Towards Dental Trauma

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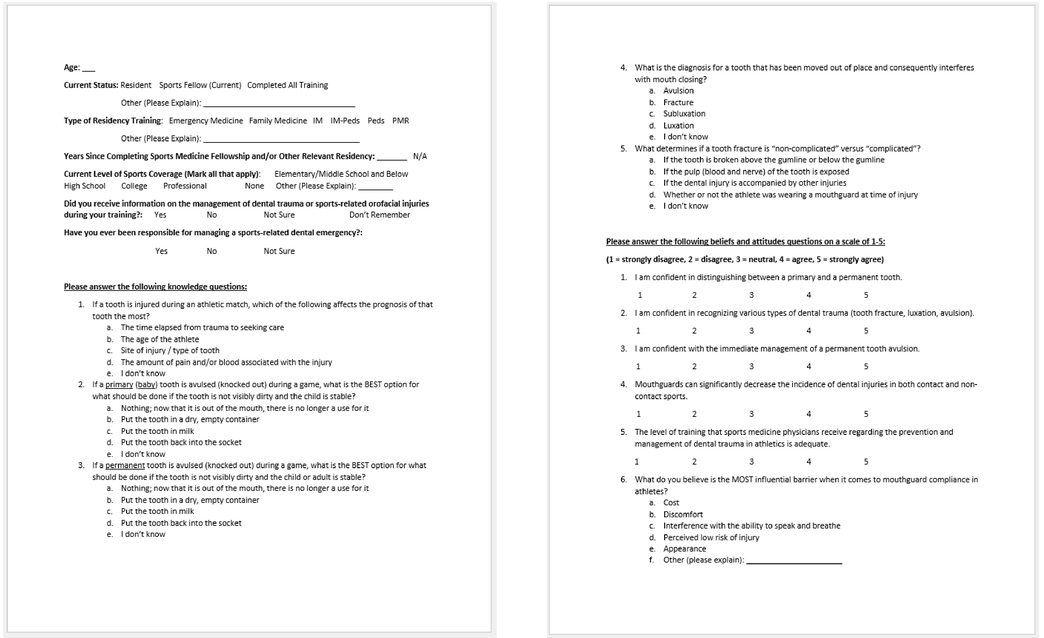
Introduction

- Traumatic dental injuries (TDIs) comprise 5% of all traumatic injuries in people seeking first aid [1]. The prognosis for an injured tooth is directly related to the time elapsed from the trauma to the emergency care and adequacy thereof [2].
- The US Surgeon General's report on oral health identified sports participation as one of the leading causes of oral and craniofacial injuries [4]
- The National Federation of State High School Associations mandates mouthguards only for football, ice hockey, lacrosse, field hockey, and for wrestlers wearing braces.
- Though there are dedicated sports medicine experts and physiotherapists in most academies, teams, and sports tournaments, a sports dentist or immediate access to dental care is seldom available [2].
- Since time plays a crucial role toward a good prognosis for the survival of injured teeth, and most injuries require some basic steps of emergency care, it has been emphasized that non-dental health care professionals must have adequate awareness in the recognition and management of TDIs [2]
- In this survey, we seek to determine the knowledge, attitudes, awareness, and practices among physicians in sports medicine for the prevention and emergency management of traumatic dental injuries.

Methods

- A questionnaire was developed and reviewed by the study's primary investigators and was sent out to members of American Medicine Society for Sports Medicine (AMSSM) via an email listserv.
- Demographics, such as type of residency training, years since completing training, and age were included.
- Questions about dental trauma management, diagnosis, and attitudes regarding different aspects of TDIs were also included.
- The survey was sent out via the online tool, Survey Monkey.

Data



Age: ___

Current Status: Resident Sports Fellow (Current) Completed All Training

Other (Please Explain): _____

Type of Residency Training: Emergency Medicine Family Medicine IM IM-Peds Peds PMR

Other (Please Explain): _____

Years Since Completing Sports Medicine Fellowship and/or Other Relevant Residency: _____ N/A

Current Level of Sports Coverage (Mark all that apply): Elementary/Middle School and Below High School College Professional None Other (Please Explain): _____

Did you receive information on the management of dental trauma or sports-related orofacial injuries during your training?: Yes No Not Sure Don't Remember

Have you ever been responsible for managing a sports-related dental emergency?:

Yes No Not Sure

Please answer the following knowledge questions:

1. If a tooth is injured during an athletic match, which of the following affects the prognosis of that tooth the most?
   a. The time elapsed from trauma to seeking care
   b. The age of the athlete
   c. Site of injury / type of tooth
   d. The amount of pain and/or blood associated with the injury
   e. I don't know
2. If a primary (baby) tooth is avulsed (knocked out) during a game, what is the BEST option for what should be done if the tooth is not visibly dirty and the child is stable?
   a. Nothing; now that it is out of the mouth, there is no longer a use for it
   b. Put the tooth in a dry, empty container
   c. Put the tooth in milk
   d. Put the tooth back into the socket
   e. I don't know
3. If a permanent tooth is avulsed (knocked out) during a game, what is the BEST option for what should be done if the tooth is not visibly dirty and the child or adult is stable?
   a. Nothing; now that it is out of the mouth, there is no longer a use for it
   b. Put the tooth in a dry, empty container
   c. Put the tooth in milk
   d. Put the tooth back into the socket
   e. I don't know

4. What is the diagnosis for a tooth that has been moved out of place and consequently interferes with mouth closing?
   a. Avulsion
   b. Fracture
   c. Subluxation
   d. Luxation
   e. I don't know
5. What determines if a tooth fracture is "non-complicated" versus "complicated"?
   a. If the tooth is broken above the gumline or below the gumline
   b. If the pulp (blood and nerve) of the tooth is exposed
   c. If the dental injury is accompanied by other injuries
   d. Whether or not the athlete was wearing a mouthguard at time of injury
   e. I don't know

Please answer the following beliefs and attitudes questions on a scale of 1-5:

(1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)

1. I am confident in distinguishing between a primary and a permanent tooth.
   1 2 3 4 5
2. I am confident in recognizing various types of dental trauma (tooth fracture, luxation, avulsion).
   1 2 3 4 5
3. I am confident with the immediate management of a permanent tooth avulsion.
   1 2 3 4 5
4. Mouthguards can significantly decrease the incidence of dental injuries in both contact and non-contact sports.
   1 2 3 4 5
5. The level of training that sports medicine physicians receive regarding the prevention and management of dental trauma in athletics is adequate.
   1 2 3 4 5
6. What do you believe is the MOST influential barrier when it comes to mouthguard compliance in athletes?
   a. Cost
   b. Discomfort
   c. Interference with the ability to speak and breathe
   d. Perceived low risk of injury
   e. Appearance
   f. Other (please explain): _____

Figure 1. Survey Instrument

Table 1. Demographic Characteristics

Question	Responses
Number of Respondents	176 total 40 able to be utilized
Average Age Responders	41.3 ± 8.1
Current Status	90% completed all training 7.5% Sports Fellow 10% Resident
Type of Residency	72% Internal Medicine
Years Since Completion of Residency	9.6 ± 7.8
Did you receive information on dental trauma management?	Yes = 34 (85%) No = 6 (15%)
Have you ever been responsible for managing a traumatic dental injury?	Yes = 22 (55%) No = 18 (45%)

Table 2. Survey Frequencies and Percentages

Question	Responses
Question 1	Correct = 28 (70%) Incorrect = 12 (30%)
Question 2	Correct = 29 (72.5%) Incorrect = 11 (27.5%)
Question 3	Correct = 37 (92.5%) Incorrect = 3 (7.5%)
Question 4	Correct (luxation) = 23 (57.5%) Incorrect (subluxation) = 11 (27.5) I don't know = 5 (12.5%)
Question 5	Correct = 26 (65%) Incorrect = 8 (20%) I don't know = 6 (15%)
Attitudes 1	Agree or Strongly Agree = 26 (75%)
Attitudes 2	Agree or Strongly Agree = 29 (72.5%)
Attitudes 3	Agree or Strongly Agree = 34 (85%)
Attitudes 4	Agree or Strongly Agree = 37 (92.5%) Neutral = 3 (7.5%)
Attitudes 5	Strongly Agree = 0 (%) Agree = 8 (20%) Neutral = 13 (32.5%) Disagree = 15 (37.5%) Strongly Disagree = 4 (10%)
Attitudes 6	Discomfort = 18 Cost = 11 Interference with Speak/Breathe = 7 Perceived Low Risk of Injury = 4

Results

- Fifteen percent of physicians have never received any information on dental trauma management during their training.
- Forty-five percent of the respondents had no hands-on experience in managing a traumatic dental injury first-hand.
- Nearly one-third of all respondents incorrectly identified a luxation injury as a subluxation. This is significant as these two injuries have completely different arms of treatment.
- The most common perceived barrier when it comes to mouthguard compliance in athletes was discomfort (18), followed by cost (11) and interference with ability to speak and breathe (7).
- A major weakness in this study is the few number of usable datapoints to represent a heterogeneous group of people.

Conclusion

1. Results suggest there may be a place for continuing education opportunities, such as clinically-based quality improvement (CQI) modules aimed at scenario driven answers.
2. Most sports physicians were confident in the immediate management of a permanent avulsed tooth, however, there is a gap in knowledge when it comes to diagnosing other types of injuries, such as luxation and subluxations.
3. The biggest perceived barriers to mouthguard wear are discomfort and cost.

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