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Cross sectional survey to assess the availability, accessibility in providing medical and dental services for traumatic injuries and knowledge of sports coaches, in sport academies of Hyderabad city, India

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Abstract

Background: A sport's academy is a specialized training field for sport activities. Traumatic injury is a term which refers to physical injuries of sudden onset and severity, which requires immediate medical attention.

Aims and Objectives: To assess the availability, accessibility and knowledge of coaches to medical and dental services in sports academies of Hyderabad city.

Methodology: A cross sectional survey was conducted on coaches of sports academies in Hyderabad city, using a pretested and self-structured questionnaire given to coaches and the collected data was subjected to statistical analysis.

Results: A total of 101 coaches participated from 21 types of sports in various academies. About 51.1% of coaches encountered traumatic injuries frequently in athletes. Only 17.8% of sports academies had a physician and only 2% had appointed a dentist at sports academy. 89.1% of coaches told they had to travel a distance of less than 5kms to hospital. 75% of the coaches had received training in first aid and management of injuries. 59.4% of the coaches had knowledge in Basic Life Support. Only 15.8% of coaches promoted the use of mouth guards by athletes.

Conclusion: It was found that the sports academies were having insufficient medical and dental care services and there is a need for increasing the healthcare facilities at sports coaching academies of Hyderabad. Coaches had good knowledge in managing the injuries but need periodic training for performing at emergencies.

Keywords: Athletes, coaches, traumatic injuries, sports academies, or facial injuries, first aid

Introduction

The word 'sport' is derived from a combination of words meaning 'to carry away from work'. In the current usage, sport has come to encompass a wide range of human activities, skills, and accomplishments that are not part of routine life [1]. Sports are the most common and widespread recreational activities and a common cultural element of modern societies. In spite of protective devices, injuries during sports appear to be unavoidable, and upto 30% to 40% of all accidents in children and adolescents occur during sports participation [2]. Traumatic injuries not only pose a health risk worldwide, but are also regarded as serious social problems. Traumatic sports injury refers to physical injuries of sudden onset and severity which require immediate medical attention as a result of participation in sports. Dental trauma is considered a major public oral health problem because of the high prevalence and impact caused in daily life. Sports practices increases the risk of traumatic injuries such as dental trauma [3].

Dental traumatic injuries are the fourth most common injuries among 7-30 years of age group, of which prevalence of dental injuries being 60% [4, 5]. In a study conducted by Hootman *et al.* [6] more than 50% of all reported injuries were in the lower extremity with knee and ankle and injuries to the upper extremity being about 20%. In a study conducted by Zubero *et al.* [7] injuries of lower extremities accounted for about 78.6%. Sports are a common cause of dental and or facial injuries and dental accidents which persists with long term effects.

These complications can be avoided with adequate education and preventive measures, such as use of mouth guards, especially in activities that increase the risks of blows and falls [1]. The World Dental Federation recommends that national dental association inform the public and oral healthcare professionals of the benefits of sports mouth guards [8]. Many surveys have found that athletes experience a dental injury during participation in sports at least once in their lifetime [9]. In general, the injured person will be taken care by the parents and school teachers. But, in the case of children who are getting professional training the first person to attend to them is the sports coach. A coach in sports is a physical instructor involved in the direction, instruction and training of the operations of a sports team or of individual sports people. They also keep athletes safe while playing. Coaches must undergo a formal basic medical training which involves first aid training. However, the sports board in the country is failing to explicitly recommend the possession of first aid qualification in the coaches.

Injured athletes have to be taken care in the coaching area for the speedy recovery. Administration need to consider the parental concerns of athletes regarding their medical and dental safety measures and about the services to treat the injured one. In a study conducted by Lehl G [10], 90% of coaches addressed the concerns of parents regarding sports injuries and 77.7% observed that such concerns plays a significant role in athletes career for continuing it. In emergency, when athletes need to be taken to nearby hospital easy access to hospital should be present, nearer the distance to the hospital lesser would be the misery to players.

Hyderabad city has an ancient history in sports. It has been host to many national and international sporting activities. Many popular sports are played in the sports academies and injured athletes need to be attended immediately. As not much literature was found in this context, the present study was undertaken with an objective to determine the information regarding the health care availability among injured athletes in sports academies of Hyderabad and also about the accessibility of the healthcare in and around the sports academy. Also the knowledge of coaches in aspects of prevention and injury management of athletes was assessed in the Hyderabad city.

