

## Traumatic Dental Injuries in Youth Basketball players: A Cross-Sectional Study of Awareness, Attitudes, and Preventive Practices in Damascus, Syria

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### Abstract:

**Background and Objective:** Traumatic dental injuries (TDIs) are a significant public health concern, particularly among youth engaged in contact sports such as basketball. Despite the availability of preventive measures like mouthguards, awareness and usage remain limited. This study aimed to assess the prevalence of TDIs, knowledge of emergency management, and awareness and use of mouthguards among youth basketball players in Damascus, Syria.

**Materials and Methods:** A cross-sectional survey was conducted among 95 registered youth basketball players aged 7–16 years. Data were collected using a validated, self-administered questionnaire covering demographics, trauma history, first-aid knowledge, and mouthguard practices. Statistical analyses included chi-square tests and logistic regression to identify associations and predictors.

**Results:** Over half of the participants (59%) reported experiencing dental trauma, with tooth fractures and concussions being the most common. Knowledge of emergency management was generally poor; only 28.4% were aware of the importance of immediate tooth replantation, and 48.4% selected inappropriate transport media. Mouthguard use was low (24.2%), with barriers including discomfort, lack of trainer encouragement, and social stigma. Gender and years of basketball experience were significant predictors of trauma risk, with female players and those with >5 years of experience showing higher odds.

**Conclusions:** The findings highlight insufficient awareness and preventive practices regarding TDIs among Syrian youth basketball players. Targeted educational programs and broader engagement of coaches and parents are essential to improve emergency preparedness and promote consistent mouthguard use.

**Key Words:** Traumatic Dental Injuries, Mouthguards, Youth Athletes, Basketball, Emergency Management, Syria.

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## إصابات الأسنان الرضية لدى لاعبي كرة السلة الشباب: دراسة مقطعية لكل من الوعي

### والسلوك والممارسات الوقائية في دمشق، سوريا

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### الملخص:

**هدف البحث:** تُشكّل إصابات الأسنان الرضية (TDIs) مشكلة صحية عامة كبيرة، خاصة بين الشباب الذين يمارسون الرياضات التي تتطلب احتكاكاً جسدياً مثل كرة السلة. وعلى الرغم من توافر إجراءات وقائية مثل واقيات الفم، إلا أن الوعي بأهميتها واستخدامها لا يزالان محدودين. هدفت هذه الدراسة إلى تقييم مدى انتشار إصابات الأسنان الرضية، والمعرفة بالإسعافات الأولية الخاصة بها، والوعي باستخدام واقيات الفم بين لاعبي كرة السلة الشباب في دمشق، سوريا.

**المواد والطرق:** أُجري مسح مقطعي على 95 لاعب كرة سلة تتراوح أعمارهم بين 7-16 سنة. تم جمع البيانات باستخدام استبيان موثق ذاتي التعبئة يغطي البيانات الديموغرافية، وتاريخ الإصابة، والمعرفة بالإسعافات الأولية، وممارسات استخدام واقيات الفم. شملت التحاليل الإحصائية استخدام اختبار كاي مربع والانحدار اللوجستي لتحديد العلاقات والتنبؤات.

**النتائج:** أفاد أكثر من نصف المشاركين (58.9%) بتعرضهم للرضوض السنوية، حيث كانت كسور الأسنان وإصابات اللثة هي الأكثر شيوعاً. كانت المعرفة بالإسعافات الأولية ضعيفة بشكل عام؛ حيث كان 28.4% فقط على علم بأهمية إعادة زرع السن فوراً، بينما اختار 48.4% وسطاً غير مناسب لنقل السن. كان استخدام واقيات الفم منخفضاً (24.2%)، وشملت أسباب عدم الاستخدام كل من عدم الراحة، وعدم تشجيع المدرب، والوصمة الاجتماعية. كان الجنس وعدد سنوات الخبرة في كرة السلة من المؤشرات التنبؤية ذات الدلالة الإحصائية لخطر التعرض للرضوض، حيث أظهرت اللاعبات الإناث وأولئك الذين تزيد خبرتهم عن 5 سنوات احتمالية أعلى للتعرض للإصابة.

