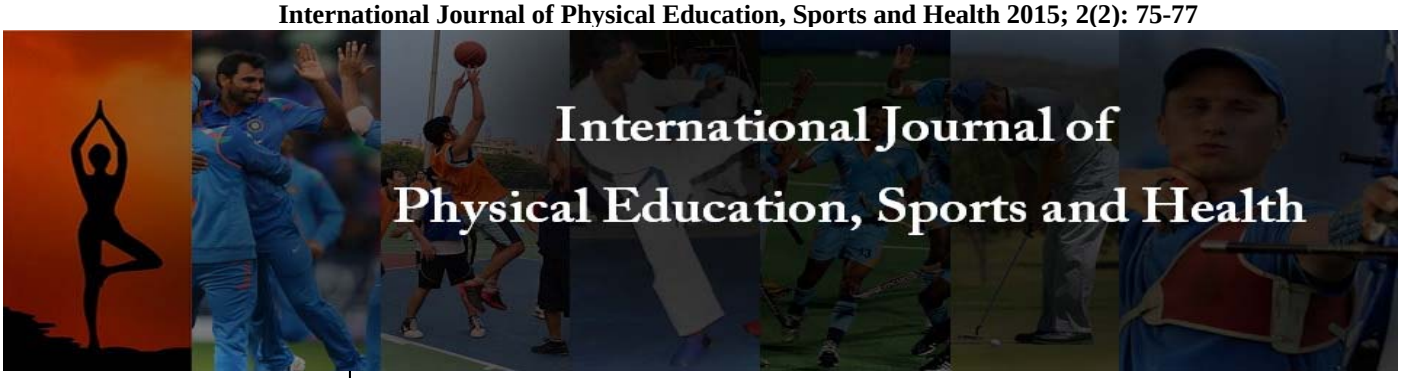
International Journal of Physical Education, Sports and Health 2015; 2(2): 75-77



P-ISSN: 2394-1685
E-ISSN: 2394-1693
Impact Factor (ISRA): 4.69
IJPESH 2015; 2(2): 75-77

www.kheljournal.com
Received: 18-09-2015
Accepted: 19-10-2015

Sumit Kumar
PG Student, Dept. of Physiotherapy, GJUST, Hisar-125 001. India.

Kulandaivelan S
Assistant Professor, Dept. of Physiotherapy, GJUST, Hisar-125 001. India.

Jaspreet Kaur
Assistant Professor, Dept. of Physiotherapy, GJUST, Hisar-125 001. India.

Rekha Chaturvedi
Assistant Professor, Dept. of Physiotherapy, GJUST, Hisar-125 001. India.

Baljeet Girdhar
Coach cum Associate Professor, Dept. of Physical Education, HAU, Hisar-125 001. India.

Varun Singh
Assistant Professor, Dept. of Physiotherapy, GJUST, Hisar-125 001. India.

Sonu Punia
Assistant Professor, Dept. of Physiotherapy, GJUST, Hisar-125 001. India.

Vikash Kumar
PG Student, Dept. of Physiotherapy, GJUST, Hisar-125 001. India.

Correspondence:
Kulandaivelan S
Assistant Professor, Dept. of Physiotherapy, GJUST, Hisar-125 001. India.

One year prevalence of musculoskeletal disorder among cricket Players in Haryana: A retrospective study

Sumit Kumar, Kulandaivelan S, Jaspreet Kaur, Rekha Chaturvedi, Baljeet Girdhar, Varun Singh, Sonu Punia, Vikash Kumar

Abstract
Objective: To find out overall, site specific, role of play specific and type of injury specific prevalence rate of musculoskeletal injuries in cricket players.
Methodology: Study Design: Cross sectional, survey study.
Sample size: 127 male players.
Method: Injury data was collected from each player using modified Nordic Musculoskeletal Injury Questionnaire.
Data analysis: Data was entered into MS Excel for further analysis.
Results: 50 players out of 127 was injured leading to 39% overall prevalence of injuries among cricket players. Low back, shoulder and ankle are the first three most common injuries in cricket players. Fast bowler and batsmen sustained maximum injuries among different playing role. Wicket-keeper is the least injured role in cricket.
Conclusion: Prevalence of musculoskeletal injuries is high among cricket players. Conditioning by coaches and early rehabilitation by physiotherapists are essential to reduce the injury rate in this population.