Methodology

A survey was conducted in Hyderabad city in government and private sports academies of Hyderabad city, Telangana, India. This was a descriptive, cross sectional, epidemiological survey conducted among coaches of sports academies. In 68 registered sports academies, 101 coaches were approached, who were coaching in 21 types of sports. The sports administrators who granted permission to conduct the study and coaches who showed willingness to participate were included in the study. Sports academies which were closed temporarily at the time of the study were excluded. A pilot study was carried out aiming to test the feasibility of conducting the survey and understanding of the self-

structured questionnaire. It helped in testing the ease of understanding of the questions and clearing the ambiguities in questions or format of the questionnaire. Ethical clearance was obtained from the Institutional review board. Prior permission to conduct the study was obtained from director of Sports Authority of Telangana from Lal Bahadur stadium, Hyderabad city, Telangana. Verbal consent was taken from the coaches prior to administration of questionnaire. A specially designed, questionnaire was used to know the medical and dental facilities at sports academies and knowledge of coaches on the management of traumatic injuries. The purpose of the study was explained to the coaches of the academies and who were willing to participate were given the questionnaires. The questionnaire consisted of 16 closed ended questions. The questionnaire was divided into 3 parts, first part dealt with basic details of athletes and sporting activity. Second part contained the questions of availability and accessibility of the medical and dental services. Third part consisted of knowledge, attitudes and practices in coaches in management of traumatic injuries of athletes. Adequate time was given to them to answer the questionnaire and it was collected back on the same day. Collected data was subjected to statistical analysis using descriptive statistics in statistical package for social science (SPSS) version 20.0. Microsoft word and excel were used to generate tables.

Results

The present study was conducted on assessment of availability and accessibility of medical and dental services for traumatic injuries in sports academies of Hyderabad city. Majority of the players enrolled in sports academy were in the range of 7 to 21 years. Only 14 % of coaches collected the medical fitness certificate when admitting them. 40.6% told that the academy had a facility to coach for more than 3 sports. 49.5% sports train single sports, 5.9% train for 2 sports. Majority of the sports academies i.e 53.5% had professional and amateurs players undergoing training (Table 1). When asked about the frequency of traumatic injuries 56% players encountered 88.1% of injuries occurred in the regions other than head and neck. 18% of academies had a physician for treating emergency injuries and only 2% of the academies had a dentist. 20% of sports academies had a physiotherapist. 60% of injured athletes were taken to nearby hospital for the treatment. 74% of injured were taken to the hospital in the vehicle of the academy and ambulance services were used by 20%. Athletes own vehicle was used by 5% of the academies. In 1% injured athlete was carried by the designated hospital vehicle. Distance to the hospital was upto the range of 5 kilometers for 90% of the academies. (Table 2)

When asked about the knowledge of coaches in First aid, 75% had been trained. Knowledge about Basic Life Support (BLS) in the coaches was about 60%. About 99% of coaches were aware of the essentiality of immediate action for any dental injury. Coaches recommending the use of mouth guards in athletes were a meager 15% in contact sports (Table 3).

Table 1: Basic information of the athletes

1.Age group of athletes enrolled in the academy	Frequency (n)	Percentage (%)
7 - 18 years	12	11.90%
7-21 years	50	49.50%
Greater than 21years	5	5%
All age groups	34	33.70%
2.Medical fitness certificate for is taken from athletes		
Yes	14	13.90%

No	86	85.10%
3.Number of sports coaching available in the academy		
One	50	49.50%
Two	6	5.90%
Three	4	4%
More than three	41	40.60%
4.Type of player receiving coaching are		
Professional	18	17.80%
Amateur	29	28.70%
Both	54	53.50%

Table 2: Information of availability and accessibility of medical and dental services

1. Kind of injuries which are often experienced in the athletes	Frequency (n)	Percentage (%)
Head injury	3	3%
Dental injury	1	1%
Other than head & neck	88	88.10%
Only lacerations in soft tissue	8	7.90%
2.Emergency injuries in the academy are taken care by		
Physician	18	18%
Dental surgeon	2	2
Physiotherapist	20	19.40%
Taken to nearby hospital	60	60.40%
3.Mode of transport of the injured athlete to hospital		
Own vehicle of the academy	74	73.30%
Ambulance service	20	21.80%
Designated hospital vehicle	1	1%
Player's own vehicle	5	5%
4.Distance of travel to hospital from sports academy		
Within 5 kilometers	90	89.10%
5 to 10 kilometers	8	7.90%
10 to 20 kilometers	3	3%

