



# Awareness, opinion, and attitude about knowledge regarding sports dentistry amongst athletes and trainers in a sports academy in Pune - {A QUESTIONNAIRE STUDY}

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## ABSTRACT:

**Background:** Sports dentistry is an amalgamation of various aspects that include the treatment, prevention, education and research in which sports and dentistry are considered altogether [1]. It is one of the recent and most forthcoming fields in dentistry that deals with the management and prevention of sports-related orofacial injuries and associated dental disorders. This article will talk about the awareness and opinions that a sports related individual has on what is included in sports dentistry, what exactly does it offer and how is it implemented in their lives; along with awareness about usage of certain preventive appliances such as mouth guards, head gears, face gears, helmets etc.

**Aim and objectives:** To assess the level of awareness and attitude amongst athletes of sports academy in Pune regarding knowledge about sports dentistry.

The results of this study shall be utilized to assess the need of awareness programs amongst sports academies and treatment workshops by dentists to help serve the community.

**Result:** The study was conducted by recording the responses of 302 participants through a questionnaire study. The response rate was 100%. The results have been calculated on the basis of three aspects that are knowledge, attitude and practice of the athletes and trainers.

**Conclusion:** From this study it is brought to notice of players and other individuals including the trainers etc. how important the knowledge on prevention and management in sports dentistry is.

**Keywords:** Sports dentistry, mouth guard, orofacial injury and trauma, awareness, prevention.

## INTRODUCTION:

As we know that nowadays lifestyle has really taken a toll on our health; and there are some diseases that are of lifestyle disorder origin- like diabetes and hypertension. This is so because lifestyle these days is stressful in a way and there are many factors leading to obesity. These reasons have led to lifestyle disorder diseases due to which the need for improving health has become a priority for most people. Especially after the breakdown of the COVID pandemic, people have gotten much more aware and have become more concerned about their health and well being. And sports happen to be one of the best ways to manage a healthy life. Hence, the number of individuals participating in sports has increased; the major reason being 'health'.

Other reasons include one's passion and interest in a particular sport, pleasure, relaxation, motivation, competition etc. However, with rush of adrenaline comes risk for traumas and injuries. Specifically the ones of dental origin as sports activities are six times more risky as compared to work related accidents and three times more risky than road accidents <sup>[2]</sup>. Falls and collisions can cause some serious orofacial trauma <sup>[3]</sup>. It is very important for an individual who indulges in any sort of contact sport to be aware and have proper knowledge regarding sports and prevention from its accidents. Dento-alveolar and orofacial injuries are the most common type of injuries during participation in contact sports <sup>[4]</sup>.

About 30 million youth participates in organized sports programs <sup>[5]</sup>. The main link between sports and dentistry are the traumatic dental injuries that are associated with it <sup>[1]</sup>. Dento-alveolar injuries are not only painful but can also play a role in hampering aesthetics of the player. In order to decrease or minimize these type of situations, various intraoral and extraoral devices are being recommended. In this article we have spoken about devices such as mouth guards, face gears and helmets. Each of which have their own benefits and indications. Using any of these mentioned devices significantly decreases the risk of orofacial and dental traumas or injuries.

The knowledge regarding uses, indications, benefits and effects of these devices and prevention methods should be given in sports academies. The senior professionals who have been unaware about these methods due to lack of resources should be updated. The trainers and trainees should be aware of everything regarding this because they should be mentally prepared to know what precautions should be taken and how to manage any dento-alveolar injury situation in case any emergency is required. Educational programs should be conducted for this purpose. These kind of informational sessions keep spreading awareness to more and more sports people and also keep updating one on any newer methods that can be got into practice.

So far everything about prevention in sports dentistry is spoken; but an important aspect of sports dentistry is the management of any such trauma. This is where the dental faculty comes into light. Out of injury to any part of the body, injury in the orofacial region is very different and can and should best be handled only by a dental professional. But sometimes, immediate emergency care is required and hence the fellow players or team should also have knowledge regarding how to handle such situations.

