

# Shoulder injuries among fast bowlers of school cricket teams in Colombo district

SMM Thasneem<sup>1</sup>, HPM Dabare<sup>2#</sup> and NA Mendis<sup>3</sup>

<sup>1</sup>Department of Physiotherapy, Rheumatology and Rehabilitation Hospital, Ragama, Sri Lanka

<sup>2</sup>Department of Physiotherapy, Faculty of Allied Health Sciences, General Sir John Kotelawala Defence University, Sri Lanka

<sup>3</sup>Department of Forensic Medicine, Faculty of Medicine, University of Colombo, Sri Lanka

#For correspondence; <Prasangi.spt2@gmail.com>

**Abstract**— Cricket is identified as one of the famous games in the world which consists of three primary activities: bowling, fielding and batting. Among those of different activities, the fast bowlers are identified to be having a high incidence of shoulder injuries relative to the other regions of the body. Neglecting and improper management of such injuries can lead to permanent disabilities and ultimately results discontinuing the carrier in cricket. Therefore, this study was aimed to describe the impact of shoulder pain caused by injuries among fast bowlers in the school teams during the performances including bowling, batting and fielding. A total of 40 fast bowlers of 06 boys schools in Colombo district who had experienced shoulder pain at any time during the past 12 months were recruited in this study. Players with neurological abnormalities and/or congenital abnormalities of upper extremities, diagnosed with diabetes mellitus and who had upper limb injuries from other sports were excluded. A self-administered questionnaire was used to assess their socio-demographic characteristics and collect data on shoulder injuries with the impact on different activities of cricket. The data was analysed using SPSS-17 (Statistical Package for Social Sciences) computer software package. The study population was between 12-19 years (mean age=16, SD=2.3). Majority (82.5 %) were right hand bowlers, who practiced 3 days per week. Shoulder pain was always presented in the players 15 % during bowling, 12.5 % during batting and 10 % during fielding. Reduction in ball swinging (85 %), reduce power of shot (65.2 %) and avoidance of delivery (62 %) were significantly affected by the shoulder pain ( $p<0.05$ ). School fast ballers generally play on with shoulder injuries though their performance is often compromised. Therefore, they should be targeted for appropriate measures of injury prevention in order to preserve and promote future development of cricket in Sri Lanka.

**Keywords**— fast bowlers, shoulder injuries

## I. INTRODUCTION

Cricket is identified as a game of skills, coordination and tactics that consists of three primary activities: bowling, fielding and batting (Wikimedia foundation. 2011). The International Cricket Council has currently recognized more than 100 cricket-playing nations, confirming the popularity of the sport. In Sri Lanka, though volley ball is the national sport, cricket has achieved the same amount of popularity and interest among the all Sri Lankans. Despite the age, social status, race almost every person is having an enthusiasm towards the cricket.

Cricket may lead to many injuries in different parts of the body including shoulders, elbows, head and ankles (Dennis, et al., 2003). This may occur along with various activities of the sport including batting, bowling, fielding and wicket keeping. Among those bowling was identified to having a higher prevalence (Stretch, 2003). The incidence of injuries among fast bowlers are commoner than that among spinners (Gregory et al, 2002) Injuries of the upper extremities are identified as one of the frequently observed type of injury among the cricket players. Total of 25 % of the school cricketers and 22 % of the provincial cricketers are found to be experiencing an upper extremity injury during their carrier (Aginsky, et al 2004). However, among all the upper extremity injuries, shoulder injuries are identified to be the commonest and more hazardous of all. The fast bowlers, who contribute a lot to wards the victory of the game, are found to be having a very high incidence of about 42 % of shoulder injuries (Aginsky, et al 2004). Further, fast bowlers have consistently been identified to be at the greatest risk of injury, due to the combination of predisposing factors including poor technique, poor physical preparation, and overuse (Dennis, et al., 2003).

The incidence of shoulder injuries are common during bowling phase as it requires a stressful use of back muscles, in particularly during hyperextension, lateral flexion and rotation of thoraco-lumbar spine. The fast bowling requires

the arm to be rotated at a higher speed placing a great demand on the shoulder's integrity. In addition to the technical skills required to perform such a higher work load, cricketers also need to possess a high level of fitness, thus making them more susceptible to overuse injuries as a result of repetitive training (Aginsky, et al 2004). It is more prone to subject injuries as it lacks bony stability having an increased mobility to gain a better functional capacity.

