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DENTAL TRAUMATOLOGY

Knowledge of first-aid measures of avulsion and replantation of teeth: an interview of 221 Kuwaiti schoolchildren

Andersson L, Al-Asfour A, Al-Jame Q. Knowledge of first-aid measures of avulsion and replantation of teeth: an interview of 221 Kuwaiti schoolchildren. © Blackwell Munksgaard, 2006.

Abstract – The prognosis of replantation of an avulsed tooth is determined by which first-aid measures are taken during the first 15 min after avulsion. Knowledge of the correct first-aid measures is therefore crucial to successful replantation. The aims of this study were (i) to assess the present knowledge level of emergency measures for tooth avulsion in Kuwaiti schoolchildren, and (ii) to design and test an interview form with structured standardized questions. A total of 221 Kuwaiti schoolchildren (aged 7–15 years old) were interviewed by professionals using a standardized method to score several areas of knowledge about tooth avulsion and replantation. Earlier experience of first-aid information and subjection to dental trauma was registered. The following fields of knowledge were assessed general body injury treatment principles, tooth avulsion and replantation principles, avulsed permanent/primary teeth, cleaning of avulsed tooth before replantation, extra alveolar time and storage media. The form for interviewing children proved to be sufficiently structured in performing the interviews and data management. The results of the interviews showed that 30.3% of the children had been exposed to dental trauma in the past. Among children 7–9 years of age, 25% had received information on general first aid as compared with 75% in children 10 years and older. Children 10 years and older, in general, had a high knowledge level of general principles of how to manage injuries to the body. Regardless of age group, there were generally a low knowledge level regarding tooth avulsion, replantation, extra-alveolar time and storage media. We conclude that first-aid knowledge in Kuwaiti schoolchildren is low on avulsion and replantation of teeth despite a high knowledge level of body injuries. The knowledge level of first-aid measures on avulsion and replantation of teeth could be increased through intervention programs.

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Key words: replantation; avulsion; tooth; knowledge; education; first aid

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The degree of damage is one of the most important prognostic factors in the replantation of a knocked-out (avulsed, exarticulated) tooth; the tooth needs to be placed back in its socket as soon as possible to avoid further damage to the periodontal membrane (1–5). The prognosis is related to the injury of the periodontal membrane during the time the tooth is out of its socket (6). Dry storage of the tooth will result in an irreversible injury to the periodontal membrane, with the result that the replanted tooth will be lost over time (2–5, 7). Wrapping the tooth in plastic wrap could prevent evaporation for at least

1 h (3). Storing the tooth in water is not recommended in that the osmolality is too low which will result in destruction of the cells of the periodontal membrane (6, 8). This is because of the low osmolality of water. Storage media with an osmolality more like the tissue fluid do not destroy the cells. Teeth can be stored in saline or balanced salt solution (9, 10). Storing the tooth in a person's saliva is another alternative for shorter periods (1, 8). Milk has a favorable osmolality and composition for the viability of periodontal ligament cells and has been recommended for temporary storage of avulsed teeth before replantation (8, 11). Although primary teeth may also be avulsed, they should not be replanted because the manipulation may result in injury to the underlying permanent tooth germ (6).

Knowledge of these important steps, after the accident, increases the success rate for the avulsed and replanted permanent tooth (9, 12). For this reason, it is important to educate the public, especially people in those surroundings where accidents involving children may occur (e.g. parents and schoolteachers). Some studies exist on this lay knowledge and public awareness campaigns have been performed to increase the lay knowledge (13–21). Little is known, however, about the knowledge level of the children who are in fact the individuals in focus in the trauma situation, as either trauma victim or classmate/friend of the trauma victim.

The aims of this study were (i) to assess the present knowledge level of emergency measures for tooth avulsion in Kuwaiti schoolchildren, and (ii) to construct a reliable interview form that can serve as a base in measuring lay knowledge in the society.

Materials and methods

Three schools in Kuwait agreed to take part in the study. All 221 children aged 7–15 years old were interviewed. Two of the authors (AA and QJ) interviewed the participants using a standardized method. The interviews were performed in the participants' mother language (i.e. Arabic). To guide the interviewers a standardized form was designed (Appendix).