**الاستنتاجات:** تُسلط النتائج الضوء على وجود قصور في الوعي والممارسات الوقائية المتعلقة بإصابات الأسنان الرضية بين لاعبي كرة السلة الشباب السوريين. إن البرامج التعليمية المستهدفة والمشاركة الأوسع للمدربين وأولياء الأمور ضرورية لتحسين الاستعداد للطوارئ وتعزيز الاستخدام المنتظم لواقيات الفم.

**الكلمات المفتاحية:** إصابات الأسنان الرضية، واقيات الفم، الرياضيون الشباب، كرة السلة، التعامل في حالات الطوارئ، سوريا.

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**Introduction:**

The oral cavity, despite comprising a relatively small proportion of the total body surface, is highly susceptible to trauma and is implicated in nearly 5% of all bodily injuries (1). Traumatic dental injuries (TDIs) were ranked in 2018 as the fifth most prevalent injury or disease worldwide (2), highlighting their significance as a major public health concern due to both their high incidence and potential long-term consequences (1) (3) (4) (5) (6). Although TDIs may occur at any age, children and young adults represent the most frequently affected groups, largely due to increased physical activity and ongoing dental and craniofacial development. Beyond age, several factors contribute to the risk of TDIs, including participation in sports and physical activities, inadequate use of protective equipment, non-compliance with game rules, and risk-taking behaviors (7). Training-related factors, such as session duration, weekly training frequency, and accumulated years of sports participation, have also been shown to influence injury susceptibility (5), (8).

In pediatric populations, TDIs may have particularly serious implications, as injuries to developing permanent teeth can interfere with tooth eruption, root development, occlusion, and normal craniofacial growth, potentially resulting in long-term functional and orthodontic complications (9).

Approximately 40% of TDIs are associated with sports participation (10) (11) (12), with athletes involved in contact sports experiencing a 2–3.6-fold higher risk compared with those participating in non-contact sports, owing to frequent collisions and physical contact (5) (13) (14) (15) (16). Among these sports, basketball is currently one of the most widely practiced worldwide, with an estimated 450 million registered participants, representing approximately 11% of the global population (17). It is classified as a contact sport and demonstrates a disproportionately high prevalence of TDIs compared with many other athletic activities, a finding attributed to close player interaction, hand and elbow strikes, and accidental collisions (18) (19) (20).

The most commonly reported TDIs in basketball include crown fractures and subluxations; however, more severe injuries such as luxation, extrusion, and avulsion have also been documented (21). In children and adolescents, such injuries may result not only in pain and functional impairment but also in esthetic concerns, disrupted dental development, and adverse psychological outcomes, including reduced self-esteem and fear of injury recurrence (4) (22).

Effective preventive strategies are available, with mouthguards representing the most widely recognized protective measure. Mouthguards function by absorbing and dissipating impact forces, thereby reducing both the incidence and severity of dental trauma (20) (23) (24) (25). Accordingly, their use is strongly recommended by the International Association of Dental Traumatology and the FDI World Dental Federation, particularly for children and adolescents engaged in contact sports (7) (26). Nevertheless, compliance with mouthguard use remains low, largely due to discomfort and insufficient awareness of their protective benefits (23) (6) (27).

The prognosis of TDIs depends not only on prevention but also on immediate and appropriate emergency management, which requires adequate knowledge about both the emergency management of dental trauma and the protective benefits of mouthguards among athletes, coaches, and sports personnel (22) (9) (28).

Raising awareness not only mitigates the direct impact on athletes but also reduces the wider public health burden of TDIs, including the need for emergency dental interventions and the associated financial costs, and the need to reinforce preventive strategies (4) (28).

In Syria, basketball is a particularly popular sport among children and adolescents. However, to date, no published data have evaluated the prevalence of sports-related dental trauma, knowledge of emergency management, or awareness and use of mouthguards among youth basketball players. Therefore, the present study aimed to assess the history of dental trauma, knowledge of emergency management of TDIs,

and preventive practices related to mouthguard use among children and adolescents participating in organized basketball in Damascus, Syria, while examining associations with age, sex, and years of sports participation.

#### **Materials and methods:**

##### **Study design and setting:**

This observational cross-sectional study was conducted to assess the prevalence of traumatic dental injuries (TDIs), knowledge of emergency management, and mouthguard use among youth basketball players in Damascus, Syria. Ethical approval was obtained from the Scientific Research Ethics Committee of Damascus University (IRB No. UDDS-2950-10452023/SRC-1550). Official permission was granted by the General Sports Federation of Syria, and written informed consent was obtained from parents or legal guardians prior to participation. The study adhered to the principles of the Declaration of Helsinki and followed the STROBE reporting guidelines (29).

