

Taekwondo Coaches Knowledge about Prevention and Management of Dental Trauma

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ABSTRACT

The aim of this study was to assess level of knowledge about prevention and dental trauma management among taekwondo coaches in Croatia. The questionnaire submitted to the taekwondo coaches contained 16 items about dental trauma prevention and management. The questionnaires were filled in by 131 taekwondo coaches; 28 females and 103 males. Descriptive statistics was used to describe and analyze the obtained data. The coaches were familiar with dental injuries in high percentage: 41 (31.3%) have observed dental injury and 36 (27.5%) have experienced a dental injury themselves. Eight of them had tooth avulsion, fourteen crown fracture, and eight had tooth luxation. About half of all interviewed coaches 68 (52.7%) were aware of the possibility of replanting avulsed teeth. Twenty six (19.8%) were familiar with the tooth rescue kit. Only 99 out of 131 coaches (75.6%) have used a mouthguard. The obtained results show low knowledge about possibilities for prevention of dental trauma. Insufficient use of mouthguards in this contact sport requires more attention of dentists and coaches education about dental trauma prevention.

Key words: dental trauma, prevention, mouthguard, taekwondo

Introduction

Sports, and particularly contact sports, represent one of the main causes of trauma: up to 19% of injuries involving head and face and approximately 33% of dental injuries are indeed sports related^{1,2}. Taekwondo training generally includes a system of blocks, kicks, punches and open-handed strikes. Children and adolescents, professionals and amateurs that participate in this contact sport are at greater risk for dental and oral injuries. The most serious tooth injury is an avulsed tooth. It should be replanted in its socket as soon as possible to avoid further damage of periodontal membrane. Treatment of dental trauma is very complex and expensive. In addition to the immediate costs, there are expenses with follow-up medical visits that may be necessary for many years after the traumatic dental injuries³. Knowledge of emergency steps after the accident increases the success rate for the avulsed and replanted permanent tooth. For this reason, it is important to educate the coaches about accidents involving tooth avulsion in children. Croatian Taekwondo Federation obliges use of protective gear for all competitors, including the use of mouthguard only on competi-

tions. Although there are recommendations for the use of oral protection during training, very few competitors use them. With such behavior they have significant risk of experiencing injury⁴. Community acceptance of dental protection/mouthguard use is dependent on the continued involvement of individual dental professionals in education of coaches and athletes. In study done by Berg R et al. 33% of athletes said that they believe that coach and coaching staff have the greatest influence on using or not using mouthguard during practice⁵. Education on the risk for injury, effectiveness of mouthguards for injury prevention and tooth rescue kit are all tools that can lead to the better prognosis of dental trauma and shorter time of healing. Coaches can play an important role in improving the prognosis of avulsed permanent teeth. In order to contribute to establish effective strategies of education regarding traumatic dental injuries (TDI), the objective of this work was to identify the factors associated with the knowledge of taekwondo coaches about mouthguards and emergency measures after dental trauma.

Material and Methods

The study was approved by the University of Zagreb, School of Dental Medicine Ethics Committee. Initial telephone contact with relevant taekwondo coach was followed up by a formal letter of invitation. A specific questionnaire, similar to questionnaires used in previous studies⁶⁻⁸ was distributed to the taekwondo coaches from the various parts of the country. The questionnaire submitted to the taekwondo coaches contained 16 items about dental trauma prevention and management. Questionnaires were filled in by 131 taekwondo coaches; 28 females and 103 males. They did not know in advance what the questionnaire was about in detail. They were divided into three groups according to the year of their work experience: group 1: 0–3 years of experience (N=48); group 2: 4–10 years (N=41); group 3: more than 11 year of experience (N=42). Descriptive statistics was used to describe and analyze the obtained data.

Results

Figure 1 shows that the coaches were familiar with dental injuries in high percentage: 47 (35.9%) had seen dental injuries in taekwondo and 37 (28.2%) have experienced a dental injury themselves. Nine of them had tooth avulsion, seventeen crown fracture, and eleven had tooth luxation. About half of all interviewed coaches 68 (52.7%) were aware of the possibility of replanting avulsed teeth. Just twenty six coaches (19.8%) were familiar with the tooth rescue kit (Figure 2).

The outcome is unsatisfactory. The knowledge level on the importance of extra alveolar time before replantation varied considerably (Figure 3).

Only 50 of 131 coaches are ready for replantation (Figure 3). Each of the 131 interviewees was familiar with the mouthguard. Among all three groups of coaches the stock mouthguard seems to be better known, whereas professionals were more aware of custom-made mouth protection. The most of them have worn some of these mouthguards. High percentage of coaches, almost 98% believed that mouthguards should be worn by players.