General demographic data were collected and the child's age and sex were registered. Next, any experience of previous trauma was recorded. The participants were also asked if they had any training in first aid, and if they had such experience, if dental emergencies were included.

The children were interviewed about their knowledge of the emergency with particular focus on the following sections:

A. General knowledge of trauma other than dental
B. General knowledge about teeth and avulsion
C. Special knowledge of tooth avulsion and replantation

The questions were asked consecutively, first assessing general knowledge and then gradually assessing knowledge of a more specialized character. For each section, three to five questions were designed to assess the participants' knowledge level. For each section, a knowledge score ranging from 0 to 3 was given, where 0 = no knowledge demonstrated, 1 = minor knowledge demonstrated, 2 = good, but not complete knowledge demonstrated, and 3 = complete knowledge demonstrated. Scores were calculated and analyzed for age and sex differences as well as differences as to whether the participants had been subjected to previous experiences of trauma or had training in emergency medical procedures. Descriptive statistics was used to describe and analyze the data. Mann–Whitney *U*-test was applied to test for significant differences between age groups, schools and gender. A significant difference was considered at $P < 0.05$.

Results

A total of 221 children from three schools were interviewed. The schools chosen were all-boys and all-girls schools. Table 1 shows the distribution of patients over the three schools. The age and sex distributions are summarized in Table 2.

Sixty-seven of the 221 participants (30.3%) reported being exposed to dental trauma in the past and six of these (3%) had sustained an avulsion injury. Of all reported injuries, 40% were luxation injuries and 37.3% were tooth fractures. Soft tissue injuries were reported in 11.9%. Avulsion injuries were reported in 9% of all reported injuries. Boys were somewhat more frequently injured although the difference was not statistically significant. There was no significant difference in prevalence between

Table 1. Schools participating in the study

	No	%
Khalua (all-girls school)	101	45.7
Omair bin Saad (all-boys school)	56	25.3
Qotaiba (all-boys school)	64	29.0

Table 2. Number of participants as a function of age and gender

Age	Boys	Girls	Total
7	19	25	44
8	31	23	54
9	6	6	12
10	27	22	49
11	20	19	39
12	12	5	17
13	3	1	4
14	1		1
15	1		1
Total	120	101	221

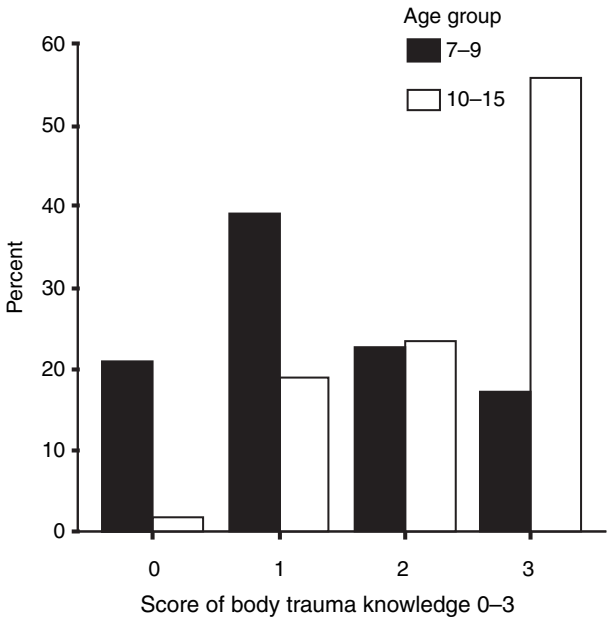

Fig. 1. Distribution of body trauma knowledge. Scores (0–3) in the age groups 7–9 and 10–15. For definitions of knowledge score see Materials and methods and Appendix.