##### **Sampling and participants:**

The study included youth basketball players aged 7–16 years who were officially registered in basketball clubs in Damascus and had participated in regular training or competition for at least six months. Players with special needs, craniofacial anomalies, systemic diseases, or those undergoing orthodontic treatment were excluded to avoid potential bias in questionnaire responses. Only participants with signed parental consent were enrolled. Data collection was carried out between January 2024 and January 2025.

Participants were recruited using a total population sampling approach. Data collection was conducted through visits to basketball clubs in Damascus during regular training sessions. All players who were present at the time of data collection and met the inclusion criteria were invited to participate. No random selection was applied, and the sample consisted of all eligible youth basketball players available in the selected clubs during the study period. This approach was chosen due to the limited and accessible target population and to ensure maximal coverage of eligible youth basketball players within the selected clubs.

##### **Data Collection:**

Data were collected using a structured, self-administered questionnaire specifically designed for youth athletes. The questionnaire was developed based on a review of relevant literature and the guidelines of the International Association of Dental Traumatology (7) (30) (20) (31) (32). It comprised four sections: demographic information, history of dental trauma, knowledge of emergency management of TDIs, and awareness and use of mouthguards. Both multiple-choice and open-ended questions were included.

##### **Validity and Pilot Testing:**

Content validity was assessed by two pediatric dentists and one endodontist experienced in dental trauma management. Face validity and clarity were evaluated through a pilot study involving 10 participants with characteristics similar to the target population. Minor modifications were made based on feedback to improve clarity. Data from the pilot study were not included in the final analysis.

##### **Statistical analysis:**

Statistical analysis was performed using IBM SPSS Statistics version 23 (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to summarize categorical variables as frequencies and percentages. Associations between categorical variables were analyzed using Pearson's chi-square test. For questions allowing multiple responses, multiple-response chi-square analysis was applied. Binary logistic regression analysis was conducted to identify demographic and sport-related predictors of dental trauma. Statistical significance was set at  $P < 0.05$ .

##### **Results:**

##### **Participant Characteristics:**

A total of 95 youth basketball players participated in the study, of whom 65% were male. Participants were aged between 7 and 16 years and were categorized according to basketball playing experience (<1 year, 1–5 years, and >5 years). Detailed demographic characteristics of the study population are summarized in **Table 1**.

##### **Prevalence and Types of Dental Trauma:**

More than half of the participants (59%) reported having experienced at least one basketball-related traumatic dental injury (TDI). The most

commonly reported types of injuries were tooth fracture (35.9%) and dental concussion (14.3%), whereas avulsion was reported less frequently.

The distribution of injury types is presented in **Table 1**.

**Table 1: Distribution of participants according to demographic characteristics.**

	N	%
<b>Gender</b>		
Male	62	65%
Female	33	35%
<b>Age</b>		
7-11 years	52	55%
12-16 years	43	45%
<b>Basketball playing experience</b>		
Less than 1 year	29	30.5%
1 to 5 years	46	48.4%
More than 5 years	20	21.1%
<b>Dental Trauma Experience</b>		
Yes	56	59%
No	39	41%
<b>Types of dental injury</b>		
Concussion	17	43.6%
Tooth-mobility	5	12.8%
Tooth-fracture	14	35.9%
Avulsion	3	7.7%

**Knowledge of Emergency Management of Dental Trauma:**

Overall, participants demonstrated limited knowledge regarding the emergency management of TDIs. Only 28.4% were aware that immediate replantation of an avulsed tooth could improve its prognosis. Although 64.2% indicated that dental consultation should occur as soon as possible following avulsion, nearly half of the participants (48.4%) selected inappropriate transport media, such as dry tissues. Detailed responses are presented in Table 2.

**Mouthguard Use and Preventive Practices:**

Mouthguard use was reported by a minority of participants, with only 18.9% indicating regular use and 5.3% reporting occasional use. The most frequently reported reasons for non-use included the perception that mouthguards were unnecessary (56.8%) and lack of encouragement from coaches (36.8%). Awareness regarding the types of mouthguards was limited, as 68.4% of participants reported no prior knowledge. Preventive practices and reported barriers to mouthguard use are summarized in **Table 2**.

