have decayed tooth, and 28.0% have at least one missing tooth while 20.1% have prosthesis. After the oral examination of the participants, DMFt and DMFs indices were found to be  $3.63 \pm 2.92$  and  $5.04 \pm 3.96$  respectively.

The answers of the participants to the questionnaire were summarized in Table 3. While only 24.8 % of the participants thought that their teeth were healthy, 88.7% believed that dental health could be attained by careful teeth nursing, and 24.5% had fear of dentist. Majority of the participants (90.1%) believed the importance of dental health was important for their professional carriers, and only 17.5 % stated that it was important in terms of aesthetics. Among the participants, 96.5% were using dental health services, 88.2% were getting help for hygiene and only 9.9% reported that they cared for their teeth sufficiently.

Detailed information about the degree of decayed teeth was reported in Table 4. No statistical evidence could be found between the level of education and license degree of the participants and state of decayed tooth. When the answers were analyzed, the percentage of having decayed tooth was found to be 63.0% for participants who believed they had healthy teeth and 92.0% for participants who did not believe so. This difference was found as  $p=0.001$ , and could be assumed statistically significant. In addition to these findings, in terms of oral hygiene assistance, 82.6% of the par-

**TABLE 3:** Frequency and percentage Distribution of Players' Answers to the Questionnaire.

Questions	No		Yes	
	n	%	n	%
Do you believe all your teeth are healthy ?	325	75.1	108	24.8
Do you believe that you may protect your dental health by tooth care ?	49	11.3	384	88.7
Are you afraid of going to a dentist ?	324	75.5	105	24.5
Does the appearance of your teeth have aesthetic value/importance ?	354	82.5	75	17.5
Does dental health have importance for your profession ?(Is dental health important for your profession?)	43	9.9	390	90.1
Do you use dental services ?	15	3.4	418	96.5
Do you get help for oral hygiene ?	51	11.8	380	88.2
Do you keep your dental health care adequately ?	390	89.7	43	9.9

**TABLE 4:** Some selective descriptive characteristics of the research group on decayed Tooth.

Variables	Decayed Teeth				p
	No		Yes		
	n	%	n	%	
<b>Educational Degree</b>					
Elementary	2	25.0	6	75.0	0.775
Secondary	2	7.4	25	92.6	
High School	51	20.0	204	80.0	
University					
<b>Licensed</b>	11	7.6	134	92.4	
Amateur	35	13.2	230	86.8	0.154
Professional	31	18.2	139	81.8	
<b>Do you believe all your teeth are healthy ?</b>					
No	26	8.0	299	92.0	
Yes	40	37.0	68	63.0	0.001
<b>Do you believe that you may protect your dental health with tooth care ?</b>					
No	5	10.2	44	89.8	
Yes	61	15.9	323	84.1	0.297
<b>Are you afraid of going to a dentist ?</b>					
No	58	17.9	266	82.1	
Yes	8	7.6	97	92.4	0.61
<b>Does appearance of your teeth have aesthetic importance ?</b>					
No	50	14.1	304	85.9	
Yes	16	21.3	59	78.7	0.116
<b>Does dental health have importance for your profession ?</b>					
No	2	4.7	41	95.3	
Yes	64	16.4	326	83.6	0.052
<b>Do you use dental services?</b>					
No	0	0.0	15	100.0	
Yes	66	15.8	352	84.2	0.095
<b>Do you get help for your oral hygiene?</b>					
No	0	0.0	51	100.0	
Yes	66	17.4	314	82.6	0.010
<b>Do you keep your dental health care adequately ?</b>					
No	64	16.4	326	83.6	
Yes	2	4.7	41	95.3	0.052

ticipants who were having help and 100% of participants who were not, had decayed tooth and this difference could also be assumed statistically significant ( $p=0.010$ ).

The level of having missing tooth of research group was shown in Table 5. There was no statistical difference between the level of education and having missing tooth. On the other hand, the percentage of having missing tooth for amateur and professional players were 34.7% and 17.6% respectively, and it is found that this difference is statistically significant ( $p=0.001$ ). According to the

answers of the participants to dental health questions, no statistically significant explanation was derived for having missing tooth.