Hence, we have carried out this study, to assess the level of awareness, attitude and opinion amongst athletes of sports academy in Pune regarding knowledge about sports dentistry. To add more light on what the preventive measures in dentistry should be used, we have spoken about the following preventive devices:

### **Most of the preventive measures used in sports dentistry:**

**Mouthguards:** Mouthguards are preventive devices that are worn on dental arch by the sports player. It has multiple uses. Mouthguards can be fabricated in different ways and there are different types of mouthguards. They are made of polyvinyl-acetate-polyethylene copolymer and polyvinyl chloride <sup>[1]</sup>.

Classification for athletic mouth guards as follows

Type I - Stock Mouth guards- readymade mouthguards. Least preferred.

Type II - Mouth formed mouth guards. Also known as boil and bite mouthguards.

Type III - Custom fabricated (over a dental cast) mouth guards. Most preferred. Best fitting, most comfortable and custom designed <sup>[6]</sup>.

**Helmets:** Helmets are a protective device worn over the head by the player. It protects the player's scalp, head, skull and the skin on top of the head from. The ears are also protected from abrasions, contusions and lacerations <sup>[7]</sup>. In general, helmet protects the brain and the central nervous system from direct trauma that could lead to concussion, hemorrhages, unconsciousness, brain damage, paralysis and death <sup>[8]</sup>.

**Face Gears:** Face gears are a protective device worn over the face by the player in order to protect the face from injuries to the mouth, nose, eyes, nasal pyramid and zygomatic arches <sup>[7]</sup>. Different types of face gears can

be manufactured from different types of materials such as plastic, rubber tubing, welded steel, or aluminum and they can be of different diameters which are generally covered with a coating of vinyl plastisol<sup>[9]</sup>.

## MATERIALS AND METHODS:

A questionnaire based study/survey is conducted amongst sport-related individuals of Azam Sports Academy, which is a sports academy in Pune (city), Maharashtra (state), India to assess their awareness and opinions on knowledge regarding sports dentistry. The study was conducted for a wide range of age groups i.e. for athletes, trainers and sports related individuals of which students and athletes' ages ranged from 10 to 30 years and trainers' ages ranged from 30 years and above. The questionnaire consisted of two parts. The first part included demographic details (address, name, sex, age, sports played by the athlete) of the individual and the second part included 29 questions regarding awareness, opinions, prevention measures and knowledge related to sports dentistry. Out of those 29, there were 12 knowledge based, 8 attitude based and 9 practice based questions. Google form (Google LLC, Mountain view, California, United States) link containing the questionnaire was sent to 'Azam Sports Academy' and the responses were recorded. We used Microsoft Excel (2016) spreadsheet to collect the data and using descriptive statistics (number and percentage), statistical analysis was done.

We recorded 302 responses which were inclusive of responses from sports students/contestants, freshers to sports, trainees and trainers. We carried put a pilot study of 20 participants. We calculated the reliability statistics and the Cronbach's alpha value came out to be 0.602. The validity and reliability were ensured. The data of the main study of 302 responses is put in a tabular form below.

## RESULT:

The study was conducted by recording the responses of 302 participants through a questionnaire format on the google forms. The response rate was 100%. Male participants (57.9%) were accounted more than female participants (42.1%) who are demonstrated in a graphical form in figure 1.

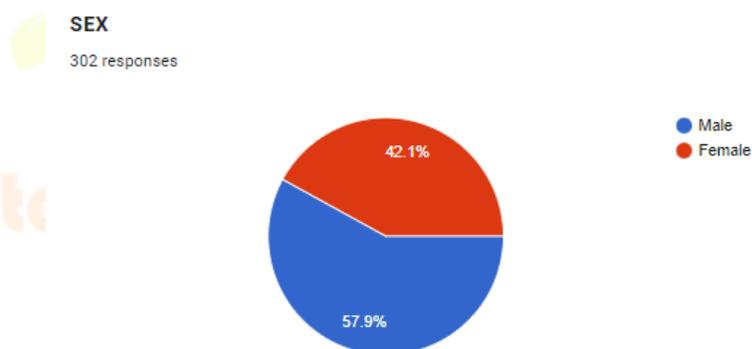


Figure 1. Distribution of participants according to gender.