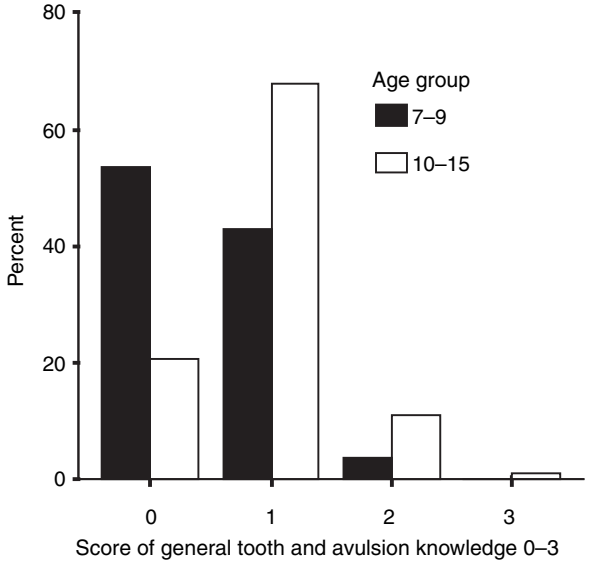

Fig. 2. Distribution of general tooth and avulsion knowledge. Scores (0–3) in the age groups 7–9 and 10–15. For definitions of knowledge score see Materials and methods and Appendix.

the younger (aged 7–9 years) and the older participants (10–15 years).

Having some information on first-aid treatment of body injuries and how to act in a situation of trauma were reported in 103 (46.6%) of the children. In addition, 75% of the children aged 10 years or over had some information on first aid. Finally, in the young age group (7–9 years) 25% had some first-aid information. Most of this information had been of general first aid, such as how to stop bleeding and how to treat burns. Only four (1.8%) of the participants reported having had information on dental injuries included in this first-aid information.

General knowledge of trauma to other parts of the body

Many children demonstrated a good knowledge of how to treat burns, nose bleeding, laceration and abrasion injuries. The knowledge level of treatment of trauma to other parts of the body was higher in the participants who were 10 years or older (Fig. 1). The younger children had received their information from TV and their parents. Many of the children over 10 years of age had received information at school additional to the information they had obtained from their parents and watching TV.

General knowledge of teeth and avulsion

Few children could draw a tooth correctly. Even fewer could draw a complete tooth with reasonably good proportions of crown and root. Most of the children could draw a crown without any root or with a minor root. Almost no children had knowledge of how a tooth is attached to the bone. Finally, many children knew that a tooth could be knocked out but few had knowledge that the same tooth could be replanted.

The children 10 years or over generally had a higher knowledge level than the younger-aged children (Fig. 2).

Special knowledge of avulsion and replantation

Regardless of age group, there was generally a low knowledge level regarding avulsion and replantation (Fig. 3a–d). Children knew that teeth could be replanted but had little knowledge of whether permanent and/or primary teeth should be replanted. Very few had any knowledge of the reasons why it is important to replant knocked-out teeth. Those children who thought replantation should be done, only had little knowledge of how to clean a tooth before replantation. No children demonstrated full knowledge of extra alveolar time or storage media.

Discussion

The present results show that the current level of knowledge is low in Kuwaiti schoolchildren on tooth avulsion and replantation, as well as what steps to take in an emergency. This lack of knowledge will probably mean that an avulsed tooth will not be

