

SHORT ARTICLE

Epidemiology of annual musculoskeletal injuries among male cricket players in India

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Abstract

Background: Injury surveillance and prevention are as significant as early detection and treatment. This study describes injuries and risk factors involved so that preventive measures can be identified. **Aim:** To examine the epidemiology of the annual musculoskeletal injuries among injured male cricket players. **Method:** This study assessed 319 male cricket players, across five State Cricket Associations from January 2017 to January 2018. **Results:** With an annual injury prevalence of 10.97%, prominent anatomical sites of injury were shoulder (22.85%), lumbar spine (17.14%) and knee (11.42%). Medium pacers sustained 25.71% of the injuries. Age range of 18-24 years had a prominent 37.14% of overuse injuries of which 71.42% were lumbar spine injuries. Lumbar spine injuries resulted in a distinct loss of play days (34.64%). Bowling injuries with 49.5% of loss of play days was most predisposed. Report suggests an upswing in rate of injuries in December (20%). Four surgeries were reported (11.42%). **Conclusion:** Overuse injuries among young cricket players need prompt attention. Shoulder, lumbar spine and knee are principal anatomical regions that are prone to injuries.

Keywords

Cricket sport; Shoulder Injuries; Sports

Introduction

With the introduction of T20 cricket into the international and domestic schedules, physical preparedness of elite cricket players has become complex.(1) Premier league designs have exposed the players to unique playing conditions, game formats and an increased intensity across player positions. Twenty20 format has unfolded a high

match injury incidence with a steady increase in injury incidences in each form of cricket.(2) Considering an ever growing popularity of cricket in the Indian subcontinent, a lack of substantial injury data of the players at elite level is an extreme cause for concern. Sustaining an injury may prove to be catastrophic for the career cricket player, it becomes imperative to identify the injuries and risk factors

involved so that preventative measures can be identified, assessed and integrated.

Aims & Objectives

To access the epidemiology of the annual musculoskeletal injuries among injured male cricket players.

Material & Methods

Study type - Cross sectional retrospective study.

Study population – Domestic cricket players who represent their respective State Cricket Association either as a domestic first-class player or as a U23.

Sampling - Purposive/selective sampling was adopted.

Sample Size - Two squads from each Association, a total of 10 squads comprising of 319 cricket players were assessed.

Study duration - January 2017 to January 2018.

Inclusion criteria - Cricket players with a contract with the State Cricket Association who were considered as being part of the squad; male cricket players with an age range of 18-35 years, who have been injured during the period of January 2017 - January 2018; who go through an injury while playing a match/during a training session (fitness session, warm up games and net sessions); who due to his injury is unavailable for selection during a major match; who due to his injury is unable to bat, bowl, or keep wicket when required by either the rules or the team's captain.

Data collection - Data were obtained from the respective team physiotherapists. For the purpose of this research, the most recent consensus definitions published in 2016 in the British Journal of Sports Medicine was adopted.(3) Anthropometrical data (age, height and body weight); Details for each injury recorded; Skill code (B - batsmen, FB - fast bowler, FMP- fast medium pace bowler, MP - medium pace bowler, RAS - right arm off spinner, RLS - right arm leg spinner, LAS - left arm spinner and WK - wicket keeper); Hand dominance (HR- hand right, HL – hand left); Leg dominance (LR – Leg right, LL - Leg left); Injury side - left/right/bilateral/not applicable; time of onset - match/training/gradual/other; Activity of onset - batting/bowling/fielding/gradual; Date of onset of the injury; Mechanism of the injury – overuse (gradual/sudden), recurrent, contact/impact, sprinting (while fielding or batting), insidious (gradual and no identifiable mode of onset), medical illness; Loss of play days due to an injury; Management of the injury – physiotherapy,

medication, both or other method; Details of any surgery required or any other major treatment were collected. Data were statistical analyzed using Microsoft excel.

Ethical approval - Injury surveillance was non-interventional and preserved the confidentiality of the players. All the five State Cricket Associations had extended their consent for conducting this surveillance. The method had been approved by the Institutional Ethics Committee.

Results

Mean and standard deviations (SD) of anthropometric measurements of age: 24.71±4.37 years, height: 173.51±7.40 cm, body weight: 68.40±6.83 kg, BMI: 22.70±1.72 kg/m² and cricketing experience: 5.60±4.05 years were noted. [Figure 1] shows the details of the injured players in each role. Over the study period, 35 significant injuries were recorded. Prominent anatomical sites of the injury are - shoulder (22.85%), lumbar spine (17.14%), knee (11.42%) and thigh (8.57%). Injuries were predominantly muscles (40%), fracture and others (28.57%), tendon (14.28%) and ligament (11.42%). Batsmen and medium pacers sustained 25.71% of injuries followed by fast bowlers 20%, wicket keepers 8.57%. Injuries that manifested during fielding were 42.85% followed by 40% of bowling injuries. Match (45.85%) and training (28.57%) injuries were most common. A total of 22 injuries were recorded as overuse (gradual/sudden), 8 were contact/impact, 3 were during sprinting while batting/fielding and 2 were recurrent injuries. Among the overuse injuries 25.71% of them were sustained by medium pacers and 20% of them were sustained by fast bowlers. Age range of 18 to 24 years had an alarming rate of 37.14% of overuse injuries. Shoulder injuries were spread across all the age groups, but 71.42% of lumbar spine injuries manifested in the age group of 18 – 24 years. Entire range of lumbar spine injuries that were recorded was all overuse injuries with a gradual onset. Players with right hand dominance (HR) were 74.28% more prone to injuries than players with left hand dominance (HL) that was 25.71%. Right hand dominant players showed more injuries on the left side while players with left hand dominance suggest injury on right side of the body. Players who were right leg dominant (LR) were 77.14% vulnerable to injuries as opposed to left leg dominant (LL) players with 22.85%. Though right leg dominant players

