

# Knowledge and attitudes of Physical Education undergraduates regarding dental trauma

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## ABSTRACT

**Introduction:** Dental trauma may result in pulpal and periodontal injuries, which cause a negative impact on life quality. Its prognosis is highly influenced by the emergency care. **Objectives:** This study aimed to investigate the self-perceived knowledge of undergraduate students Physical Education and attitudes regarding dental trauma. **Methods:** Cross-sectional study using a questionnaire to collect information on the profile, knowledge and attitudes of Physical Education undergraduates from four universities in the municipality of Goiânia, Goiás state, Brazil, regarding emergency care for dental trauma patients. **Results:** Among the 392 participants, most were male (54.3%) and aged between 20 and 29 years (59.2%). Less than half of them (46.5%) received first-aid training during the course,

only 4.4% of them received information on dental trauma, and 74.1% reported lack of knowledge about the subject. Among those who affirmed having some knowledge, 95.6% were dissatisfied with it and did not feel prepared to help the patients. Most (95.7%) of those who were not satisfied with their knowledge declared they would like to receive more information on it. **Conclusions:** The Physical Education undergraduate students participating in our study reported insufficient knowledge about dental trauma and inaptitude to provide emergency care to victims of this type of injury. This reveals the need to develop educational strategies to increase their knowledge in order to better contribute to oral health promotion.

**Keywords:** Dental trauma. Prevention. Dentoalveolar trauma.

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## Introduction

Dental trauma is amongst the most serious health problems in children and adolescents due to their high prevalence, reported in several population studies, and great psychosocial impact. The first Brazilian nationwide epidemiological study on this field was carried out in 2010.<sup>1</sup> The study revealed that 21% of the 12-years-old presented some type of dental traumatic lesion without treatment in at least one incisor tooth. Although the most frequent type of lesion is enamel fracture, any trauma can lead to lesions in pulpal and periodontal structures, impairing esthetics and the function of the stomatognathic system, and may result in serious emotional and psychological problems to the patient.<sup>2,3,4</sup>

In the last 30 years, the number of studies on etiological factors associated to dental traumatic lesions has been considerably enhanced, characterizing their multifactorial etiology. Non-intentional factors include oral conditions (increased overjet with protrusion, inadequate lip seal), environmental factors (unsafe places), behavioral factors (attention-deficit hyperactivity disorder – ADHD, emotional stress, obesity), inappropriate use of teeth, oral piercing, iatrogenic traumas, traffic accidents and sports practice. Intentional factors are associated to several forms of violence (mainly physical abuse, robbery and torture).<sup>5</sup>

A significant number of dental trauma results from sports accidents, ranging from 13% to 39%.<sup>2,6,7,8</sup> Athletes involved in contact sports have about 10% chance per season of an orofacial injury, or from 33% to 56% chance during the athletic career.<sup>9</sup> The occurrence of these lesions is, therefore, a source of concern to clubs and athlete sponsors.

Post-traumatic complications range from defect in the insertion of periodontal ligament, pulp necrosis, obliteration of the root canal space, root resorption, ankylose or even dental avulsion. All of them are likely to be prevented or minimized by taking the correct measures to treat the injured tooth in emergency care.<sup>10,11</sup> The prognosis of the injured tooth depends largely on prompt and appropriate emergency treatment, which is frequently provided by lay people, including parents, teachers and school monitors, as well as Physical Education teachers, often present at accident sites.<sup>10</sup> Specialized literature reports a high percentage of lay people who have inappropriate knowledge about dental trauma emergency treatment.<sup>12-17</sup>

In this group of lay people, Physical Education teachers play a leading role, since they deal with sports practice on a daily basis and are more likely to be present at sports accident sites. Consequently, their action has been associated with a more favorable prognosis for the injured teeth.<sup>12,14-17</sup>

Thus, new studies bringing solid information on knowledge and attitude of Physical Education teachers regarding emergency management of dental trauma in different communities are necessary. The efforts to promote health and better life quality are gradually more integrated to the aspirations of society, and sports practice should continue being an important ally in this search.

This study aimed to investigate the self-perceived knowledge of undergraduate students of P.E. and attitudes regarding dental trauma. The results may be useful helping to promote strategies of health education to prevent or minimize its occurrence during sports practice.

## Material and Methods

The present study was approved by the Human and Animal Research Ethics Committee of the Goiás Federal University (Protocol no. 024/2007). A written free and informed consent form was signed by all the participants and authorized by the directors of the educational institutions selected.

Data were collected from 2009 to 2010, using a self-assessment questionnaire, responded by 392 physical education undergraduate students, studying from the first to the last term at four universities (two public and two private) in the municipality of Goiânia, Goiás state, Brazil.

It was applied a questionnaire on dental trauma used in previous studies conducted in Hong-Kong<sup>12</sup> and Brazil,<sup>18</sup> containing open and closed questions and divided into two parts. In the first part we asked questions about the demographics of the participants (gender and age) and college term, whereas in the second part we asked questions about first-aid training during college and their knowledge and attitudes regarding emergency care to dental trauma patients.