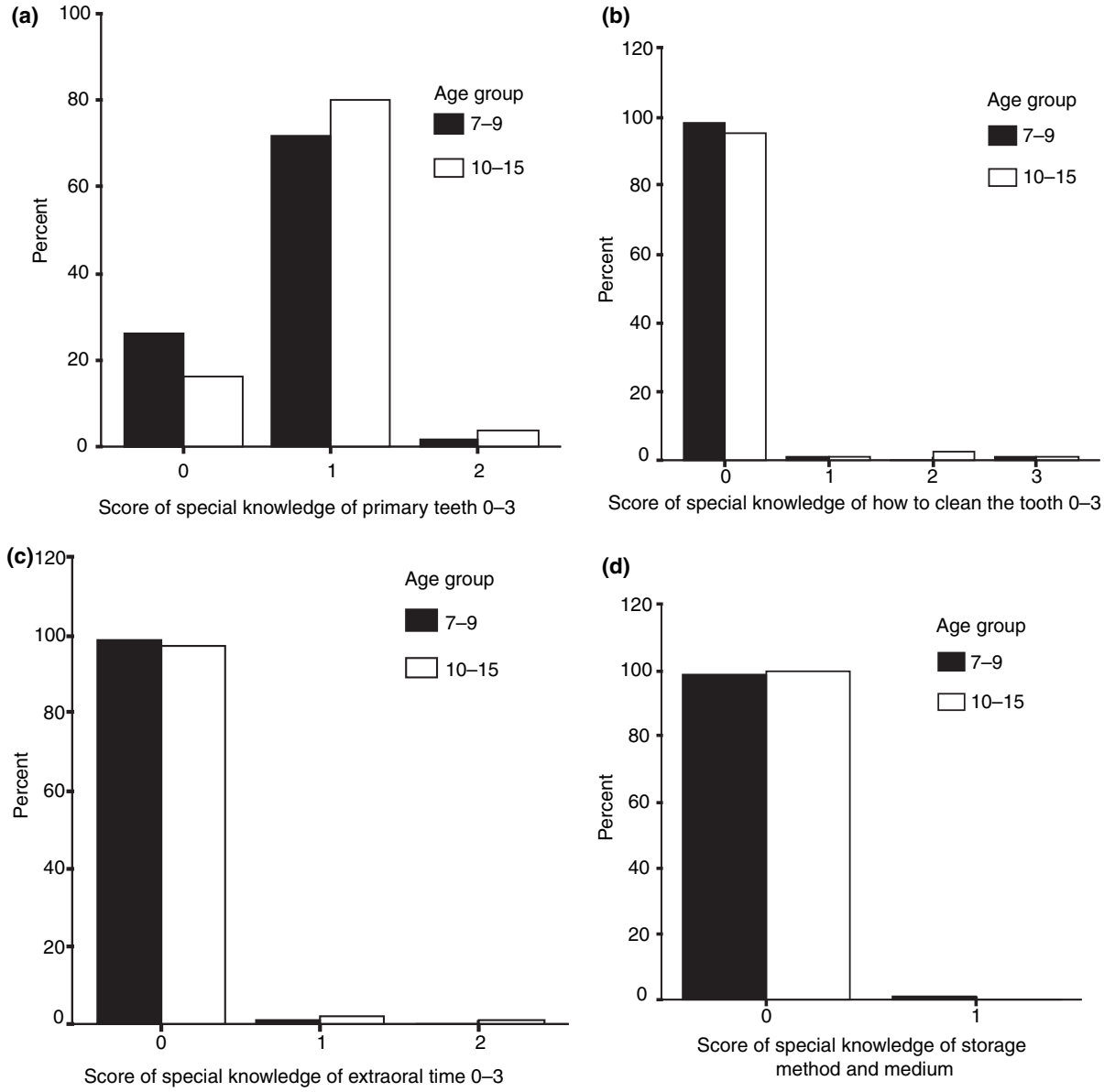

Fig. 3. (a) Distribution of special knowledge of primary teeth. Scores (0–3) in the age groups 7–9 and 10–15. For definitions of knowledge score see Materials and methods and Appendix. (b) Distribution of special knowledge of how to clean the tooth. Scores (0–3) in the age groups 7–9 and 10–15. For definitions of knowledge score see Materials and methods and Appendix. (c) Distribution of special knowledge of extra-oral time. Scores (0–3) in the age groups 7–9 and 10–15. For definitions of knowledge score see Materials and methods and Appendix. (d) Distribution of special knowledge of storage method and medium. Scores (0–3) in the age groups 7–9 and 10–15. For definitions of knowledge score see Materials and methods and Appendix.

replanted at all, or if the tooth is replanted, a poor prognosis is more likely for the avulsed/replanted tooth. This is regrettable because with simple measures the prognosis for replantation of avulsed teeth is very good.

Before preparing the interview form, we identified the important factors that influence the prognosis of replantation of permanent teeth. The questions were carefully planned so that the participants' knowledge level of these factors would be demonstrated in the participants' answers. In contrast to other studies, we developed a structured interview method instead of a questionnaire. The reason for using a structured interview is that young children, like those in our study, may have difficulties in understanding the content of a questionnaire. Together with an interviewer, a dialogue can be established in the event the child does not fully understand a question. The interviewer can then clarify for the child who has not fully understood a question. Another advantage is that the persons being interviewed cannot draw conclusions and

change their answers on already answered questions if they would learn during the interview as the interview proceeded. Questions were asked in a structural way so that knowledge that was more general was asked first. Questions of a more specialized nature were gradually asked as the interview proceeded. The advantage of scoring the participants' knowledge level is that we will not only be able to compare the knowledge level in the same individual at a later stage but also between individuals and groups in the society and even between different countries. Comparisons can be made before and after different interventions such as information campaigns.