Keywords: Batsmen, Bowlers, All-rounder, Sprain. Strain, Injury rate

1. Introduction
Cricket is regarded as a leisurely, gentlemen's game [1]. In cricket, bowlers deliver a hard ball at a high speed directly to the batsman [2]. Now cricket is played in more than sixty countries and regarded as major international team sport. Cricket also played in many commonwealth countries as popular sport.
Cricket is the most popular team sport in Indian subcontinent that consists India, Pakistan, Afghanistan, Bangladesh, Sri Lanka. The popularity for cricket in India was started after its success in 1983 world cup in which it was the champion; this lead to more number of people participating in cricket. 1983 world cup was won under the captainship of Kapil Dev who belongs to Haryana. This leads to more number of people from Haryana participating in cricket. This is evident from recent success of players like Ajay Jadeja, Virender Sehwag, Amit Mishra, Ashish Nehra, Mohit Sharma and Joginder Sharma all hailed from Haryana. This large participation from Haryana also causes more number of cricket related injuries.
Cricket is most commonly played sport in Haryana. It is commonly played by males. There are various clubs and centers with skillful coaches to train them. Injuries are inevitable when one player is training and compete. There are numerous studies available at international level, but in India there is a lack of research in cricket. This is especially true in small state like Haryana where enthusiasm for sports participation is high but scientific monitoring of injuries either by coach/trainer or by physiotherapist/physician is low.
Thus the objectives of present study are one year prevalence rate of musculoskeletal injuries, prevalence of site specific injuries according to different body parts, prevalence of type of injuries, prevalence of injuries according to role of play in cricket.

Methodology
Present study was a cross sectional survey study with retrospective model. The players with following characters were included in the present study: Age between 13 years and 28 years,

male gender, playing experience of at least one year, have a regular play and played at least at the club level. Players with following characters were excluded: use of steroids and other performance enhancing drugs, known hypertension, diabetes, age below 10 years and more than 30 years.

127 male cricket players were selected after inclusion and exclusion criteria; gave their verbal consent to participate in the study. They were selected from two locations namely Hisar and Channibari. Their anthropometric measurements of age, height, weight and BMI were 17.89 ± 3.35 yrs, 169.80 ± 8.07 cm, 59.03 ± 11.22 Kg, 20.43 ± 3.32 $Kg.m^{-2}$ respectively.

Data was collected between May and June 2015. Players were asked to recall the injuries they sustained in last one year i.e May 2014 to April 2015.

The investigator contacted coaches who gave the permission to take the data from the players about the injury rate. Data was collected using Modified Nordic musculoskeletal questionnaire.

Modified Nordic musculoskeletal questionnaire contains one full body diagram in order to be understood by illiterate players. Injury information was collected as: Anatomical site of injury (Head, neck, shoulder and arm, elbow and forearm, wrist and hand, back, hip and thigh, knee and leg, ankle and foot) and category of injury (Sprain, strain, fracture, dislocation and other injuries); whether player contacted physician or physiotherapist for treatment; and role of player in cricket are bowler, batsmen, wicketkeeper and all-rounder.

Operational definition

Injury was defined as "Any pain that prevents the player to stop playing/practicing, prevent them to practice or play games in subsequent days (at least 3 days); It may also lead the players to contact physician or physiotherapists for getting treatment for that pain".

Statistical Analysis

All results were analyzed manually using MS Office 2011 (Microsoft excel) and were expressed as prevalence rate of injury, type of injury and role of players.

Results

In table 1, the injury prevalence rate according to the modified Nordic musculoskeletal questionnaire in cricket which shows the 12 month prevalence of injury, their consultation by physiotherapist or physician. One year prevalence rate of injuries in cricket players was 39% (50 out of 127).

Table 1: Site specific one year prevalence rate of injuries in cricket players (n = 56)

Joints	Prevalence of 12 month injury	Consultation by physiotherapist or physician *
Head	0(0%)	0(0%)
Neck	1 (2%)	1 (100%)
Shoulder	8 (14%)	8 (100%)
Upper Back	2 (4%)	2 (100%)
Elbow	1 (2%)	1 (100%)
Wrist/Hand	5 (9%)	4 (80%)
Lower Back	18 (32%)	16 (89%)
Hips/Thigh	6 (11%)	4 (67%)
Knee	7 (13%)	5 (71%)
Ankle/Feet	8 (14%)	4 (50%)

* % is from site specific total injuries with consultation

The one year site specific injury prevalence rate on cricket players' is shown in table 1. Since some players injured more than one site in last one year, the number of total injuries was 56 and site specific prevalence rate was calculated from 56. The physician and physiotherapist consultation was common for upper limb injuries, 89% of low back injuries consulted either physician or physiotherapist. This trend was low in lower limb injuries.

