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The effect of short dental trauma lecture on knowledge of high-risk population: an intervention study of 336 young adults

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Dental trauma occurs frequently in society, causing a burden for both individual and society (1-4), as costs for treatment after dental trauma are high (5, 6). The prognosis of many dental injuries is decided at the time and place of accident but can be improved if correct measures for prevention and treatment are taken (7-9).

Knowledge of the important steps to take after an accident increases the success rate for the traumatized tooth (1, 7, 8), thus, it is important to educate the public about accidents involving dental trauma. This education is of great importance when dealing with high-risk populations or with medical and dental healthcare professionals. However, most studies on knowledge of tooth avulsion indicate that the level of knowledge is insufficient (10–14). In a recent study in Kuwait, it was shown that children have a low level of knowledge about avulsed teeth (12). Although many of the children had received general first-aid information, dental injuries were not included (12).

Knowledge of the regimental aid providers in the Israeli army regarding dental trauma was also found to be unsatisfactory (13, 14). Army recruits and especially fighters are highly predisposed to dental trauma, resulting in the interference of their continuous daily activity (15, 16). During military trainings and operations, dental casualties were among the most common injuries (17, 18). Therefore, it is of great importance that, military healthcare professionals and commanders will promote knowledge and education for these high-risk populations.

The aim of this interventional study was to evaluate the effect of short dental trauma instruction lecture on knowledge of first-aid measures of avulsion and replantation of teeth among trauma high-risk population.

Methods

A total of 336 army recruits were randomly assigned to two groups. The control group answered a structured questionnaire based on a Hebrew translation of the standardized form used in previous reports by Andersson et al. (12). The questionnaire was slightly adapted to suit an adult population. The intervention group received a 60-min dental trauma slides lecture by one of the authors regarding general concepts of body injuries, facial and oral injuries, and practise first-aid management of these injuries. The intervention group filled the same question-naire following this lecture.

Briefly, general demographic data were collected. The participants were interviewed about their knowledge of the emergency with particular focus on the following sections:

- 1 Past history of personal dental trauma events.
- 2 General knowledge about teeth and avulsion.
- **3** Special knowledge of tooth avulsion and replantation (Table 1).

For each section, a knowledge score ranging from 0 (no knowledge demonstrated) to 3 (complete knowledge demonstrated) was given as reported by Andersson et al. (12).

Data were collected and analysed by spss 12.0 (SPSS, Inc., Chicago, IL, USA). The comparison between the dichotomous variables was examined using chi-square test. A value of P < 0.05 was considered statistically significant.

Results

Overall, the intervention group consisted of 199 army recruits and the control group consisted of 137. All were 18-year-old males. Table 2 presents the participants' answer regarding their experience of previous trauma. One hundred (29.8%) participants reported on being exposed to dental trauma in the past.

General knowledge regarding tooth and avulsion was quite disappointing in the control group but was significantly higher in the intervention group (Fig. 1; P < 0.001). The same was observed when interpreting the results regarding special knowledge of avulsion and replantation (P < 0.001): How to clean the tooth before replantation? (Fig. 2), extra-alveolar time (Fig. 3) and storage method and medium (Fig. 4).

Discussion

Lectures have special role in transfer of information regarding proper first-aid management of dental injuries, as first-aid manuals as well as first-aid courses directed for the general (lay) population usually not include this subject (19).

The selection of the questionnaire based on the standardized form used in previous reports by Andersson et al. (12) was performed in order to use a standardized study tool that will enable us comparing results from different studies around the world. By using internationally standardized study tool it will be easier to draw conclusions and meta-analysing data from several studies.