The cooperation of the teachers and students at the schools was very good and thus the interviews could be performed without difficulty. We regard the allocation of time in the school schedule for the interviews important and that children that were interviewed had no contact with children still waiting to be interviewed.

Although the aim in this study was to assess basic knowledge, we decided it was important to include questions of more specialized knowledge. In this way, we could see in which fields there was a lack of knowledge as well as be able to compare any change in knowledge level after a future implementation of a comprehensive information program. Some of the questions may have been difficult to answer by a young child that had not had any information on this subject, but because the intention is to measure progress in knowledge, it is important to cover all important knowledge fields that may have an influence on the prognosis of an avulsed and replanted tooth. In this type of study we found that the structured interview form was particularly appropriate in light of the age of the participants. The form facilitates the interviews while the structure of the interviews facilitates data management for subsequent analysis.

The finding that one third of the children had sustained a dental injury already at this early age is consistent with other studies (6). Our finding that there was no difference in prevalence of dental trauma between children of different ages indicates that most of the trauma occurs in the primary dentition of children before the age of 10 years. This finding is in good accordance with other incidence and prevalence studies (22, 23). Boys are reported to sustain more dental injuries than girls (6, 22), which is often explained by boys being more aggressive and risk-taking than girls. We found that boys had a somewhat higher injury frequency. For this reason, one might expect that all-boys schools should show a higher incidence of dental injuries. However, this was not the case, indicating that the experience of different school environments in schools with separated boys and girls is not a determining factor in dental trauma, at least not in these young children.

The participants over 9 years of age demonstrated a high knowledge level of body injuries but had only minor knowledge of how to act in a situation involving an avulsed tooth. Considering that dental injuries are frequently occurring in our society, it is remarkable that dental injuries are not included in general first-aid information. This is not special for Kuwait but has been reported in studies of teachers and parents (13, 20).

Few of the children knew that teeth had roots. This lack of information is probably because children in these ages have only seen exfoliated primary teeth, which usually do not have any roots left. To understand the importance of atraumatic handling of the root surface children have to be taught about roots and tissues when information programs are planned in the future.

Avulsion and loss of a permanent tooth result in severe functional, esthetic and psychological negative consequences for the child in question. In young, growing children permanent replacement of lost teeth with implants and bridge therapy is not recommended because of risk of interfering with the development of the jaw while the children are still growing (24). For this reason, these children have to wait for their final treatment until growth has been completed, resulting in temporary, often removable dentures in a 'psychologically' sensible period of life.

Moreover, losing and replacing a permanent front tooth results in high costs for the individual, the individual's family and the society (23, 25, 26). The annual incidence of dental injuries has been reported to be 13 of 1000 in the permanent dentition among children and adolescents (6, 23). The avulsion injuries comprise 2% of all dental injuries (23). A rough estimation is that around 100–150 children in Kuwait will suffer from new avulsion injuries of permanent teeth every year. Many of these teeth could be replanted and saved if the children and adults would know how to act after an avulsion injury.

An avulsed permanent tooth can be replanted with successful healing and the tooth retained for life. The prognosis of healing depends on appropriate emergency management immediately after the avulsion trauma (4–6, 9). A number of experimental and clinical studies have given us extensive knowledge on the healing of tissues and the impact of the injury as well as the measures taken on the prognosis of healing (1, 2, 6, 7, 27–29).

Still, the prognosis is largely determined in the first 15 min after trauma has occurred. By acting quickly and effectively, an avulsed tooth can

be successfully re-planted and retained in most cases.

By increasing knowledge of how avulsed teeth are to be dealt with at the site of the accident, the risk of incurring future negative consequences is minimized (30). Furthermore, later economic costs for the individual and the Kuwaiti society can be significantly reduced.