Both trunk and lower limb injuries (each 38%) were the most commonly injured areas in cricket players followed by upper limb injuries (25%). Lower back injuries (32%) were most common site of injury in cricket, followed by the ankle and shoulder injuries (14% each). For almost all sites of injuries, players were taken either medication from physician or physiotherapy. Ankle injuries required least medical attention with only 50% of total went to physician or physiotherapist. Other lower limb injuries also required less medical attention (Table 1).

Table 2: One year prevalence rate of injuries according to player's role in cricket (n=127)

Position of Players	Total Players	Injured Players
All rounder	33	13(39%)
Batsmen	55	24(44%)
Fast Bowler	20	10(50%)
Spin Bowler	13	3(23%)
Wicketkeeper	6	1(17%)

Table 2 shows distribution of player's injury according to the role of players among cricket players. The most commonly injured were bowler in which especially fast bowler (50%), followed by the batsmen (44%), all rounder (39%). Wicket keepers were the least affected (17%) among various playing position in cricket.

Table 3: Type of injury among cricket players (n=56)

Type of injury	Number of player
Sprain	25(45%)
Strain	20(36%)
Fracture / Dislocation	8(14%)
Other Injuries	3(5%)

Table 3 shows prevalence of injuries according to type of injuries in cricket players. Sprain and strain were most common; but, sprain (45%) was more than strain (36%) and other injuries were least.

Discussion

The primary objective of this study is one year prevalence of musculoskeletal injuries in at least club level playing in cricket players in Haryana. There is a 39% of prevalence of injuries among cricket players. Secondary objective of present study was to see site specific, role specific prevalence rate of musculoskeletal injuries in cricket players. Low back, shoulder and ankle are the three most common areas of injuries in cricket players. On the basis of role specific prevalence of injuries- Fast bowlers and batsmen were the most injured playing position & wicket-keepers being least injured. Sprain and strain are the most common type of injury in cricket.

In cricket, both lower limb and trunk injuries are common site of injury with 38% each. This is supported by Das *et al.* [3]; Sreekaarini *et al.* [4]; Frost and Chalmers [5]; Noorbhai *et al.* [6]; Stretch and Trella [7]; Milsom *et al.* [8]; Stretch [9]; Orchard [10]; Leary and White [11]; all reported more than 35% of total injuries are lower limb injuries. The reason for higher lower limb injuries are uneven ground, ground without grass, improper shoes, run up while bowling, fielding and making

runs between wickets.

Low back injuries (32%) are more common site of injury in cricket. This is supported by Noorbhai *et al.* [6]; Stretch and Trella [7]; Milsom *et al.* [8]; Stretch [9]; Orchard *et al.* [10]; Arora *et al.* [12]; Stretch [13]. The bolder references are similar to the present study prevalence rate. The reasons for larger incidence of back injuries are repeated hyper-extension of trunk before releasing the ball while bowling, certain shots while batting i.e offside pulling the ball. Arora *et al.* [12] reported that back pain is more common in cricket particularly fast bowlers. Asymmetric loading of the lumbar spine is associated with specific motions such as lateral flexion and/or axial rotation of the trunk during fast bowling, predisposing the L4 pars on the non-bowling-arm side to injury in bowlers with these unilateral neural-arch lesions that leads to the low back pain.

The second most common site of injury is shoulder (14%). This is supported by Frost and Chalmers [5]; Noorbhai *et al.* [6]; Dhillon *et al.* [14]; Ranson and Gregory [15]. The reasons are improper repeated shoulder movements while bowling, poor throwing technique while fielding. The cricketing activity most often associated with shoulder injury is bowling, followed by fielding and batting. Repeated throwing can result in overuse shoulder problems, degenerative changes in the rotator cuff, tendinitis in the biceps or a tear of the supraspinatus tendon.

Sprain and strain are the two most common (45% and 36%) type of injury among cricket players. This is supported by Das *et al.* [3]; Stretch and Trella [7]; Stretch [9]; Mansingh *et al.* [16].

Among the different playing role fast bowler received maximum injuries (50%), followed by batsmen (44%), all rounder (39%). This is supported by Noorbhai *et al.* [6]; Stretch and Trella[7]; Stretch [9], 2003; Stretch [13]; Dhillon *et al.* [14]; Mansingh *et al.* [16]. Present study reports more injuries to fast bowlers as compared to spin bowlers. This is supported by Gregory *et al.* [17].