**Table 2: Distribution of participants according to their trauma history and level of knowledge.**

	N	%
When a tooth is completely avulsed (knocked out), first aid is very important. If the athlete or those around them can place the tooth back in its socket before going to the dentist, the chances of saving the tooth increase. Were you aware of this information?		
Yes	27	28.4%
No	68	71.6%
In your opinion, how soon should someone go to the dentist for an avulsed (knocked out) tooth?		
As soon as possible	61	64.2%
Within 6 h	12	12.6%
The same day.	17	17.9%
Within 1 week.	5	5.3%
If you cannot place the avulsed (knocked out) tooth back yourself, which of the following would be a suitable way to transport it to the dentist?		
Handkerchief or napkin	46	48.4%
Water	14	14.7%
Physiological saline solution	15	15.8%
Milk	10	10.5%
Saliva	10	10.5%
Do you use a mouthguard while playing basketball?		
Yes	18	18.9%
Sometimes	5	5.3%
Never	72	75.8%
If you do not frequently use a mouthguard, what are the reasons? (You may select more than one)		
I have never heard of a mouthguard before.	13	13.7%
I experience difficulty speaking when wearing a mouthguard.	16	16.8%
I experience difficulty breathing when wearing a mouthguard.	10	10.5%
I feel nauseous when wearing a mouthguard.	16	19.8%
I find it difficult to concentrate during games or practice when wearing a mouthguard.	12	12.6%
I consider mouthguards to be unattractive in appearance.	8	8.4%
I do not think a mouthguard is necessary.	54	56.8%
I have thought about using a mouthguard but do not know where to obtain one.	14	14.7%
I have considered using a mouthguard, but found it too expensive.	20	21.1%
I avoid wearing a mouthguard because I am concerned about being perceived as unusual by others.	28	29.5%
I have not received any advice or encouragement from my coaches to use a mouthguard.	35	36.8%
Which types of mouthguards have you heard of? (You may select more than one)		
Ready-made (stock) mouthguards.	18	18.9%
Custom-made mouthguards.	12	12.6%
I do not know about this.	65	68.4%
What are your sources of information about mouthguards and dental injuries? (You may select more than one)		
Coaches.	11	11.6%
Dentists.	10	10.5%
Friends.	7	7.4%
Internet.	39	41.1%
I have no information.	28	29.5%

### Associations Between Demographic Factors and Dental Trauma

Dental trauma experience was significantly associated with gender and duration of basketball participation. Female players reported a significantly higher prevalence of TDIs compared

to males ( $P = .001$ ). In addition, players with more than five years of basketball experience were more frequently affected by dental trauma ( $P = .024$ ). No significant association was observed between age group and overall trauma experience. These associations are presented in **Table 3**.

**Table 3: Distribution and associations between demographic characteristics, trauma history, and types of injuries.**

	Gender		Age		Experience (year)		
	Male	Female	7-11	12-16	<1 year	1-5 years	>5 years
<b>Dental Trauma Experience</b>							
Yes	18 (29%)	21 (63.6%)	21 (40.4%)	18 (41.9%)	6 (20.7%)	22 (47.8%)	11 (55%)
No	44 (71%)	12 (36.4%)	31 (59.6%)	25 (58.1%)	23 (79.3%)	24 (52.2%)	9 (45%)
<i>P-value</i>	<b>.001*</b>		.884		<b>.024*</b>		
<b>Types of dental injury</b>							
Concussion	10 (55.6%)	7 (33.3%)	3 (14.3%)	14 (77.8%)	3 (50%)	5 (22.7%)	9 (81.8%)
Tooth-mobility	1 (5.6%)	4 (19%)	5 (23.8%)	0 (0%)	0 (0%)	5 (22.7%)	0 (0%)
Crown-fracture	4 (22.2%)	14 (35.9%)	13 (61.9%)	1 (5.6%)	0 (0%)	12 (54.5%)	2 (18.2%)
Avulsion	3 (16.7%)	3 (7.7%)	0 (0%)	3 (16.7%)	3 (50%)	0 (0%)	0 (0%)
<i>P-value</i>	.052		<b>&lt;.001*</b>		<b>&lt;.001*</b>		

\*: a significant difference.