Table 3: Knowledge, Attitude and practice of prevention and management of injuries of coaches

1. Coaches who received training in First Aid	Frequency (n)	Percentage (%)
Yes	76	74.30%
No	25	24.80%
2. Coaches who had knowledge of Basic Life Support		
Yes	60	59.40%
No	40	39.60%
3. Are you aware that immediate action is essential for successful outcome of dental injuries		
Yes	100	99.40%
No	1	1%
4. Coaches who recommend the use of mouth guards in athletes		
Yes	15	14.90%
No	85	84.10%

Discussion

A physically active lifestyle is important for all age groups. The main reasons to participate in sports and physical activity are many, such as pleasure and relaxation, competition, socialization, maintenance, and improvement of fitness and health. Sports participation also carries a risk for injuries, which may, in some cases, lead to permanent disability^[12]. In children, sports activities were found to be responsible for 13% of overall oral trauma. With increased incidence of oro-facial injuries in sports, there is a greater concern for the emergency and long-term care of oro-facial injuries and usage of preventive measures like helmets, mouth guards in the sports.^[14] An essential component of any injury prevention program is an appreciation and understanding of the risk factors and determinants that can be predictive of these undesirable events. There are two broad categories of injury risk factors in sports. These are extrinsic risk factors and intrinsic risk factors. Extrinsic risk factors are those potential predictors of injury that are independent of the individual. These are essentially the injury predictors that are related to the type of activity demanded by a particular sport. Intrinsic

risk factors are the predisposing characteristics present in the individual sports participant. These are the biologic and psycho-social characteristics that may predispose a particular person to a particular kind of sports injury.

Sports coaches play an integral part in the sportsmen development. Good coach can influence on the athlete's life which can go way beyond the sporting field. It is true that one of the key reasons behind utilizing a sports coach is to improve sporting performance. Coaches are not only called upon to improve their athlete's performance but also encourage positive thinking, teamwork, resilience, a good work ethic, and respect and love for the game.

Sports injuries can counter the beneficial effects of sports participation at a young age if a child or adolescent is unable to participate because of the residual effects of injury^[10, 13]. In the present study, majority of players belonged to the age group of 7- 21years. A child is emotionally and physically ready for organized team play by the age of 6 or 7. As the age advances he would take part in sports of school and college. Until the age of 21, students spend their time majorly in different sports. Major recreation for combating stress in daily

life is sports so there is no specified age limit for sports.

A medical fitness certificate is a written statement from a physician or other medically qualified health care provider which attests to the result of a medical examination of a patient. An individual should be physically fit enough to take part in any sports events and all of the events. Many organized sports events require some form of medical certification to state that you are physically fit to participate. In the present study only 14% of coaches made medical fitness certificate mandatory from the players. Majority of coaches were not aware of various illness that do exist in players due to improper physical fitness. Systemic health condition of the athlete is also an essential part and must be considered by the coach.

In general, sports coaching centers provide coaching for a group of sports, which allows them to give coaching to numerous sportsmen. It even provides amateurs to play different sports according to their desire. In the present study, majority of sports academies were concentrating on single sport for coaching. Sports like Cricket, Football, Volleyball, Hockey etc, coaching requires lot of land area for coaching. City of Hyderabad being cramped enough for sports coaching might be the reason administrators were concentrating majorly on single sport coaching. Sports injuries are most unexpected and frequent. In spite of numerous precautions taken by the sportsmen, traumatic injuries do occur in both contact sports like Football, Ice and Field Hockey, Soccer, Wrestling, Basketball and noncontact Volleyball, Cricket, Tennis, Badminton, Squash, Golf, Bowling and sporting activities. In the present study, 56% of coaches frequently encountered the injuries. Non usage of protective devices, lack of technical skills of the coaches may results in injuries. Very few sports academies had medical and dental services. This is similar to the study conducted by Jennifer *et al*, where the frequency of injuries was more than 50%.