It would be desirable to start increasing the knowledge level of individuals on the emergency management of knocked-out teeth by creating suitable and directed education programs. There are various ways to achieve this goal, including providing information to pupils and teachers in schools in the form of posters or videos and to the public in the form of TV programs or different campaigns. To plan for how education programs should be designed and directed to the public it is not only important to assess the present level of knowledge among children and parents but also the knowledge level of adults in places where trauma occurs (e.g. teachers, sports leaders and coaches). Furthermore, it would be worthwhile to assess the level of knowledge of different categories of professionals who may be consulted directly or by telephone immediately after the trauma (e.g. nurses, receptionists in emergency centers and physicians) Special education programs may be necessary for a broad audience of health care professionals who treat trauma victims. By assessing the knowledge level before intervention, evaluation of the outcome of the intervention can be performed by comparing pre- and postintervention knowledge levels.

Conclusions

First-aid knowledge of avulsion and replantation of teeth must be increased in Kuwaiti schoolchildren. To achieve this goal information has to be directed to the children, the parents, the school and the society.

The effect of such information on these target groups should be measured before and after intervention programs. The form for interviewing children presented in this paper is well structured and helped to facilitate interviews and data management for later analysis.

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References

1. Cvek M, Granath L-E, Hollender L. Treatment of non-vital permanent incisors with calcium hydroxide. III. Variation of occurrence of ankylosis of reimplanted teeth with duration of extra alveolar period and storage environment. Odont Revy 1974;25:43–56.
2. Andreasen JO. The effect of extra-alveolar storage and storage media upon periodontal and pulpal healing after replantation of mature permanent incisors in monkeys. Int J Oral Surg 1981;10:43–53.
3. Blomlöf L, Andersson L, Lindskog S, Hedström K-G, Hammarström L. Periodontal healing of replanted monkey teeth prevented from drying. Acta Odontol Scand 1983;41:117–23.
4. Andersson L, Bodin I, Sörensen S. Progression of root resorption following replantation of human teeth after extended extra-oral storage. Endod Dent Traumatol 1989;5:38–47.
5. Andersson L, Bodin I. Avulsed human teeth replanted within 15 minutes – a long-term clinical follow-up study. Endod Dent Traumatol 1990;6:37–42
6. Andreasen JO, Andreasen FM. Textbook and Color Atlas of Traumatic Injuries to the Teeth. 3rd edn. Copenhagen: Munksgaard; 1994.
7. Heimdahl A, von Konow L, Lundquist G. Replantation of avulsed teeth after long extra-alveolar periods. Int J Oral Surg 1983;12:413–7.
8. Blomlöf L. Milk and saliva as possible storage media for traumatically exarticulated teeth prior to Replantation. Swed Dent J 1981;8 (Suppl.):1–26.
9. Trope M. Clinical management of the avulsed tooth. Dent Clin North Am 1995;39:93–112.
10. Sigalas E, Regan JD, Kramer PR, Witherspoon DE, Opperman LA. Survival of human periodontal ligament cells in media proposed for transport of avulsed teeth. Dent Traumatol 2004;20:21–8.
11. Blomlöf L, Lindskog S, Andersson L, Hedström K-G, Hammarström L. Storage of experimentally avulsed teeth in milk prior to replantation. J Dent Res 1983;62:912–6.
12. Barrett EJ, Kenny DJ. Avulsed permanent teeth: a review of the literature and treatment guidelines. Endod Dent Traumatol 1997;13:153–63.
13. Hamilton FA, Hill FJ, Mackie IC. Investigation of lay knowledge of the management of avulsed permanent incisors. Endod Dent Traumatol 1997;13:19–23
14. Holan G Shmueli Y. Knowledge of physicians in hospital emergency rooms in Israel on their role in cases of avulsion of permanent incisors. Int J Paediatr Dent 2003;13:13–9.
15. Newman L, Crawford PJM. Dental injuries: first aid knowledge of Southampton teachers of physical education. Endod Dent Traumatol 1991;7:255–258.
16. Pacheo LF, Filho PFG, Letra A, Menezes R, Villoria GEM, Ferreira SM. Evaluation of the knowledge of the treatment of avulsions in elementary school teachers in Rio de Janeiro, brazil. Dent Traumatol 2003;19:76–8.
17. Raphael SL, Gregory PJ. Parental awareness of the emergency management of avulsed teeth in children. Aust Dent J 1990;35:130–3.
18. Sae-Lim V, Lim LP. Dental trauma management awareness of Singapore preschool teachers. Dent Traumatol 2001;17:71–6.
19. Stokes AN, Anderson HK, Cowan TM. Lay and professional knowledge of methods for emergency management of avulsed teeth. Endod Dent Traumatol 1992;8:160–2.
20. Chan AWK, Wong TKS, Cheung GSP. Lay knowledge of physical education teachers about the emergency management of dental trauma in Hong Kong. Dent Traumatol 2001;17:77–85.
21. Walker A, Brancheley J. It's knockout: survey of management of avulsed teeth. J Accid Emerg Nurs 2000;8:66–70.