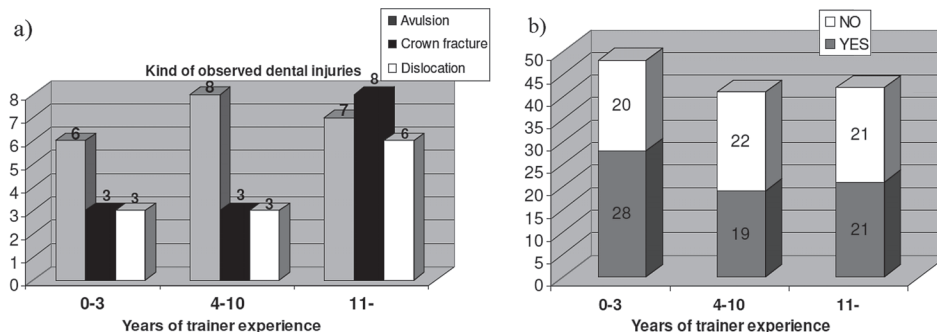


Fig. 1. a) Comparison of observed dental injuries among coaches according to their years of experience (N=131), b) Awareness of tooth replantation according to different years of work experience of coaches.

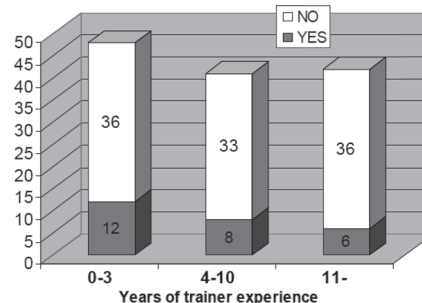


Fig. 2. Awareness of tooth rescue kit according to different groups of coaches.

Discussion

The results of this study showed that the knowledge level of tooth avulsion and how first aid should be carried out is low among taekwondo coaches in Croatia. Improvement in the coaches' knowledge of what to do when a tooth is knocked out is important for the prognosis of the tooth⁹. Some studies have shown that the level of knowledge of avulsed teeth and first aid is generally inadequate in school teachers¹⁰⁻¹², parents^{13,14} and children^{15,16}. Taekwondo as one of many martial art sports belongs to high risk group. The main characteristics of this sport are rough contacts between athletes, high speed punches, system of blocks and kicks^{1,17}. Dental injuries among other injuries are common in this sport. Some authors said that dental injuries are the most common injuries in contact sport^{1,17,18}. To prevent dental injuries all authors suggest oral protection/mouthguard. Different studies have shown that trainers and coaches have a great influence on players' behavior to wear mouthguards. In Croatia, the wearing of mouthguard among taekwondo players is obligated on professional level. Mouthguard first came in use in 1920s in America in box, but their application in other sports did not happen until 1960s¹⁸. Recording to Badel T et al.¹⁹ and Lesic N et al.¹⁷ some basketball players, handball players and water polo players in Croatia wear mouthguard. Taekwondo federation in Croatia, few years ago enact a rule of obligatory use of mouthguard. Coaches are the first to see TDI on practice or on the competitions. Regarding to

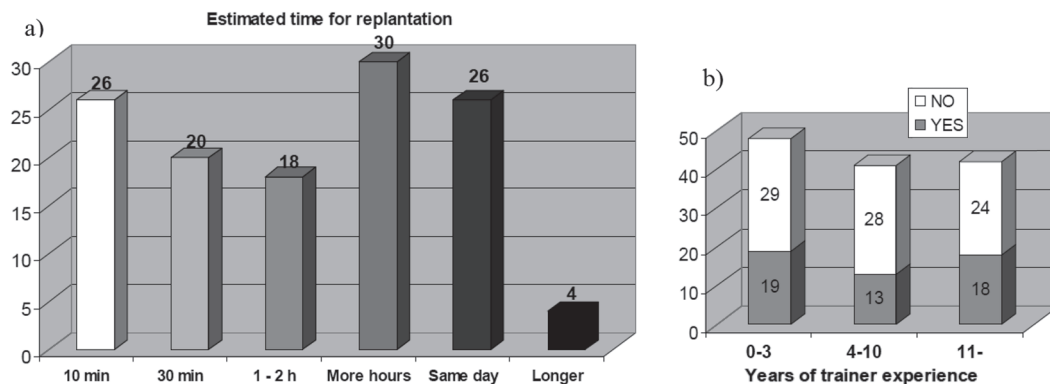


Fig. 3. a) Distribution of knowledge about estimated time for tooth replantation ($N=131$).
b) The number of coaches who are ready for tooth replantation ($N=131$).