Microsoft® Excel® 2007 software was used to tabulate data. Statistical analysis was performed using the SPSS® program for Windows®, version 15.0.

The chi-square test ( $\chi^2$ ) was applied to evaluate the association between satisfaction with knowledge

about dental trauma and adequate preparation to provide emergency care to victims of this type of injury, as well as the association between satisfaction with knowledge about dental trauma and the desire to receive more information about the matter. All the tests presenting p value < 0.05 were considered statistically significant.

## Results

Table 1 shows the characteristics of the 392 participants. Most of them were male (54.3%), aged between 20 and 29 years (59.2%), and attended the second term of college (27.0%).

Less than half (46.5%) of the respondents received first-aid training during the course (n = 181) and only 4.4% of them received information on dental trauma (n = 8) (Fig 1).

When asked about the professional in charge of providing emergency care to dental trauma patients during sports practice, most participants indicated Physical Education teachers (40.2%), followed by health professionals (21.6%), and firefighters (13.4%) (Fig 2).

With regard to satisfaction with knowledge about dental trauma, 74.1% reported lack of knowledge

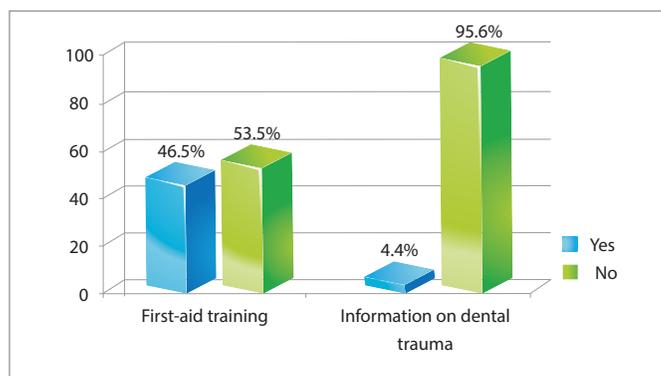
about the matter (n = 287). Among those who affirmed having this type of knowledge, 95.6% were dissatisfied with it and did not feel prepared to help dental trauma patients (p < 0.001) (Table 2).

Most of those who were not satisfied with their knowledge about dental trauma (95.7%) declared that they would like to receive more information about it (p < 0.001) (Table 3).

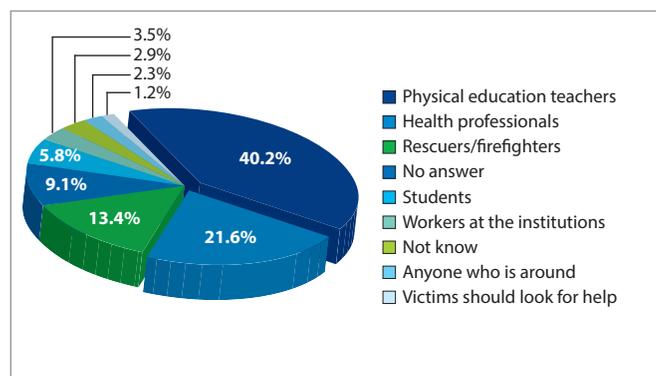
## Discussion

Fractured teeth or tooth loss as a result of trauma may cause negative impact on the physical appearance of individuals and on society. Despite the great advances on dental trauma treatment, relatively little attention has been paid to the role of measures to prevent or minimize them.<sup>2</sup>

The economic cost of the treatment of traumatized teeth during sports practice has not yet been deeply studied. However, it has already been demonstrated that the costs of emergency and subsequent treatments are very high. There is also evidence that an expressive number of endodontic and prosthetic treatments is responsible for great part of this cost, and that with longer follow-up periods it would be even higher.<sup>2</sup>



**Figure 1.** Frequency distribution of participants that received first-aid training during the Physical Education course and information on dental trauma. This question was not responded by three participants.



**Figure 2.** Frequency distribution of responses of the participants concerning the professional in charge of providing emergency care to dental trauma victims during sports practice.

**Table 1.** Frequency distribution of characteristics of the participants (n = 392).

Characteristic	Frequency distribution	
	n	%
<b>Gender</b>		
Male	213	54.3
Female	179	45.7
Total	392	100
<b>Age<sup>1</sup></b>		
Below 20 years	146	37.9
20 to 29 years	228	59.2
30 to 39 years	11	2.9
Total	385	100
<b>College term<sup>2</sup></b>		
1st	43	11.1
2nd	104	27.0
3rd	41	10.6
4th	79	20.5
5th	38	9.9
6th	33	8.5
7th	12	3.1
8th	36	9.3
Total	386	100

<sup>1</sup> This question was not responded by seven participants.