22. Eilert-Petersson E, Andersson L, Sorensen S. Traumatical oral vs non-oral injuries – an epidemiological study during one year in a Swedish county. Swed Dent J 1997;21:55–68.
23. Glendor U, Halling A, Andersson L, Eilert-Peterson E. Incidence of traumatic tooth injuries in children and adolescents in the county of Västmanland, Sweden. Swed Dent J 1996:20;15–28
24. Andersson L, Malmgen B. The problem of Dentoalveolar ankylosis and subsequent replacement resorption in the growing patient. Aust Endod J 1999;25:57–61
25. Glendor U, Halling A, Andersson L, Andreasen J O, Klitz I. Type of treatment and estimation of time spent on dental trauma. A longitudinal and retrospective study. Swed Dent J 1998;22:47–60.
26. Glendor U, Halling A, Bodin L, Andersson L, Nygren Å, Karlsson G, et al. Direct and indirect time spent on care of dental trauma: a 2 year prospective study of children. Endod Dent Traumatol 2000;16:16–23.
27. Andersson L, Friskopp J. Fiber-glass splinting of traumatized teeth. J Dent Child 1983;50:21–4.
28. Andersson L, Blomlöf L, Lindskog S, Feiglin B, Hammarström L. Tooth ankylosis. Clinical, radiographic and histological assessments. Int J Oral Surg 1984;13:423–31.
29. Andersson L, Lindskog S, Blomlöf L, Hedström K-G, Hammarström L. Effect of masticatory stimulation on dentoalveolar ankylosis after experimental tooth replantation. Endod Dent Traumatol 1985;1:13–6.
30. Blakytny C, Surbuts C, Thomas A, Hunter ML. Avulsed permanent incisors: knowledge and attitudes of primary school teachers with regard to emergency management. Int J Pediatr Dent 2001;11:327–32.

Appendix

Have you ever seriously damaged a tooth so that it was loose or cracked?
Yes
No
If yes
What kind of tooth injury have you experienced in the past?

A. General knowledge of emergency treatment of trauma to some other parts of the body

What would you do if you would burn the tip of your finger on a flame or in hot water?
What would you do if you would cut your finger and it begins to bleed?
What would you do if you would have a nosebleed?
What would you do if you fall on the street and scrape some of the skin from your knee and the abrasion is dirty?

To achieve a score of 3 knowledge about each of the four principles below needs to be demonstrated:

- Know that a burnt finger should immediately be put in a cool environment such as in contact with ice, cool water or oil-containing paste.
- A cut finger should be treated by compression (gauze, handkerchief, etc.) until the bleeding has stopped. A bandage or strip should then be applied.
- Nosebleeding should be treated by compression (finger pinching) of the lower part of the nose or packing of the nose with gauze.
- Clean an abrasion injury by rinsing (in water, saline or antiseptic solution) and removing all traces of dirt.

To achieve a score of 2 knowledge of at least three of the above principles has to be demonstrated.
To achieve a score of 1 knowledge of at least two of the above principles has to be demonstrated.

B. General knowledge of tooth and avulsion

This part of the interview starts by showing a picture of permanent front teeth in a healthy, non-injured mouth. The child is then asked to draw the shape of the tooth root.