Out of the total 302 responses, (54.6%) were of age ranging between 20 – 30 years old, (33.1%) were of age ranging from 10 – 20 years old, and rest were of 30 years and above. The distribution of the participants according to age is demonstrated in figure 2.

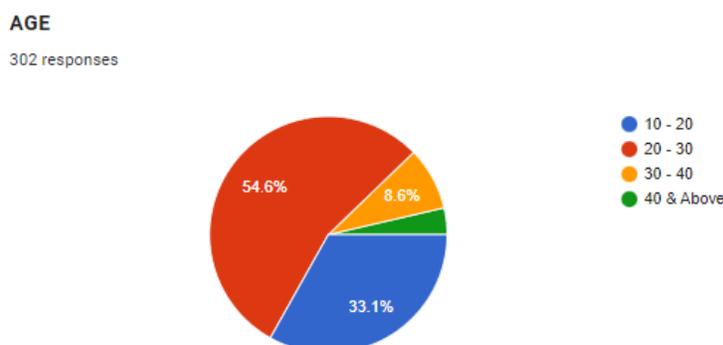


Figure 2. Distribution of participants according to age.

According to the study, it has been found that (39.40%) of the individuals think that boxing is the sport that is most prone to dental injuries or trauma followed by basketball (29.80%), football (12.58%), hockey (10.26%) and cricket (7.94%) respectively. When it comes to the management of such injuries, (60.6%) athletes believe that ice should be applied immediately after an injury occurs and (34.4%) are of the belief that external bleeding is best controlled by application of tourniquet above the wound. However (26.2%) believe that direct pressure and elevation also helps in management. When asked about how the tooth fragment should be transported to the dentist, (34.8%) agreed for saliva as the best means of transport. A large number of players i.e. (57%) are of the view that airway, breathing and circulation of the patient should be checked for when the player collapses after clashing heads with an opponent. Regarding the aspect that what to do if a tooth becomes mobile while playing, (69.5%) of participants do believe it should be got to the notice of the dentist first, and (70.7%) think that in case of a knocked-out tooth, they should seek the help of a dental professional and (14.7%) think that they should rush to the hospital. Regarding how urgently is the professional dental help needed after an injury, within 15 minutes is the response of (39.4%) most of the individuals.

When asked about the benefits of mouthguards, (58.9%) have chosen all i.e., prevention of jaw fracture, protection of oral cavity and prevention of fracture of teeth. And when asked about which type of mouthguards should be used and why, (41.7%) think that custom fit mouthguards should be used because it provides more protection and (38.1%) think that they prevent from jaw fractures.

(38.4%) of the participants agree that they should be briefed about dental injuries during formal expert training sessions. (50%) participants that agree that contact sports are risky and dangerous and hence, carrying a first aid kit is necessary is strongly agreed by (63.2%) of the participants.

Talking about education regarding knowledge provided by their institute on sports dentistry (60%) participants agree on the fact that the knowledge provided by the institute on dental traumas while playing sports is not sufficient and impactful. Also (38.7%) sports individuals strongly agree that the institute should have a policy of wearing face gears and mouth guards. But, there are a large number of athletes and trainers (46%) that have not been informed or trained about dental traumas or injuries. Corresponding to that (59.9%) players would like to attend educational programs on management of the same.

Regarding the experience of facing a dental trauma while playing sports (53.6%) of participants agree to the fact that they have experienced dental trauma while playing. (45%) of the players sometimes wear mouth guards while playing sports out of which (31.5%) of them use custom made mouth guards. Most of the players (39.7%) do not include the use of eyewear while playing sports. Face gears are often used by (32.8%) of the players.

When questioned about the interaction with any medical & dental experts regarding knowledge about safety measures, (12.7%) have never interacted with any professional whereas (52.3%) sometimes only seek professional help. (31.5%) agree that they gained information about dental traumas and injuries and their management through information leaflets.

