

RESEARCH ARTICLE



## Sports Injuries in Club-Based Adolescent Male Players: A Cross-Sectional Study

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### Abstract

#### Background and purposes:

Adolescent age is more vulnerable compared with an adult for a sports injury. Several sports-related factors are responsible for the injury. The purpose of the study is to explore sports injuries among club-based adolescent male players.

#### Methods:

The Cross-sectional study design was applied at different residence clubs in Dhaka city. A 201 male adolescent player age range 11-19 years with different categories included in this study. A self-structured questionnaire was developed, in which data were collected by face to face interview with the assistance of physiotherapist, coaches and trainers. Sports injury severity was graded and ranging by the Abbreviated Injury Scale (AIS). Data analysis was operated with Statistical Package for the Social Sciences (SPSS Version 20) and P-value employed as the level of significance ( $<0.05$ ).

#### Results:

Results indicated that the prevalence of sports injury was extremely high among Dhaka-based club adolescent male players. Injuries among cricket players were substantially high compared to other category sports. Some factors like warm-up training and BMI were the key causes of these injuries. Shoulder, hip/thigh, knee/legs and spine were the common prevalent sites of injury recorded in this study. Most of the injuries initiated as a moderate level of severity. There was a significant association to sports injury with BMI (p-value  $0.004 < 0.05$ ) and warm-up training (p-value  $0.007 < 0.05$ ). However, there was a highly significant relation found of sports injury with age ( $0.000 < 0.05$ ) and types of play ( $0.000 < 0.05$ ).

#### Conclusion:

Sports injuries are remarkably high in Dhaka-based club adolescent male players. BMI and warm-up training are the key factors for the injury. Injury awareness and proper fitness training may help to minimize the injury.

**Keywords:** Sports Injuries, Adolescent male players, Club-based, Factors

## 1 | INTRODUCTION

Injuries are the biggest challenges to all the players of the world. Many quality players are unable to participate in a great event because of being injured (1). This problem is more acute among Bangladeshi athletes. Sports injuries are having in the context of anatomical, physiological & psychological difference (2, 3). Injury profile varies as stated by the type of sports. However, acute injuries are more common in sports players (4). In Germany, about two-thirds of the injuries occur in soccer, handball, basketball, and volleyball players (5). Regular exercise improves body composition & cardiovascular health (6). Good physical fitness increases performance & reduces injury in the sport. An early sports injury (SI) can impair physical activity for the rest of one's life (7, 8). SI carries high direct and indirect costs, which can lead to early retirement from sport (2). SI may lead to reduced involvement in sport and associated morbidity, overweight/obesity and post-traumatic osteoarthritis of all causes (9). Direct injuries are commonly seen in sports such as fracture, dislocation, sprain, strain, wound, contusion, concussion & indirect injuries like overuse injury or pathological injury (10). The prevention of injuries is crucial from a sports medicine context. Nevertheless, an injury occurring at a young age can have short and long-term effects on both physical and mental health (11). The aim of the study was to explore the common SI and the associated factors among the male adolescent athletes playing different clubs in Dhaka city. Therefore, players will deal with the injury as well as take a preventive intervention.

## 2 | MATERIALS AND METHODS

### Study design and Participants

A descriptive cross-sectional study was conducted at Abahoni Limited, Sheikh Jamal Dhanmondi Club, and Kalabagan Cricket Academy located in Dhaka. A 201 Male adolescent registered players of different discipline were included in this study. Age range 12-20 years who had a minimum of 6 months of experience took part in this study. Investigators briefed

the subjects on the process and obtained written approval.

### Data Processing

Information was collected by a semi-structured questionnaire. Information on the following variables such as anthropometric features, sports and health-related information was generated in the questionnaire. Data were collected in the presence of players and injuries identified with the help of coaches, physiotherapist and trainers.