The children were asked the following questions:

Do you know how the tooth is normally kept in its position in the jaw so it will not fall out when you chew?
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 so you can chew and smile with it just like you did before the accident?

To achieve a full score of 3 knowledge about each of the four principles below needs to be demonstrated

- Be able to draw a root of reasonably good proportions.
- Know that the tooth is attached to the bone by fibers.
- Know that a tooth can be completely knocked out.
- Know that an avulsed tooth can be replanted, heal successfully and function again normally.

To achieve a score of 2 knowledge of three of the above principles has to be demonstrated
To achieve a score of 1 some knowledge of the above principles has to be demonstrated but less than three.

C. Special knowledge of avulsion and replantation

In this part of the interview questions are presented in four important fields of knowledge: replantation of primary teeth, how to clean a tooth before replantation, extra alveolar time and storage method and medium.

a. Replantation of primary teeth
Do you think primary (baby, temporary) teeth should be put back in after they were knocked out?
If the answer is no. Why?
Do you think permanent (the teeth you have for the rest of your life) teeth should be put back in after they were knocked out?

To achieve a full score of 3 the child has to know all of the following information:

- Primary teeth should not be replanted.
- The reason for not replanting a primary tooth is the risk of injury to the underlying permanent tooth germ.
- Permanent teeth should be replanted whenever possible.

To achieve a score of 2 knowledge of two of the above principles has to be demonstrated.
To achieve a score of 1 one of the above principles has to be demonstrated.

b. How to clean the tooth before replantation?
If the tooth has fallen on the ground and dirty, what would you do?
If you have to clean the tooth first, how do you clean it?
Do you clean the tooth even if it is not dirty?
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?

To achieve a full score of 3 the child/adolescent has to know all the following information:

- The dirty tooth should be rinsed in water (not in an antiseptic solution).
- The tooth should be held by its crown and touching the root surface should be avoided.
- Rubbing the root should be avoided.
- Dirty teeth should be transported in a storage medium (not water) on the way to a dentist.

To achieve a score of 2 knowledge of two of the above principles has to be demonstrated
To achieve a score of 1 one of the above principles has to be demonstrated

c. Extra-alveolar time
When should the tooth be put back in if it was knocked out of the mouth? (Chose the best alternative)
- Immediately
- As soon as the bleeding has stopped
- During the first hour
- 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?

To achieve a full score of 3 the child/adolescent has to know all of the following information:

- A tooth should be replanted as soon as possible.
- The reason is that the root cells (or periodontal membrane) will be injured by dry storage.
- Teeth can be stored for longer periods if stored in a suitable storage medium.

To achieve a score of 2 knowledge of two of the above principles has to be demonstrated.
To achieve a score of 1 one of the above principles has to be demonstrated.

d. Storage method and medium
What should you do if you cannot (or chose not to) put the tooth back in your mouth?
How should you transport the tooth on the way to the dentist?
Have you heard about any other way of storing a tooth that 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 (show a list of suggestions below)

- Wrap the tooth in paper	yes	no
- Wrap the tooth in a handkerchief	yes	no
- Wrap the tooth in gauze or cotton	yes	no
- Wrap the tooth in cellophane	yes	no
- Put the tooth in water	yes	no
- Put the tooth in a disinfecting solution	yes	no
- Put the tooth in ice water	yes	no
- Place the tooth in the child's mouth	yes	no
- Place the tooth in the child's hand	yes	no
- Put the tooth in milk	yes	no
- Put the tooth in fruit juice	yes	no
- Put the tooth in a saline solution	yes	no
- Put the tooth in Coca-Cola	yes	no

To achieve a full score of 3 the child/adolescent has to know all of the following information:
- The tooth can be stored if it cannot be replanted.
- The tooth must not be stored dry.
- The tooth must not be stored in water
- The correct answer of at least 12 of 13 questions in question 4.

To achieve a score of 2, knowledge of at least two of questions 1–3 and at least 10 of 13 questions in question 4 need be demonstrated.

To achieve a score of 1 some knowledge has to be demonstrated but less than three of the above principles.

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