



ORIGINAL ARTICLE

The knowledge, attitude and practices of male sports participants to sports-related dental trauma in Khobar and Dammam, Saudi Arabia – A pilot survey



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Abstract The risk of dental trauma may increase during sports participation. The purpose of this study was to evaluate the knowledge, attitude, and practices of sports participants concerning sports-related dental trauma and associated emergency/preventive practices. The study included 124 male subjects over 18 years of age participating in contact and non-contact sports in three clubs in the Eastern Province, Saudi Arabia. A questionnaire was used to assess past experience of dental trauma related to sports in addition to the use of a mouth guard and knowledge of related emergency procedures. Outcomes were compared between individuals practicing direct and non-direct contact sports. One third of the participants had experienced dental trauma while playing sports, mostly crown fracture, mobility, and avulsion. Their knowledge of first aid and emergency procedures was inadequate. A significantly higher proportion of non-direct contact sport participants sought the help of a dentist for themselves or others ($P = 0.04$ and 0.003 , respectively). Only 33.9% used mouth guards, with higher odds of mouth guard use associated with participating in direct contact sports and believing a tooth can be lost during sports practice (odds ratio = 5.59 and 5.37, respectively). Educational programs are needed to increase the awareness in sports participants of the risk of dental trauma during sports participation, to improve their knowledge of first aid procedures, and to increase the use of mouth guards.

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1. Introduction

Sports and exercise are associated with improved health, although some practices can increase the risk of traumatic injuries to dental and oral tissues (Kumamoto and Maeda, 2004; Levin et al., 2003). Some US studies have shown that 60%

of individuals experienced dental trauma during sports activities (Kaste et al., 1996). Sports involving direct contact (boxing, wrestling, martial arts, etc.) were reported to increase the risk for dental trauma compared with other sports (Ferrari and Ferreira de Medeiros, 2002; Holmes, 2000).

The consequences of dental trauma can range from simple tooth fracture to tooth avulsion (Levin et al., 2003). Avulsion is one of the situations that calls for the subject or those around him/her to be knowledgeable of the appropriate responses, since what is done directly after avulsion affects the outcome and the chances of tooth survival. Immediate reimplantation of the avulsed tooth (Andreasen and Andreasen, 2007; Andersson and Bodin, 1990) or its maintenance in a storage medium that facilitates the survival of periodontal ligament cells (Levin et al., 2003) is fundamental for successful reimplantation. When the tooth is maintained in a wet storage medium (e.g. milk), it can be reimplanted later, and the chance of success increases (Blomlo et al., 1981; Lindskog and Blomlo, 1982). However, often people allow the tooth to dry, keeping it wrapped in plastic or sometimes immersed in solutions that do not permit cell survival (Holmes, 2000; Kivttem et al., 1998). This may lead to undesirable consequences (Andreasen and Andreasen, 2007). It is important that sports participants be aware of how to respond to dental trauma so that a positive outcome is assured (Kaste et al., 1996; Petti and Tarsitani, 1996). In addition, sports-related dental trauma can be prevented using mouth guards. A systematic review reported that non-users of mouth guards had significantly more oro-facial injuries than those who used them (relative risk = 1.86, 95% confidence interval: 1.76–1.96) (Knapik et al., 2007).

Dental trauma associated with sports is a problem that is not well studied in Saudi Arabia. The purpose of this study was to evaluate the knowledge, attitudes, and practices concerning sports-related dental trauma among direct and non-direct contact sports participants in the cities of Dammam and Khobar, Eastern Province of Saudi Arabia. Another aim was to assess the prevalence of mouth guard use and associated factors among the study participants.

2. Material and methods

A cross-sectional study was designed to address the objectives. Approval of the study was obtained from the Research Unit, College of Dentistry, University of Dammam (#EA201418). The study was conducted in three sports clubs in the Eastern Province of Saudi Arabia in the period from March to April 2013. Sports participants were selected based on their involvement in direct contact sports (boxing, Kung Fu, Karate, Taekwondo, Roman wrestling, and mixed martial arts) or non-direct contact sports (football, volleyball, and swimming). Only individuals 18 years of age and older were included so they would have been exposed to sports for a sufficient duration for the outcome (trauma) to have occurred. A convenience sample, rather than a random sample, was selected, since only three clubs in Dammam and Khobar agreed to join the study. There were two other sports clubs that did not respond to our invitation to participate. Dammam and Khobar were selected for logistical considerations because of their proximity to the University of Dammam, where the study team was based. The potential number of subjects fitting the

inclusion criteria was too small to allow for random sampling. Therefore, participants in the clubs who consented to join the study during the data collection period were included. Only male subjects were invited to participate.

Data were collected using a self-administered questionnaire that was developed based on previous studies (Lang et al., 2002; Levin et al., 2003; Panzarini et al., 2005). The questions were collected, edited, and modified, then translated into Arabic and pilot-tested on five male subjects familiar with the subject of sports-related dental trauma. They ensured that the questions were clear and could be easily understood. Their responses were not included in the data analysis. The questionnaire was divided into three parts. Part I contained questions about personal background (age, education, type of sport, and duration of involvement). Part II collected information about history of sports-related dental trauma. Part III included questions about the participant's attitude toward sports-related trauma and the actual use of a mouth guard.

The study team members discussed the questionnaire and the interpretation of the questions/items to ensure standardized data collection. Investigators approached sports participants in the clubs during their break or after they finished their training, explained the study purpose and invited them to respond to the questionnaire. If participants had difficulty understanding a question/item, an explanation was given to them by one of the team members. The questionnaire took 5–10 min to complete, and it was collected in the same visit.

Data were entered into a Microsoft Excel file and imported into SPSS version 17.0 for analysis. Direct and non-direct contact sports participants were compared using the chi square test, Fisher's exact test, or a *t* test to evaluate background variables, types of trauma, practices, knowledge, attitude, and use of mouth guards. Univariate logistic regression models were developed for independent variables and potential confounders associated with the use of a mouth guard (dependent variable), and only variables showing a significant association were entered into the multivariate logistic regression model. The independent variables included in the regression analysis were age (in years), time since starting sports' practice (in years), education (illiterate, less than university, and university and beyond), sport types (direct and non-direct contact), previous dental trauma because of sports (yes/no), how to clean an avulsed tooth before reimplantation (using a brush, using water, or do not know) and believing a tooth can be lost during sports playing (yes/no). Odds ratios and confidence limits were calculated. Significance was set at the 5% level.

3. Results

A total of 124 sports participants returned the questionnaire (response rate = $124/144 = 86.1\%$). Table 1 shows the sample description. Most participants practiced direct contact sport (57.3%), including boxing, Kung Fu, Karate, Taekwondo, Roman wrestling, and mixed martial arts (2.8%, 4.2%, 7%, 1.4%, 47.9%, and 36.6%, respectively). Out of all subjects, 42.7% reported practicing non-direct contact sports: football, swimming, and volleyball (94.3%, 3.8%, and 1.9%). The mean (SD) ages for direct and non-direct contact sports participants were 22.1 (5.3) and 25.7 (4.9) years, respectively ($P < 0.0001$). The participants were involved in their respective sports for a mean (SD) of 4.2 (3.3) years and 11.8 (5.5) years, respectively. Participants in direct contact sports had a significantly higher education level ($P < 0.0001$).

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