### Data Analysis

After the collection of data, the completeness, accuracy, and internal consistency of all interviewed questionnaire were checked and exclude missing or inconsistent data. Corrected data were entered into the computer. The data were analyzed by using the statistical software namely SPSS (Version 20) whereas Microsoft Excel 2007 was used to provide a graphical analysis of the information. AIS scale was used to measure the injury severity and graded and ranging by AIS1= minor, AIS2= moderate, AIS3=serious, AIS4= Severe, AIS5= Critical, AIS6= Maximal (untreatable). (12).

### Ethical Issues

The ethical review committee of State College of Health Sciences (SCHS) approved the protocol. An international ethical guideline for biomedical research involving human subjects was followed throughout the study (13). The investigator received written informed consent during data collection. Bangle language and it briefed to each respondent before data collection. All respondents informed that they are free to leave or to refuse to take part in this study at any time. The personal information of the respondents was kept totally confidential. The information given by the respondents was being analyzed

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# SPORTS INJURIES IN CLUB-BASED ADOLESCENT MALE PLAYERS: A CROSS-SECTIONAL STUDY

using code number so that nobody can identify them.

## 3 | RESULTS

Figure 1 reveals that nearly two-thirds (73%) of the respondents sustained sports injury and just about one-third (27%) of the participants informed having no sports injury.



**FIGURE 1:** Prevalence of Sports Injury (n=201)

Regarding anthropometric characteristics, most participants belong (43.3%) to the 14-16 years of age followed by 17-19 (35.8%) and 11-13 (20.9%) with a mean age of 16.46 ( $\pm 2.280$ ). Considering BMI, as shown in Table 1, more than half (9.2%) of the participants was reported by normal body weight followed by underweight (23.9%), overweight (5.0%), and obesity (2.0%).

**TABLE 1:** Anthropometric Characteristics

Age group (Years)	n(%)
11-13	42 (20.9)
14-16	87 (43.3)
17-19	72 (35.8)
Mean $\pm$ SD= 16.46 $\pm$ 2.280	
<b>BMI</b>	
<18.5 (Underweight)	48 (23.9)
18.5-24.5 (Normal weight)	139 (69.2)
25.0-29.5 (Overweight)	10 (5.0)
>30.0 (Obesity)	4 (2.0)

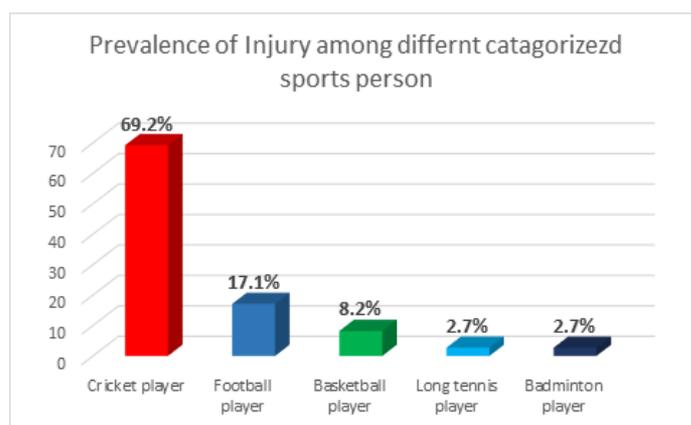
\*BMI(Body Mass Index)

Table 2 reveals that over half (69.2%) of the participants were cricket players accompanied by football

player (17.1%), basketball player (8.2%), long tennis player (2.7%), and Badminton (2.7%). Approximately two third (78.9) of the players documented 0-3 years of playing experience. Maximum (82.6%) participants informed 16-30 min of warm-up/cool-down timing.

**TABLE 2:** Sportsrelated information

Categories of Player	n (%)
Cricket player	101 (69.2)
Football player	25 (17.1)
Basketball player	12 (8.2)
Long tennis player	4 (2.7)
Badminton	4 (2.7)
<b>Playing Experience</b>	
0-3 years	159 (78.9)
4-7 years	37 (18.6)
8-11 years	5 (2.5)
<b>Warm-up/Cool-down timing</b>	
0-30 min	166 (82.6)
31-60 min	35 (17.4)



**FIGURE 2:** Prevalence of Injury among different categorized sports person (n=146)

Figure 2 illustrates that Cricket players reported at the highest number (69.2%) for sports injury followed by football player (17.1%), Basketball player (8.2%), Long tennis player (2.7%), and Badminton player (2.7%).