The decision to use two groups of patients instead of asking the same group to answer the questionnaire before and after the lecture was performed in order to avoid bias because of special attention paid by the participants to the asked questions after answering the first questionnaire. *Table 1.* The structure interview form, adapted from Andersson et al. (12) and translated to Hebrew

	Have you ever seriously damaged a tooth so that it was loose or cracked	
	No Voc. If voc	
What kind of tooth injury have you experienced in the past?		
	General knowledge of tooth and avulsion	
	Do you think the tooth can be damaged irreversibly by trauma and	
	be lost?	
	Do you think a tooth can be completely knocked out?	
	If a tooth is knocked out by accident, do you think it can be put	
	back?	
	Special knowledge of avulsion and replantation	
	Do you think teeth <i>should</i> be put back in after they were knocked	
	OUT? How to alcon the tooth before replantation?	
	If the tooth has fallen on the dirty ground and what would you do?	
	If you have to clean the tooth first how do you clean it?	
	How do you hold the tooth while washing it?	
	Is it important to rub away all the dirt?	
	What do you do if you cannot rinse away all the dirt?	
	Extra-alveolar time	
	When should the tooth be put back in if it was knocked out of	
	the mouth?	
	Immediately	
	AS Soon as the bleeding has stopped	
	Within the first 6 h	
	Within the same day	
	When visiting the dentist	
	Why?	
	Do you think a tooth can be out of your mouth for a longer time	
if stored in another way than dry storage?		
	Storage method and medium	
	What should you do if you cannot put the tooth back in your	
	MOUIN?	
How should you transport the tooth on the way to the dentis		
	has been knocked out before it is put back in its socket?	
	Mark desirable and undesirable ways of storing a tooth that has been	
	knocked out while you are on your way to the dentist	
	Wrap the tooth in paper	
	Wrap the tooth in a handkerchief	
	Wrap the tooth in gauze or cotton	
	Wrap the tooth in cellophane	
	Put the tooth in a disinfacting solution	
	Put the tooth in ice water	
	Place the tooth in the child's mouth	
	Place the tooth in the child's hand	
	Put the tooth in milk	
	Put the tooth in fruit juice	
	Put the tooth in a saline solution	
	Put the tooth in Coca-Cola	

Raising the public awareness on the subject of dealing with dental trauma is exceedingly important for the prognosis of the tooth. Military personnel are considered a high-risk population with regards to dental and facial injuries (15–18). Thus, there is a special need for educating high-risk populations as soon as possible. Adding a short dental trauma lecture to the first week of the basic training as well as to other populations at risk such as school children (12) and active sports players (3) might increase knowledge and improve the prognosis of dental trauma cases. Further aspect that might be

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Table 2. Participants answer regarding their experience of previous trauma

Group	Intervention group	Control group
Number of participants (n)	199	137
Experienced previous trauma	61 (30.6%)	39 (28.5%)
Type of experienced previous trauma	(more than one	type is possible)
Tooth fracture	49 (80.3%)	25 (64.1%)
Luxation	10 (16.4%)	3 (7.7%)
Avultion	6 (9.8%)	4 (10.3%)
Hyper-sensitivity/hyper-mobility	10 (16.4%)	6 (15.4%)



Fig. 1. General knowledge of tooth and avulsion. P < 0.05.



Fig. 2. Special knowledge of avulsion and replantation; How to clean the tooth before replantation. P < 0.05.



Fig. 3. Special knowledge of avulsion and replantation; extraalveolar time. P < 0.05.

discussed during this lecture is preventive measures such as mouth-guard use and other caution actions that should be taken in order to prevent dental and facial



Fig. 4. Special knowledge of avulsion and replantation; storage method and medium. P < 0.05.

trauma. Providing important and essential knowledge to the general population and especially to populations in risk will result in a decrease in trauma severity and occurrence by means of prevention together with an increase in proper and prompt treatment following tooth injuries.

Overall, our present study revealed excellent results following a short dental trauma lecture. Nevertheless, better results might have been expected following such a lecture. The fact that some of the topics gained lowerthan-excepted percentage of complete knowledge in the interventional group suggest that a greater educational effort might be warranted in order to further improve knowledge. A short dental trauma lecture might not be enough to result a compete knowledge as expected. The use of different educational tools (i.e. movies, demonstrations, etc.) may improve the results. This way of improving knowledge to high-risk populations should be further examined in studies on the long-term effect of these lectures.

Conclusions

The present study revealed excellent results following a short dental trauma instruction lecture. As raising the public awareness on the subject of dealing with dental trauma is exceedingly important for the prognosis of the tooth, this way of improving knowledge to high-risk populations should be further examined in a large-scale studies on different cohorts.

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