Bowling in cricket differs from other overarm throwing patterns, as the rules restrict elbow extension during the latter part of the delivery stride. The predominant action of the shoulder is, therefore, circumduction—a combination of shoulder flexion, extension, abduction and adduction. According to the available data in the literature, a greater proportion of fast bowlers were identified to be having shoulder injuries. Most of these injuries are not diagnosed and properly managed, leading to more complex and hazardous deformities making the cricketers to discontinue their carrier. This has great risk and a threat to their health and may also result in chronic ill health.

Therefore, this study is aimed at school cricketers as the school cricketers are the future players of national team. As only few amounts of players could participate in the national level teams there is huge competition among school level cricketers and clubs and players have to try hard and practice more, to enter the national pool. Therefore, it is important to identify the injuries which may occur during the practices and games and to take appropriate preventive measures to promote healthy practice. Many researchers have carried out to determine the shoulder injuries among the cricketers and about the injuries in fast bowlers around the world. But there is lack of data in the literature about the "shoulder injuries among fast bowlers " specifically. Also this type of research had not been conducted in Sri Lanka. Therefore this study is

aimed to identify the previously unexplored area in the school cricket fast bowlers in Sri Lanka.

Figure 1: Response of shoulder pain with bowling

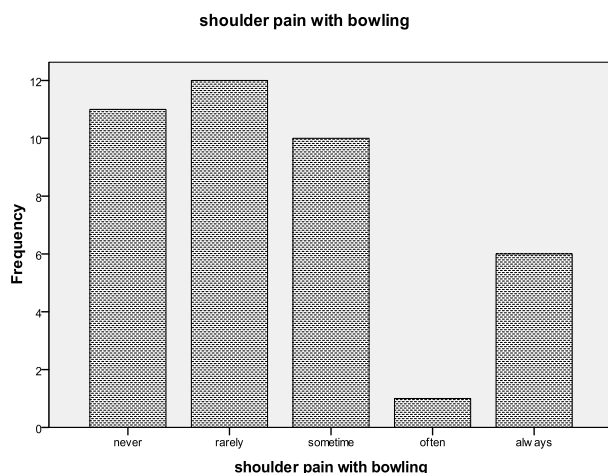
## II. METHODOLOGY

This is a descriptive, cross-sectional study which was conducted recruiting a total of 40 fast bowlers of 06 boys' school cricket teams in Colombo district, aged between 12-19 years. The study participants were included in the study if they have experienced shoulder pain once or more during the past 12 months and if they were voluntarily consenting to participate with the assent of the parents if below 18 years. The players with neurological abnormalities and/or congenital abnormalities of upper extremities, diagnosed with diabetes mellitus and who had upper limb injuries from other sports were excluded during the past 12 months were excluded from the study. All consecutive players of the 06 teams who fulfilled the eligibility criteria and consented to participate were included in the study and no randomization was possible as the number of players who fulfilled the above criteria was limited.

A self-administered questionnaire with a Likert scale was developed with the aim of identifying the impact of shoulder pain following shoulder injuries in batting, bowling and fielding. The questionnaire was developed after reviewing existing literature. The factors that have been studied in previous research studies were collected, under the keywords of shoulder pain, batting, bowling, fielding, and shoulder injuries. The questionnaire consists of different components of bowling including pain during reduction in number of overs bowled in matches, reduction of ball swinging, avoidance of particular delivery, reduction in speed; shoulder pain in batting including change of shot, avoidance of shot, reduction of power of shot and in fielding including occurrence in throwing and drop/ miss the ball. These were identified by having discussions with the experts. The information regarding shoulder pain during above activities were collected by the players as all the medical records did not provide the above necessary information. Prior to administer the questionnaire, it was pre-tested in a randomly selected sample of 10 fast ball players who aged between 12-19 years outside the defined study area. They were asked to comment on the clarity of the questions and on any unambiguous areas. Based on their comments, any modification was not needed.

## III. RESULTS

The study population was between 12-19 years (mean age=16, SD=2.3). Majority (82.5 %) were right hand bowlers, who practiced 3 days per week.



**A. Shoulder pain during bowling**

Shoulder pain was always presented in the players 15 % during bowling. The distribution is shown in figure 1.

When considering different tasks during bowling, 22 bowlers (55%) never experienced reduction in the number of overs bowled in matches while only 5 (12.5%) individuals reduced it always. Pain induced reduction in ball swinging was recorded in majority of 85% of fast bowlers while only 2.5 % always complained shoulder pain reduce the speed of balling.