#### Tabular representation of statistical analysis of the study.

Sr.No	Questions	Responses	N	%
1	Which sport is most prone to dental injuries or trauma?	Boxing	119	39.40
		Hockey	31	10.26
		Football	38	12.58
		Cricket	24	7.94
		Basketball	90	29.80
2	Ice should always be used ____ after an injury occurs	Immediately	183	60.6
		After 1-2 hours	59	19.5
		During the first 12 hours	28	9.3

		During the first 24 hours	32	10.6
3	According to you, what are the benefits of mouth guard?	Prevents fracture of jaws	41	13.6
		Protects oral cavity	53	17.5
		Prevents fracture of teeth	30	9.9
		All of the above	178	58.9
4	External bleeding is best controlled by	Application of ice	57	18.9
		Compression and rest	61	20.2
		Application of tourniquet above the wound	105	34.4
		Direct pressure and elevation	79	26.2
5	In case of broken tooth, how should the fragment is transported to the dentist?	In a napkin	73	24.2
		In a dry container	70	22.8
		In water	54	17.9
		In saliva	105	34.8
6	A player collapses to ground after clashing Heads with opponents, your first action would be?	Remove player from field	27	8.9
		Determine Responsiveness	47	15.6
		Check for airway, breathing & circulation	172	57
		Call for help	56	18.5
7	If a tooth becomes mobile/loose while playing due to dental trauma, what would you do?	Leave it as it as	48	15.9
		Consult a dentist	210	69.5
		Remove it forcefully	19	6.3
		Surf the internet	25	8.3
8	How urgently professional dental care is needed after injury following first aid?	Within 15 min	119	39.4
		1 hour	53	17.5
		In a few hours	81	26.8
		In a day	39	12.9
9	In case of knocked out tooth whose help would you seek first?	Dental professional	213	70.7
		hospital	44	14.7
		physician	24	8
		Drug store	19	6.3

10	Why to use custom fit mouth guard?	Provides more protection	126	41.7
		Prevents severe dental injuries	117	38.7
		Can be worn over dentures	20	6.6
		Comfortable to wear	39	12.9
11	What traumas a mouth guard protects from	Lacerations	27	8.9
		Mouth impact	93	30.8
		TMJ traumas	36	11.9
		Concussion	31	10.3
		Jaw fractures	115	38.1
12	When according to you should one be treated for the about the dental injuries in sport?	Before training	66	21.9
		During formal expert training	116	38.4
		Before joining the course	30	9.9
		Before selection of sport	90	29.8
13	Carrying a first aid kit is necessary	Strongly agree	191	63.2
		Agree	76	23.2
		Neutral	26	8.6
		Disagree	13	4.3
		Strongly disagree	2	0.6
14	Participating in contact sport is risky and dangerous	Strongly agree	63	20.9
		Agree	151	50
		Neutral	44	14.6
		Disagree	33	10.9
		Strongly disagree	11	3.64
15	It is important to have educational programs regarding management of dental traumas	Strongly agree	110	36.4
		Agree	119	39.4
		Neutral	57	18.9
		Disagree	13	4.3
		Strongly disagree	3	0.9
16	The knowledge provided by your	Strongly disagree	60	19.9

	institute on dental traumas while playing sports is sufficient and impactful	Agree	99	32.8
		Neutral	61	20.2
		Disagree	28	9.3
		Strongly disagree	54	17.9
17	Your institute should have a policy of wearing face gears and mouth guard	Strongly agree	117	38.7
		Agree	108	35.8
		Neutral	42	13.9
		Disagree	27	8.9
		Strongly disagree	8	2.6
18	Have you ever been trained/informed about dental traumas or injuries?	Yes	93	30.8
		No	139	46
		Maybe	49	16.2
		I don't know	21	7
19	Are you satisfied with your knowledge on management on dental trauma?	Yes	102	33.8
		No	102	33.8
		Maybe	79	26.2
		I don't know	19	6.3
20	Would you like to attend an educational program on management of the same?	Yes	181	59.9
		No	47	15.6
		Maybe	53	17.5
		I don't know	21	7
21	Do you experience dental traumas while playing sports?	Always	67	22.2
		Sometimes	162	53.6
		Often	26	8.6
		Never	47	15.6
22	Do you use a mouth guard while playing sports?	Always	42	13.9
		Sometimes	136	45
		Often	33	10.9
		Never	91	30.1
23	If yes, what type of mouth guard do you use?	Over the counter	65	25.6
		Custom made	80	31.5
		Boil and bite	67	26.4
		Double mouth guard	20	7.9
		Lip protector	22	8.7
24	Do you use an eye wear while playing sport?	Always	51	16.9
		Often	106	35.1