## DISCUSSION

In this research, valuable data were collected about dental health level of licensed soccer players who were playing in the province of Ankara. There is no nationwide study about dental health of athletes. It may be assumed that this study is the very first one in this field. Sequently, samples were selected using random sampling and

**TABLE 5:** Some selective descriptive characteristics of the research group on missing tooth.

Variables	Missing Teeth				p
	No		Yes		
	n	%	n	%	
<b>Educational degree</b>					
Elementary	6	75,0	2	25,0	0,775
Secondary	19	70,4	8	29,6	
High School	188	73,7	67	26,3	
University	100	69,0	45	31,0	
<b>Licensed</b>					
Amateur	173	65,3	92	34,7	0,001
Professional	140	82,4	30	17,6	
<b>Do you believe all your teeth are healthy ?</b>					
No	223	68,6	102	31,4	
Yes	88	81,5	20	18,5	0,010
<b>Do you believe that you may protect your dental health with tooth care?</b>					
No	38	77,6	11	22,4	
Yes	273	71,1	111	28,9	0,344
<b>Are you afraid of going to a dentist ?</b>					
No	232	71,6	92	28,4	
Yes	75	71,4	30	28,6	0,972
<b>Does appearance of your teeth have aesthetic importance?</b>					
No	243	68,6	111	31,4	
Yes	64	85,6	11	14,7	0,064
<b>Does dental health have importance for your profession ?</b>					
No	28	65,1	15	34,9	
Yes	283	72,6	107	27,4	0,303
<b>Do you use dental services ?</b>					
No	10	66,7	5	33,3	
Yes	301	72,0	117	28,0	0,651
<b>Do you get help for your oral hygiene ?</b>					
No	44	86,3	7	13,7	
Yes	267	70,3	113	29,7	0,017
<b>Do you keep your dental health care adequately ?</b>					
No	285	73,1	105	26,9	
Yes	26	60,5	17	39,5	0,081

92.1% of the randomly selected group was assessed. All of the oral exams were made by four dentists and because of acceptable examination conditions, it was assumed that the collected data were reliable.

There was no significant difference between the players who accepted to participate in the research and not in terms of age and level of license.

At the end of the research, it was found that 84.8% of the participants had decayed tooth, 28.0% had missing tooth and 25.3% had prosthesis. It may be concluded that dental health of the participants, which is one of the most crucial elements of the athletes' health were not so favorable. On the other hand, according to the nationwide research data, mean DMFt of adult population is 11.6 in Turkey. In our research group this indicator was found to be 3.63 which is way below Turkey's average.<sup>17</sup> This difference can be explained by the time lapse between these two researches, positive changes in dental health behavior and the fact that our research was conducted in a metropolitan area. In a research which was conducted for soldiers by Ceylan et al. in Ankara in 2000, DMFt was found to be 5.97.<sup>18</sup> When these two researches were compared, while age characteristics were very close to each other, level of dental health was better for soccer players. This difference can be explained by residential characteristics meaning that our participants were all living in a metropolitan area.<sup>18</sup> It is stated in some publications that decay indices for athletes are higher than the regular population, due to high intake of carbohydrates to satisfy calorie requirements, most of the athletes' drinks contain acids, and athletes experience frequent traumas.<sup>19</sup> In our study, this was not the case.

There are some publications which underline the importance of level of education for dental health. Nonetheless, in our study there was no statistically significant difference between level of education and having missing and/or decayed tooth. As some of the participants in our research group were still continuing their education, ages were increasing parallel to the education.

In terms of having missing tooth, professional players were in a better condition than the amateurs, for decayed tooth, they were close to each other. This difference could be explained by better financial incomes of professional players and more frequent health exams. 24.8% of the participants declared that they believed they had healthy teeth. The ones who did not have any decayed tooth were only representing 16.1% of the whole group. In addition to that, there was statistically significant difference between the ones who believed they had healthy teeth and did not have healthy teeth. These findings represent that self evaluation of participants for their dental health was important but not sufficient. 88.2% of the participants believed that they could care dental health with proper oral nursing. While this rate was so dense, 9.9% of participants still continued to believe that individual oral nursing was not effective.<sup>20</sup>

24% of the participants declared that they had fear of dentist. There was not any statistically significant difference in terms of having missing and/or decayed tooth between the participant who had and had not fear of dentist.

90.1% of the participants believed that the dental health was important for their professions. On the other hand there was not any definite difference in terms of having missing and/or decayed tooth between those who agreed and did not agree with this view. This evidence could be explained by the lack of reflection of knowledge to behavior.

## CONCLUSION

Although the importance of dental health is known by the majority of the participants, their dental health status has been assessed to be unsatisfactory. The limited number of participants, reported that they had enough information about dental hygiene, and this can be an indication of a considerable service gap in the preventive dental services. Special emphasis should be given to improving players' dental health attitudes and behaviors by providing player education during treatment.

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