### Knowledge of Dental Trauma Management and Demographic Characteristics

Knowledge of emergency management of dental trauma was significantly associated with age and basketball playing experience. Older participants (12–16 years) and those with longer playing experience demonstrated higher levels of awareness regarding tooth replantation ( $P = .029$  and  $P = .022$ , respectively). No significant associations were found between gender and knowledge level. Detailed results are shown in **Supplementary Table S1**.

### Mouthguard Use and Demographic Characteristics:

Mouthguard use was not significantly associated with age or basketball playing experience. However, a significant association was observed

with gender, with male players reporting higher rates of mouthguard use compared to females ( $P = .003$ ). Reasons for non-use did not differ significantly across demographic groups. These findings are presented in **Supplementary Table S2**.

### Predictors of Dental Trauma:

Binary logistic regression analysis suggested that gender and duration of basketball participation were associated with the occurrence of dental trauma. Female players demonstrated higher odds of sustaining dental injuries compared to males (OR = 4.28; 95% CI: 1.75–10.49;  $P = .001$ ). Similarly, longer playing experience was associated with increased odds of dental trauma,

particularly among players with more than five years of participation (OR = 6.38; 95% CI: 1.63–24.96; P = .008).

Given the relatively small sample size and wide confidence intervals, these findings should be

interpreted cautiously and considered exploratory rather than confirmatory (**Table 4**)

**Table 4: Logistic regression model determining risk factors for Dental Injuries in Syrian Basketball athletes**

Variables	Categories	P-value	OR	CI95%	
				Lower	Upper
Gender	Male	Reference			
	Female	.001	4.278	1.745	10.485
Basketball playing experience	Less than 1 year	Reference			
	1 to 5 years	0.031	3.498	1.118	10.943
	More than 5 years	0.008	6.376	1.629	24.962

\*: a significant difference.

OR: Odds Ratio

CI: Confidence Interval.

**Discussion**

Basketball is among the most widely played sports globally, and as a contact sport, it poses a considerable risk of orofacial and facial injuries, particularly during competition (17). Despite this, few studies have investigated basketball players, especially in Syria, where young athletes may be particularly vulnerable due to both their age and the nature of the sport (22). For this reason, the present study targeted participants aged 7–16 years, encompassing childhood and adolescence. In contrast to previous research conducted in older populations using online surveys, this study required face-to-face data collection to appropriately address the younger cohort.

The findings of this study revealed that 59% of young basketball players had sustained at least one traumatic dental injury (TDI), with dental concussion and tooth fractures being the most frequently reported types. These observations are consistent with prior studies that characterize basketball as a high-contact sport associated with a substantial risk of impact-related injuries (33) (34).

Nonetheless, cross-study comparisons remain challenging due to methodological variability, including differences in injury definitions, sample characteristics, data collection procedures, competition levels, and publication standards (35). In line with the current findings, Frontera et al. reported that 50% of a cohort of 388 male Brazilian basketball players had sustained orofacial trauma, with 69.7% of these cases classified as dental injuries (17). In Portugal, a

prevalence of 73% was reported among basketball players, a figure possibly influenced by the broader range of ages and skills represented in that cohort (36). Similarly, Azodo et al. (37) found that 62.8% of 156 basketball players experienced oral or facial trauma during play.

This cross-sectional study employed questions adapted from the International Association of Dental Traumatology guidelines and prior research to evaluate young athletes’ knowledge of first aid for TDIs (30) (32).

Given that timely and appropriate first aid is critical in the management of TDIs—and immediate access to dental care is not always feasible—awareness among athletes and coaches is essential (22) (32). However, most participants in this study lacked basic knowledge. Awareness of immediate tooth replantation following avulsion was low, and many participants selected inappropriate transport media. These findings are in line with previous research highlighting insufficient first-aid knowledge among young athletes (37) (38). From a pediatric dentistry perspective, this underscores the importance of early education, as timely and appropriate management of TDIs during childhood is critical for preserving permanent dentition and preventing long-term functional and psychological consequences.

The use of mouthguards represents one of the most effective preventive measures against traumatic dental injuries (31). Despite this, the present investigation identified a markedly low prevalence of regular use. These findings mirror

those of prior international studies that have documented similarly low levels of mouthguard adoption, even in contexts where awareness is relatively higher (20), (39), (40). Comparable evidence from systematic reviews further confirms that athletes frequently exhibit insufficient awareness of the benefits of mouthguard use, while coaches and trainers often fail to consistently encourage their implementation (41) (42). The barriers identified in the present study, such as the perception that mouthguards are unnecessary, discomfort during use, and lack of encouragement from coaches, are consistent with those reported in previous research (43) (44). These findings highlight the influence of behavioral, social, and organizational factors on preventive practices.