		Sometimes	25	8.3
		Never	120	39.7
25	Do you use a face gear while playing sports?	Always	90	29.8
		Often	99	32.8
		Sometimes	39	12.9
		Never	74	24.5
26	How often do you carry a first aid kit?	Always	78	25.8
		Often	98	32.5
		Sometimes	83	27.5
		Never	43	14.2
27	Do you interact with medical and dental experts regarding safety measures?	Always	52	17.2
		Often	158	52.3
		Sometimes	53	17.5
		Never	39	12.9
28	What equipment do you use to prevent dental trauma while playing sports?	Face gear	35	11.6
		Mouth guard	68	22.5
		Helmet	85	28.1
		Both A & B	90	29.8
		Both B & D	24	7.9
29	How were you informed about traumas and injuries?	Through a seminar	45	14.2
		Through information leaflets	95	31.5
		Through seniors	45	14.2
		Personally from experts/coaches	58	19.2
		Other means	59	19.5

## DISCUSSION:

Sports dentistry is nowadays one of the upcoming branches of dentistry. It deals with prevention of traumas caused by sports related activities, enlightening people about its benefits and importance, management of orofacial and dento-alveolar injuries and the emergencies related to it. As spoken earlier, people now want to move towards a healthy lifestyle day by day; this has significantly increased the number of people involved in sports. Moreover after the entire pandemic situation people have become more aware about ways to stay healthy and fit.

Based on this study we found out that (60.6%) of the participants are of the view that when it comes to management and practice, ice should immediately be used after an injury has occurred. According to previous researches and scientific explanation it holds true that cold therapy as an immediate treatment to induce analgesia following acute soft tissue injuries has been regularly used<sup>[10]</sup>, which ensures us that participants have

correct information. As stated One of our aims in this study was to also assess the awareness of use of mouth guards and protective appliances amongst the athletes. It was found out that (45%) players sometimes used mouth guards and (13.9%) always used mouthguards. On a regional or geographical scale the used of mouth guards varies significantly. In the northern and western countries the use of protective devices is over 60% whereas if compared to other metropolitan cities in India like New Delhi, the usage is 20.9% <sup>[11]</sup>. It is true that a lot of athletes in other countries do not use mouthguards; through studies it is evident that many are aware of the usage but do not get it into practice <sup>[12-15]</sup>. When we talk about the management part 34.8% participants believed that saliva is best medium for the transportation of a broken tooth fragment. Also according to the International HealthCare Research Journal, after saline saliva is the best medium for the transportation <sup>[16]</sup>.

Almost 60% of the individuals would like to attend educational programs that give them an insight to sports dentistry. This was one of the main reasons why this study was conducted. This study shall be utilized in the future to spread knowledge and awareness about prevention of dental injuries by using various protective appliances and management of orofacial and Dento-alveolar injuries in emergency care.

## CONCLUSION:

Trauma to the orofacial or Dento-alveolar region directly hampers a lot of aspects in one's life. There is threat to ones being as face is a critical part of the body for existence; anything that goes wrong with it disturbs the bodily functioning. We can't forget how important aesthetics are these days. Injuries in the region lead to a toll in a player's confidence and social status. Considering all things, the importance of sports dentistry is being brought to notice. Through this survey study, we assessed the awareness and opinion that sports individuals have regarding knowledge about sports dentistry.

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