Regarding the site of injury, maximum participants indicated with shoulder (11.6%), Hip/thigh (24.7%), Knee/Legs (14.7%), and spine (15.2%) where most were moderate injury (32.8%). More than two-thirds

(84.2%) of the participants indicated no recurrent injury whereas maximum (72.6%) reported to indirect injury as shown in Table 3.

**TABLE 3:** Site of Injury

Site of Injury	n (%)
Shoulder	22 (11.6)
Elbow	6 (3.2)
Wrist	6 (3.2)
Hand/Fingers	31 (16.3)
Hip/Thigh	47 (24.7)
Knee/Legs	28 (14.7)
Foot	10 (5.3)
Spine	29 (15.2)
Head/Neck	11 (5.8)
Severity of Injury	
Mild	38 (18.9)
Moderate	66 (32.8)
Sever	38 (18.9)
Recurrent Injury	
Yes	23 (15.8)
No	123 (84.2)
Injury types	
Direct	40 (27.4)
Indirect	106 (72.6)

Table 4 reveals that there was a significant relation between Sports injury and BMI (p-value 0.004) as well as sports injury and warm-up timing (p-value 0.007) whereas a strong relationship found between sports injury and age group (p-value 0.000) and types of sports (p-value 0.000).

P-value reached from chi-square. Mark (\*) represents a significant relation of sports injury with age group and type of sports.

#### 4 | DISCUSSION

The sports of adolescent commonly seen in our country are cricket, football, Badminton, Basketball and table tennis while cricket and football are now more frequent. A similar trend of participation in football and cricket by adolescents is seen in other

**TABLE 4:** Association between sports injury and relative variables

Variables	Sports Injury	P value
Age Group		
11-13	13	29
14-16	71	16
17-19	62	10
BMI		
Underweight	25	23
Normal	110	29
Overweight	8	2
Obese	3	1
Warm-up exercise		
0-30	125	41
31-60	21	14
Type of sports		
Cricket	101	22
Football	25	11
Basketball	12	8
Long tennis	4	6
Badminton	4	8

countries also (14, 15). The key findings of this study was a high frequency of players having sports injury whereas the Hip/Thigh, Hand/Fingers, knees/legs and spine were the common prevalent sites. The past study stated that adolescent is reported as a high risk of sports injury and lower limb is more prevalent site than upper limb (15). However, **Rasheduzzaman et al. (2019) (16)** stated that the upper limb is more common and prevalent site than a lower limb. **Sreekaarini et al. (2014) (15)** found that all sports have a risk, especially for an adolescent. The current study addressed maximum adolescent players belongs to over 13 years where the mean age were 16 years that is similar to other study stated by **Sreekaarini et al. (2014) (15)**. Some factors like BMI and inadequate warm-up/cool-down is the causes of injury. Therefore, there was a strong relation found in sports injury with BMI and warm-up/cool-down. On the other hand, **Rasheduzzaman et al. (2019) (16)** found that there was no significant relationship found between BMI and sports injury. Injury recurrence was not noted significantly in this study and the maximum reported to indirect injury.

Sreekaarini et al. (2014) (15) stated that recurrence of injury is more common in sports person, especially professional players. Maximum players of different discipline found as a moderate level of injury.

## 5 | CONCLUSION

It is concluded that SI among adolescent players is very high. Some factors like inadequate age, BMI, and warm-up/cool-down timing are the key factors for injury. However, there was highly significant relation found of SI with age group as well as types of injury. Proper training, maintaining body composition and adequate training timing before starting exercise might help for reducing the injury.

### Conflict of Interest

There is no conflict of interest regarding this article.

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### Abbreviations:

SI: Sports Injury

AIS: Abbreviated Injury Scale

BMI: Body Mass Index

SPSS: Statistical Package for Social Sciences

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