were marginally prone to injuries on right side (40%), left leg dominant players exhibited noticeable injuries onto the right as well (17.14%). Data on injury side also reveals that, 75% of shoulder injuries were on right side, while 71% of lumbar spine injuries were onto left side of the body. Though shoulder was most pronounced anatomical region of injury, it was lumbar spine injuries that resulted in distinct loss of play days of 34.64%. Age group of 18-24 years had 45% of injuries with 56% loss of play days. It was again medium pacers who had highest loss of play days (45.95%). Bowling injuries showed a 49.5% loss of play days, thus, being most predisposed activity for occurrence of an injury. There was an upswing in rate of injuries during the month of December (20%). According to this study, both medication and physiotherapy are employed in management of injury. Also, four surgeries were reported (11.42%).

Discussion

This study is believed to be the first to throw light on injury patterns and mechanisms among elite domestic cricket players in India. Similar to a study on South African cricket players(4) this survey also witnessed injuries predominantly to muscles. An injury prevalence of 12.5% was recorded in Australian men's cricket.(5)The prevalence rate of injury of this study is much lesser than previous study from Haryana (39%)(6) and similar to the study from Punjab Cricket Association (10.14%).(7) As demonstrated by previous studies, here too it was noted that lumbar injuries occurred on non-dominant side of the player.(8) In 2016, Australian report(5) indicated that despite having a lower incidence, it was lumbar stress fractures that caused more missed playing time than hamstring strains. This trend remains true in our study as well, where, though it was shoulder injuries that were distinctly prevalent, it was lumbar spine injuries that resulted in distinct loss of play days, as it took greater recovery time for each lumbar spine injury. Fielding and bowling injuries(9) are seemingly in the forefront as the players are exposed to unique playing conditions, acute workload and game formats that spans throughout the year. Though the time of onset was mostly during a match and subsequently during training, it was the injuries with gradual onset that indicated highest loss of play days, suggesting a possibility of an inadequate acclimatization to escalated workload. Previous studies have indicated that tendon injuries also

appear to be particularly related to variations in workloads. While overuse injuries need attention, underuse injuries, chiefly due to a rapid intensification of workload is of an equal concern.(10)

Conclusion

This study reveals that overuse injuries among young cricket players (18-24 years) needs utmost attention. In the same age category, severity of shoulder and lumbar spine injuries during a match while bowling/fielding is extremely significant. It is the medium pacers and fast bowlers who easily come under this spell of overuse injuries. Shoulder, lumbar spine and knee are principal anatomical regions that are prone to injuries. There is a soaring loss of play days due to injuries to lumbar spine.

Recommendation

This study provides a detailed pattern of the cricket injuries across multiple first class State Cricket Associations in India along with their current approach towards the injuries. The data can be further used in employing preventative measures that could be identified, assessed and integrated.

Limitation of the study

A prospective documentation with greater sample size and a follow-up of the injuries will certainly raise an awareness in the course of time. Future studies can be designed to include, how psychological and psychosocial factors interact with physiological and mechanical factors to increase injury vulnerability.

Relevance of the study

This survey brings forth a detailed pattern of injuries across multiple first class State Cricket Associations in India along with their current approach towards injuries. This data can be used to identify, assess and integrate appropriate preventative measures.

Authors Contribution

All the authors have contributed equally.

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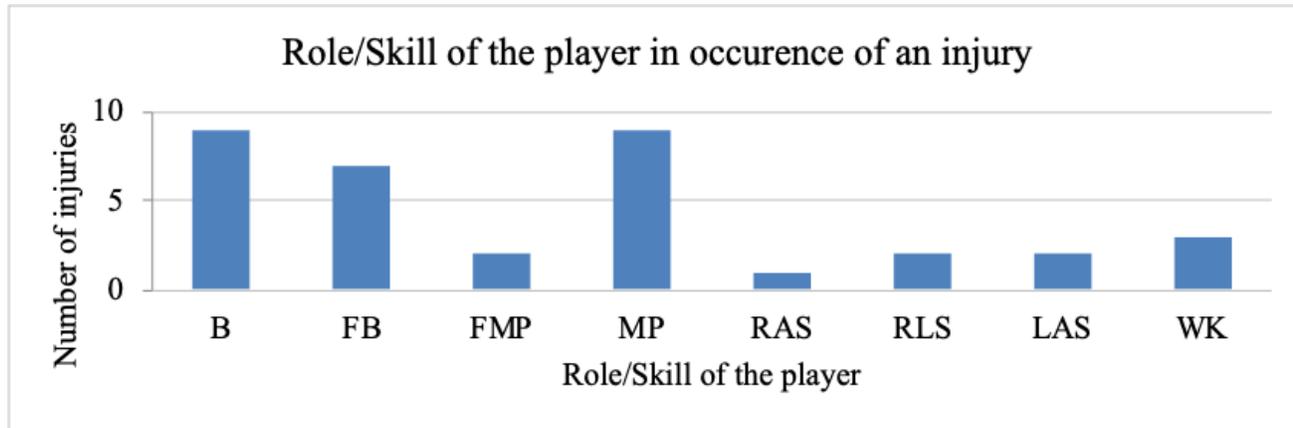
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Figures

FIGURE 1 OCCURRENCE OF INJURIES ACCORDING TO THE ROLE OF THE PLAYERS



*B - Batsman, FB - Fast bowler, FMP - Fast medium pace, MP - Medium pace bowler, RAS - Right arm spin, RLS - Right arm leg spinner, LAS - Left arm spinner, WK - Wicket keeper.