this study 47 of 131 (35.9%) taekwondo coaches had seen dental injuries, and 37 (28.2%) have experienced a dental injury themselves. Nine of them had tooth avulsion, seventeen crown fracture, and eleven had tooth luxation. In comparison with study done by Corea MB et al.²⁰ we come to similar results. Furthermore, about half of all interviewed coaches 68 (52.7%) were familiar with tooth rescue kit. The tooth rescue kit represents an important link in the rescue chain geared toward heightening the success rate of replantation after avulsion. Knowledge of these important steps after the avulsion increases the success rate for the avulsed and replanted permanent tooth. Tooth rescue kit is a cheap and commercially available product, containing an isotonic transport media that can conserve a vitality of the tooth up to 72 hours²¹. Even though coaches are familiar with tooth rescue kit their general knowledge about TDI is unsatisfactory. Association of Dental Traumatology recommends immediate replantation of avulsed tooth within an hour²⁰. About half of interviewed 68 of 131 (52.7%) coaches were familiar with possibility of replantation of avulsed teeth. On the one hand, this result is satisfactory; on the other hand, it highlights the fact that not all coaches, who are responsible for a team, are adequately informed. Coaches were divided into three groups according to the year of their work experience. There are small differences between 3 groups, slightly better results are in the first group; coaches with less years of coaching experience. Only 50 of 131 coaches are ready for replantation. This is far too low number, concerning replantation has the best results within an hour. Our major concern should be the fact that almost the half of coaches (60 of 131) thinks that more hours, same day or longer period of time is appropriate for tooth replantation. Sporting organizations and dental professionals seem to offer little information about dental trauma and preventive strategies^{20,21}. According to Kvitem et al.²², dentists should ask their adolescent patients routinely about sports participation. Each of 131 interviewees was familiar with mouthguard. This fact suggests that they appreciated the significance of mouth protectors in their sporting discipline. The most common in use is stock and boil and bite mouthguard, whereas custom made is less in use but coaches are aware of their better characteristics. It seems that youn-

ger coaches with less years of coaching internship have suffered less injury and have more knowledge and willingness to learn about prevention of TDI^{5,20,21}. Although protection is no longer in doubt when a mouthguard is worn, there are still many mouthguards used that are not acceptable to the athletes in terms of comfort, durability and speech²³. The main complaints are vomiting reflex, interference with speech, discomfort, decreased retention^{19,24,25}. It was also confirmed in our study among coaches that have experienced wearing mouthguard. Mouth protection for athletes has been and continues to be dentistry's contribution to sports²³. Only 2 of 131 coaches would not recommend a mouthguard during training. That inform us about great awareness of coaches that mouthguard provides good oral protection from TDI on training as well on competitions. According to JADA, 42% of coaches report using mouthguard because it was their rule, and 46% require use of mouthguard based on cost, instead of quality and degree of protection. In research done by Keçeci AD et al.²⁵ 12 of 50 taekwondo athletes have experienced at least one type of dental trauma, but very small amount of them actually wear mouthguard. Athletes should not pick their mouthguard based on price or advice in sporting-goods store^{18,26}. Education of coaches is essential. It is our assignment as professionals to increase individual knowledge, awareness about benefits of wearing properly fitted mouthguard and willingness to learn more about oral protection. Advising coaches on seminars, competitions, or simply by putting posters in locker rooms are an easy and cheap way of prevention^{18,19,27}. Reports from this study showed that the awareness and usage of the protective device for this contact sport are still very poor. The findings revealed that the level of knowledge of management of dental trauma (especially tooth avulsion) among taekwondo coaches in Croatia is inadequate, and education campaigns are necessary to make coaches capable of providing emergency care in case of tooth avulsion.

Conclusion

The obtained results show that coaches have a low level of knowledge about avulsed teeth regardless of their years of experience. It is important to increase knowl-

edge about possibilities for prevention of dental trauma. With this knowledge, coaches can play an important role in improving the prognosis of avulsed permanent teeth. Insufficient use of mouthguards in this contact sport requires more attention of dentists and coaches education about dental trauma prevention.

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ZNANJE TAEKWONDO TRENERA O PREVENCIJI I PRVOJ POMOĆI KOD DENTALNIH TRAUMA

SAŽETAK

Cilj ovog istraživanja je procjena znanja taekwondo trenera u Hrvatskoj o razini poznavanja prevencije i prvoj pomoći kod dentalnih trauma. Upitnik koji je podijeljen taekwondo trenerima sadržava 16 pitanja o prevenciji i prvoj pomoći kod dentalnih trauma. Upitnike je ispunio 131 trener: 28 ženskih i 103 muška. Deskriptivna statistika korištena je za opisivanje i analizu podataka. Analizom podataka dobiveni su slijedeći rezultati: treneri su u visokom postotku bili upoznati s ozljedama zuba: 41 (31,3%) je vidjelo dentalnu traumu, a 36 trenera je osobno iskusilo dentalnu traumu (27,5%): 8 je imalo izbijeni zub, 14 frakturu krune, a 8 luksaciju zuba. Oko polovice ispitanih trenera 68 (52,7%) su svjesni mogućnosti replantacije zuba. Njih 26 (19,8%) je upoznato s transportnim medijem u kojem se pohranjuje izbijeni zub. Samo 99 od 131 trenera koristi štitnik za zube. Dobiveni rezultati pokazuju niski stupanj poznavanja mjera prevencije i pružanja prve pomoći kod dentalnih trauma. Nedovoljna upotreba štitnika za zube u kontaktnim sportovima zahtjeva veću pozornost doktora dentalne medicine, te edukaciju trenera o prevencijama i pružanju prve pomoći kod dentalnih trauma.