**B. Shoulder pain when batting**

Among the players 12.5 % complained of shoulder pain always during batting.

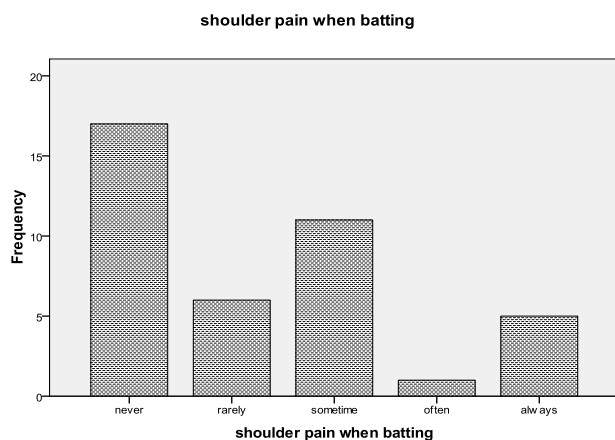


Figure 2: Distribution of shoulder pain with batting

Due to the shoulder pain during batting, a majority of 47.5 % of the total study population never experienced a change in the shot whereas; a minority of 5 % often experienced a change. But avoidance of shot was always observed among 42.5 % of the cricketers and only 4 % experienced it rarely. Reduce power of shot of shot was significant (65.2 %) due to the shoulder pain during batting.

**C. Shoulder pain during fielding**

From the total study population, 10% of fast bowlers had always experienced pain during fielding whereas a majority of 60% never experienced pain. But 25 % always experienced shoulder pain when throwing the ball. In contrast, majority of 42.5 % never cause drop/miss the ball due to shoulder pain whereas minority of 7.5% always drop/miss the ball.

**IV. DISCUSSION**

According to the current study, shoulder pain preceding the injury have major impact on reduction of performance in fast bowlers in the fields of bowling, batting and fielding. There the shoulder pain following the shoulder injuries and

the impact of the pain on different components of fast bowlers were all collected subjectively. But, it would be more beneficial if the data were gathered through observations of the experts in the field. However, Ranson, et al. (2008) found that professional cricketers generally play on with shoulder injuries and pain without missing matches though their performance specially during fielding is often compromised. Aginsky, et al. (2004) was concluded that shoulder injuries were more common in fast bowlers than the other positions of the cricket teams and according to their study, imbalance between the agonist and antagonist is one of the major risk factors for developing shoulder injuries among them (Aginsky, et al., 2004). Further, Sinclair et al. (2009) have done a study on analysis of injury in high school to determine the injury rate of athletes in high schools and the results revealed that head and shoulder (17.8 % and 11.35 % respectively) were the most commonly injured body part, and contusion, sprain and strain were the most frequent injury types(27.4 % , 18.6 % , 16.4 %).

Another study was conducted to compare the injuries of spin bowling with fast bowling in young cricketers by Gregory, et al. (2002) have concluded that incidence of injuries in fast bowling is greater than in spin bowling. The incidence of injury in spin bowlers was 0.066 per 1000 balls and 0.165per 1000 balls in fast bowlers. Similarly, Orchard et al. (2005) have done a study related shoulder injuries among cricketers and they have found that the injuries among the fast bowlers of Australian elite cricket is 16%, among batsman 4%, spin bowlers 4% and wicket keepers only 1 %. Stretch et al (1995) concluded that the seasonal incidence of injuries in bowlers (47.4 %) was greater than in batsmen (29.8 %) and fielders (22.8 %) although it was not significant. Mansing et al (2006) conducted a study on injuries among West Indian cricketers during 2003-2004 and they found that fast bowlers and the bats men sustained 80% injuries with many leading to long absence from the game although many of these injuries were sustained while fielding. A report based on “Shoulder injury in cricket” written by the physiotherapy department of McKinnon sports medicine states that among the most common complaints from cricketers, shoulder injuries are in a top position.

**V. CONCLUSION**

In conclusion, shoulder pain was found to be common among the school fast ball cricketers and it has a huge impact on their performance including bowling, batting and fielding. School fast bowlers generally play on with shoulder injuries though their performance is often compromised. Therefore, they should be targeted for appropriate measures of injury prevention in order to

preserve and promote future advancement of cricket in Sri Lanka.

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