There are certain limitations observed in the present study, they are: Present study lacks methodological rigor- it used convenient sampling technique where investigator selected sample according to his ease of data collection. Sample heterogeneity- Age, level of play, experience in training are not standardized leading to data contamination. Retrospective study like this has 'recall bias'- where subject may forget minor but significant injuries. Musculoskeletal injuries were assessed at the end of year and therapist might have misdiagnosed and misclassify the type of injury.

Conclusion

The present study can be concluded with following points: There is 39% prevalence of musculoskeletal injuries in cricket players. Lower limb is the most commonly injured body part. Low back, shoulder and ankle are the three most common sites of injury. Fast bowler and batsmen sustained maximum injuries among different role of playing. Wicket-keeper is the least injured position in cricket.

Prevalence study like present study is important because it will identify the site and type of injury amongst the players. This will help the coaches and physiotherapists to train the athlete accordingly. Prevalence studies also help to modify the rules and include the protective equipments in order to minimize the injury risk.

References

1. Zaman MTU. Common sports injuries among the injured cricket players. Undergraduate Dissertation. Bangladesh Health Profession Institute (BHPI), 2012. Assessed from www.library.crp-bangladesh.org last assessed on 30th September 2015.
2. Ranson C, Peirce N, Young M. Batting head injury in professional cricket: a systemic video analysis of helmet safety characteristics. Br J Sports Med. 2013; 47(10):644-48.
3. Das NS, Usman J, Choudhury D, Osman NA. Nature and Pattern of Cricket Injuries: The Asian Cricket Council Under-19, Elite Cup, 2013. PLoS One 2014; 9(6):e100028. doi:10.1371/journal.pone.0100028
4. Sreekaarini I, Eapen C, Zulfeequer CP. Prevalence of Sports Injuries in Adolescent Athletes. J Athl Enhanc. 2014; 3:5.
5. Frost WL, Chalmers DJ. Injury in elite New Zealand cricketers 2002–2008: descriptive epidemiology. Br J Sports Med. 2014; 48(12):1002-1007.
6. Noorbhai MH, Essack FM, Thwala SN, Ellapen TJ, Heerden JHV. Prevalence of cricket-related musculoskeletal pain among adolescent cricketers in KwaZulu-Natal. S Afr J Sports Med. 2012; 24(1):3-9.
7. Stretch RA, Trella C. A 3-year investigation into the incidence and nature of cricket injuries in elite South African schoolboy cricketers. S Afr J Sports Med. 2012; 24(1):10-14.
8. Milsom NM, Barnard JG, Stretch RA. Seasonal incidence and nature of cricket injuries among elite South African schoolboy cricketers. S Afr J Sports Med. 2007; 19(3):80-84.
9. Stretch RA. Cricket injuries: a longitudinal study of the nature of injuries to South African cricketers. Br J Sports Med. 2003; 37:250-53.
10. Orchard J, James T, Alcott E. Injuries in Australian cricket at first class level 1995/1996 to 2000/2001. Br J Sports Med. 2002; 36(4):270-75.
11. Leary T, White JA. Acute injury incidence in professional county club cricket players (1985–1995). Br J Sports Med. 2000; 34(2):145-147.
12. Arora M, Paoloni JA, Kandwal P, Diwan AD. Are Fast-bowlers Prone to Back Injuries? Prevalence of Lumbar Spine Injuries in Fast-bowlers: Review of MRI-based Studies. Asian J Sports Med. 2014; 5(4):e24291.
13. Stretch R. Incidence and nature of injuries to in schoolboy cricketers. S Afr Med J. 1995; 85:1182-84.
14. Dhillon MS, Garg B, Soni RK, Dhillon H, Prabhakar S. Nature and incidence of upper limb injuries in professional cricket players a prospective observation. Sports Med Arthrosc Rehabil Ther Technol 2012; 4:42.
15. Ranson C, Gregory PL. Shoulder injury in professional cricketers. Phys Ther Sport 2008; 9(1):34-39.
16. Mansingh A, Harper L, Headley S, King MJ, Mansingh G. Injuries in West Indies cricket 2003-2004. Br J Sports Med. 2006; 40(2):119-123.
17. Gregory PL, Batt BS, Mark EB, Wallace WA. Comparing Injuries of Spin Bowling with Fast Bowling in Young Cricketers. Clin J Sport Med. 2002; 12(2):107-12.