<sup>2</sup> This question was not responded by six participants

Therefore, it would be more effective, more productive and less expensive to invest on health education and dental trauma prevention.

It was chose Physical Education undergraduate students as our study group because a great deal of dental trauma may occur during sports practice,<sup>2,6,7,8</sup> either at schools, gyms or championships, where the Physical Education professional may be present. Furthermore, the emergency attention of these professionals can be decisive for a better prognosis of traumatized teeth.<sup>9,11,12,15,16,17</sup> It is up to these future professionals, when they are working in the sports areas as monitors, trainees, teachers or coaches to be fully prepared to provide emergency care to dental trauma patients, and to accomplish this challenge they need to gather knowledge and previous training since college. The results of our study may be

**Table 2.** Association between satisfaction of the participants with knowledge about dental trauma and adequate preparation to provide emergency care to victims of this type of injury.

	Feel prepared to help victims of dental trauma				p
	Yes		No		
	n	%	n	%	
	4	40.0	4	4.4	
	6	60.0	86	95.6	
Total	10	100	90	100	< 0.001

Chi-square test ( $\chi^2$ ).

This question was not responded by five participants.

**Table 3.** Association between satisfaction of the participants with knowledge about dental trauma and the desire to receive more information about the matter.

	Desire to receive more information about dental trauma				p
	Yes		No		
	n	%	n	%	
	4	4.3	4	57.1	
	89	95.7	3	42.9	
Total	93	100	7	100	< 0.001

Chi-square test ( $\chi^2$ ).

This question was not responded by five participants.

helpful to help planing preventive and educational strategies to promote oral health.

The lack of knowledge among the participants of this research is in accordance with previous studies. Our results suggest that most physical education colleges have no contents regarding dental trauma in their curriculum; consequently, Physical Education undergraduate students and teachers have shown inadequate knowledge and attitudes regarding this matter. On the other hand, they have already seen accidents involving teeth.<sup>12,14-17</sup>

Among the 392 respondents, less than half (46.5%) received first-aid training during the course. In a study assessing only physical education teachers, this percentage was 99.4%.<sup>12</sup> Nevertheless, in both studies the approach of dental trauma during the course was very deficient, since only 4.4% and

4.8% of the participants, respectively, reported having received information on dental trauma.

Lack of knowledge about dental trauma among Physical Education undergraduate students and teachers was also detected in other studies about dental avulsion. Panzarini et al<sup>14</sup> reported that only 9.7% of the participant Physical Education undergraduates had some knowledge about dental trauma. Granville-Garcia et al<sup>16</sup> and Jorge et al<sup>17</sup> reported that 20.3% of the physical education teachers and 41.6% of the physical education undergraduates and teachers participating in their studies, respectively, presented knowledge about dental avulsion. Additionally, when asked about the appropriate procedures to be adopted when dealing with this situation, the majority of participants revealed to be inapt.

In the present study, most participants (74.1%) reported lack of knowledge about dental trauma; moreover, most of those who affirmed having this type of knowledge were dissatisfied with it. Lack of satisfaction with knowledge about dental trauma was also detected by Sae-Lim et al<sup>19</sup> in 85% of parents or other people in charge of dental trauma patients and by Costa<sup>18</sup> in 96.6% of elementary school teachers.

In our study, 95.6% of the physical education undergraduates were dissatisfied with their knowledge about dental trauma and did not feel prepared to help this type of patient. This result is corroborated by Panzarini et al<sup>14</sup> and Jorge et al<sup>17</sup> findings, since 74.0% and 91.6% of the participants, respectively, reported their inaptitude to provide emergency care to victims of dental avulsion. Due to their high degree of dissatisfaction, the great majority of the participants in our study declared that they would like to acquire information on this subject, which

is in agreement with other studies,<sup>14,17</sup> who reported that 85.0% and 91.0% of the individuals assessed affirmed the same. These results are extremely favorable to oral health promotion, because they demonstrate the interest and receptivity of the target public to acquire knowledge and adopt preventive and emergency procedures.

Regarding the professional in charge of providing emergency care to dental trauma victims during sports practice, 40.2% of the participants indicated the Physical Education teachers, showing they are aware of their role to promote health care. Considering that dental trauma can cause severe physical, functional and emotional sequelae, and also demand high-cost treatment and patient follow-up, the participation of other professionals, in addition to dentists, is highly important to promote oral health. Since physical education undergraduate students are not adequately prepared to provide emergency care to dental trauma victims, as shown in our study, it is necessary to invest on preventive educational strategies to promote oral health, aiming to qualify these future professionals so that they are aware of their leading role when dealing with dental trauma.

## Conclusion

The Physical Education undergraduate students who participated in this study reported having insufficient knowledge about dental trauma and being inapt to provide emergency care to this type of patient.

Therefore, it is necessary to plan educational strategies to increase their knowledge, so that they can be able to promote prevention procedures, provide emergency care to dental trauma victims, or minimize its effects during sports practice.

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