From a pediatric dentistry standpoint, dental professionals have a crucial role in addressing these gaps. Early preventive counseling, anticipatory guidance, and education regarding both emergency management and mouthguard use during routine dental visits may enhance awareness among children and adolescents. Furthermore, collaboration between pediatric dentists, coaches, and sports organizations may facilitate the integration of oral injury prevention strategies into youth sports programs.

Taken together, these results indicate that enhancing mouthguard use among adolescent basketball players requires a comprehensive approach incorporating educational initiatives, improved comfort and accessibility, institutional mandates, and the cultivation of positive social norms through peer modeling.

In contrast to multiple prior studies reporting higher injury rates among male athletes (45), (46), (47), the present analysis identified female players demonstrating higher odds of reporting TDIs. This disparity may be explained by sex-specific anatomical and physiological characteristics, lower utilization of protective devices such as mouthguards, and differences in style of play or collision mechanics that may increase vulnerability to injury.

Similarly, longer duration of basketball participation was associated with an increased likelihood of dental trauma, which is consistent with previous studies reporting a positive

association between cumulative sports exposure and injury prevalence (33) (45), (48), (49). This observation is plausibly attributable to cumulative exposure during prolonged training and competition, coupled with potential declines in adherence to established safety measures over time, rather than an inherent increase in risk, and causal relationships cannot be established due to the cross-sectional nature of the study.

Interestingly, demographic factors were not significantly associated with mouthguard use. This suggests that misconceptions regarding their necessity and protective value are widespread, affecting athletes across different groups. Consequently, educational initiatives promoting mouthguard use should be broad in scope, addressing athletes of all ages, sexes, and levels of experience.

To date, no published studies have specifically examined first-aid knowledge and mouthguard use among youth basketball players, particularly within Syria. Previous research has predominantly centered on adult populations, often addressing sports-related oral injuries and general oral health awareness while devoting limited attention to first-aid practices following such injuries.

The logistic regression analysis provided exploratory insight into potential factors associated with dental trauma. However, the relatively small sample size and wide confidence intervals limit the strength of inference. These findings should therefore be interpreted as indicative trends rather than definitive predictors, highlighting the need for larger, multicenter studies to confirm observed associations.

Several limitations should be considered when interpreting the results. The cross-sectional design precludes causal inference, and the study was conducted in a single urban setting, which may limit generalizability. Data were self-reported and may be subject to recall bias or misclassification. Additionally, the exclusive focus on dental injuries may underestimate the broader burden of orofacial trauma. Despite these limitations, the study addresses a clear gap in the regional literature and provides valuable baseline data to inform future preventive and educational interventions.

To achieve a more comprehensive understanding of awareness and attitudes toward traumatic dental injuries (TDIs), future research should incorporate perspectives from coaches who work with youth athletes, as well as parents. Their inclusion may provide valuable insights into the broader social and educational context influencing injury prevention and response. Furthermore, the execution of multinational studies is recommended to enable cross-cultural comparisons, thereby identifying regional variations in knowledge, behavioral practices, and

**Conclusion:**

This study demonstrates limited awareness and preparedness regarding sports-related dental injuries among children and adolescents participating in youth basketball. A high prevalence of traumatic dental injuries was observed, affecting more than half of the players, with injuries reported more frequently among female players and those with longer basketball participation.

These findings underscore the need for targeted preventive and educational interventions for young athletes. Coaches and sports organizations should actively promote dental safety measures,

preventive strategies associated with sports-related dental trauma.

In conclusion, basketball players demonstrate limited awareness of dental trauma and its management. Enhancing educational outreach to both athletes and coaches is essential to improve emergency response capabilities and foster positive attitudes toward preventive measures, particularly mouthguard use. Structured training programs and accessible resources are pivotal in reducing the incidence of dental injuries and ensuring timely, effective intervention particularly mouthguard use, and collaborate with dental professionals to improve prevention and emergency management of dental trauma in youth sports.

**Conflict of Interest Statement:**

The authors have no competing interests to report.

**Data availability:**

The data used to present the results in this study are available from the corresponding author upon request.

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