Sports academy must have an appointed doctor like physician, dentist or physiotherapist who takes care about the athletes sporting injuries. Sports authority of India must pass regulations regarding the availability of health services be made mandatory in sports academies at the government or private sector. Only 18% of the sports academies, which were in government sector had a physician. It is clear that private academies are lagging in providing the health care, and so regular inspections from sports authority of India are needed. In a similar study conducted by Lehl *et al*.^[10] 89% of coaches observed that players needed medical attention for their injuries. Only 2% of the academies had a dentist which shows that they give least importance to oral injuries prevention and management. Sports academy must be established in an area that is nearest to the health services in times of emergencies to the athletes. Health care services must be available at the nearest distance. It saves the time of travel to the hospital at the time of traumatic injuries. In the present study, 60% of the injured athletes were taken to nearby hospital at a distance of 5 kms from sports academy. Inadequate health care in the sports centers makes them depend on nearby hospitals. Time factor would play a crucial role in saving athletes from an irreversible damage. Minimum the distance to hospital, minimum would be the agony of the player. Immediate attention to dental injury also helps in successful outcome of dental treatment. It is noticed that, some of the sports academies were having a memorandum of understanding with the nearby hospital.

Hospitals near to the sports academies must be equipped with the infrastructure, so that the athlete need not be shifted to

other hospital and can receive comprehensive treatment. Dental setup must be present separately to take care of all the oral complaints of the players. In the present study, about 90% of the sports academies were situated near hospitals with necessary infrastructure. Only 50 % of the nearby hospitals were having separate dental wing with a dentist, which shows the sports administrators' dental negligence and carelessness in treating injured dento-alveolar injuries.

Coach should be in a position to perform basic first aid for a person in emergency before admitting in a hospital. He should be able to save the athlete who is unconscious due to sudden blows and hits in the game by performing Cardio Pulmonary Resuscitation (CPR). In the present study, 76% of the coaches had received training in first aid, and in the study conducted by Priya *et al*.^[11] only 50% of coaches had training. As our study was conducted in only registered sports academies which had a coach with a degree in injury management. In the present data, only 60% of the coaches had knowledge on BLS, and in a study conducted by Shresta *et al*.^[13] on knowledge of BLS on paramedical professionals is about 28%, as coaches might have received CPR training as a part of prevention and injury management. Occurrence of traumatic sports injuries are widely distributed in many areas of body like head, oro-facial injuries, hand and leg fractures, ankle and elbow dislocation and minor lacerations. In the present study, majority of injuries occurred in regions other than head and neck. Mainly sports were played by taking body as a support in achieving the points, so there were fractures majorly in hands and legs. It is mandatory that a sports academy must be attached with a vehicle resembling an ambulance for carrying the injured athletes to the hospital. Readily available vehicle would reduce the time lag in receiving the treatment for injured athletes. In the present study, when asked about the mode of transport which is used for carrying injured athletes, majority of sports centers used their own vehicle. This shows the administration's responsibility and gives a positive impression on the administrators on the healthcare of the players.

The thousands of hours that athletes spend practicing and competing increases the possibility of or facial trauma through contact or collision with sports equipments (bats, balls, and sticks), with the bodies of other participants, and with playing surfaces. A growing consensus is calling for mouth guard use and for dental professionals to improve the oral health of athletes. Holmes reviewed mouth protection among Scottish athletes and found that, although mouth guards were compulsory in some sports and were often worn by rugby and hockey players, athletes were generally unaware of the need for mouth protection^[14]. In the present study, 50% of coaches of contact sports recommended the use of mouth guards. Similarly in the study conducted by Correa *et al* shows that only 22% of physicians promoted the use mouth guards in players. As the present study was conducted in a metropolitan city like Hyderabad, awareness of coaches on mouth guards is higher. Majority of the dental injuries like avulsion, or facial fractures require quick attention for better outcome. All the coaches of different sporting activities, especially contact sports must require awareness programs regularly. In the present study, 99% of coaches were aware that dental injuries require immediate action for successful outcome, this shows that they are conscious about the treatments of dental injuries in terms of avulsion, dentoalveolar fractures etc. Limitation of the study is, it has depended with only verbal information about the frequency of the traumatic injuries reported by the coaches which may

result in recall bias (memory). Inclusion of registered sports academies, might result in the not being applied to the whole city. Future research has to be conducted on athletes in enquiring the availability of the health services in sports centres. Written records must be taken into consideration in measuring the count of traumatic injuries. Further survey must be conducted among all the sports centres all over the city.

Conclusion

There were meagre facilities for general and oral health care among injured athletes at sport academies. Majority of sports academies were within 5 kms to the hospital and attached with a memorandum of understanding for immediate attention to players. Knowledge of coaches in preventing and managing the injuries was good but competency to perform in emergency situation needs assessment. Periodic training and reinforcement about prevention and management of injuries is necessary. All the sports coaching centers must have a physician and a dental surgeon to prevent and manage injuries.

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