



Cover Page



WICKETKEEPING INJURIES: ANALYSIS OF RISKS AND PREVENTION

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Abstract

Wicketkeeping is a physically strenuous role, demanding rapid reflexes, sustained crouching, and lateral agility. Despite its critical importance, scientific literature on epidemiology of injuries specific to wicketkeepers remains scarce. This study aims to bridge that gap by investigating the frequency, severity, and contributing factors of injuries sustained by wicketkeepers. 160 male wicketkeepers (16–50 years) were surveyed using a structured questionnaire, injury history documentation, and Cornell Musculoskeletal Discomfort Questionnaire (CMDQ). Observational data, structured interviews complemented the quantitative findings. The most frequently reported injuries were to the lower back (72.3%), wrists (68.7%), and knees (65.1%), followed by neck and shoulders. Finger dislocations (43.6%) and wrist sprains (37.5%) emerged as common acute injuries, while chronic lower back pain (60%) and cervical stiffness (52.2%) were attributed to prolonged squatting and repetitive strain. Improper techniques, poor ground conditions, and inadequate protective gear were found to elevate injury risk. These findings underscore the need for targeted interventions, including technique refinement, strength and flexibility training, and ergonomically improved protective gear. The study offers practical implications for players, coaches, and sports health professionals aiming to enhance safety, reduce injury recurrence, and promote long-term athletic performance among wicketkeepers.

Keywords: Wicketkeeping Injuries, Injury Prevention in Cricket, Sports Epidemiology, Musculoskeletal Disorders, Protective Equipment Compliance.

I. INTRODUCTION

Cricket, a sport deeply embedded in the cultural fabric of many nations, demands high levels of physical endurance, mental agility, and technical precision. While much research and injury surveillance have historically centered on bowlers and batsmen due to their dynamic roles and performance impact, wicketkeeping remains an under-explored yet equally demanding position. The wicketkeeper plays a critical role behind the stumps, serving as both a key defensive player and a pivotal contributor to team strategy. The physical requirements of this role involve prolonged squatting, frequent lateral dives, quick shifts in posture, and repeated high-speed ball-catching, often under intense match pressure and variable pitch conditions.

Despite the biomechanical and physiological stressors associated with wicketkeeping, there is a significant lack of comprehensive data on injury epidemiology specific to this role. The repetitive squatting motion places substantial strain on the knees, hips, and lower back, often leading to cumulative musculoskeletal disorders. Simultaneously, the necessity to react swiftly to unpredictable ball trajectories increases the likelihood of acute injuries, particularly to the hands, fingers, and wrists. These injuries often occur due to impact forces while catching fast-paced deliveries, edges, or deflections, especially on pitches with variable bounce. Finger dislocations, ligament sprains, and contusions are commonly reported, even among experienced professionals. Moreover, wicketkeeping is not limited to physical stress alone. The cognitive load of maintaining alertness throughout the innings, coordinating with bowlers, and anticipating the batter's movements can contribute to mental fatigue. When physical fatigue is coupled with lapses in concentration, the risk of injury escalates significantly, particularly in longer formats of the game where players may be on the field for extended hours.



Contributing factors to wicketkeeping injuries are multifactorial. These include the nature of the playing surface, match intensity, quality of protective equipment, player age, and training quality. Hard pitches often exacerbate joint stress, while poorly maintained outfielders can cause slips and ankle injuries. While protective gear such as gloves, inner thigh guards, and helmets offers some degree of safety, their effectiveness is contingent upon fit, quality, and correct usage. Suboptimal or ill-fitting equipment may not provide sufficient shock absorption, leaving players vulnerable during high-impact moments.

There exists a significant disparity in access to protective resources and injury prevention strategies between professional and grassroots levels. Many wicketkeepers in domestic or amateur circuits lack tailored training, physiotherapy support, or access to ergonomically designed gear. This gap in structural support and education increases their susceptibility to both acute injuries and chronic overuse syndromes.

As competitive cricket continues to intensify with the advent of multi-format leagues, understanding the nature and context of wicketkeeping injuries becomes imperative. This study, therefore, seeks to fill a critical knowledge gap by conducting a detailed epidemiological assessment of injuries sustained by wicketkeepers. Through quantifying injury types, identifying contributory factors, and evaluating protective measures, the research aims to inform targeted interventions that enhance both safety and performance longevity for wicketkeepers across competitive levels.

II. REVIEW OF LITERATURE

Wicketkeeping is a specialized role in cricket that demands agility, reflexes, and sustained physical exertion. Despite its critical importance, the injury profile of wicketkeepers has received limited scholarly attention compared to other cricketing roles. This literature review synthesizes existing research on injury prevalence, severity, contributing factors, and prevention strategies pertinent to wicketkeepers.

Cricket, as a sport, presents various injury risks due to its multifaceted nature involving batting, bowling, fielding, and wicketkeeping. A study highlighted that among male cricketers in Chandigarh, abrasions were most common, followed by strains and bruises, particularly affecting the lower back, knees, and ankles (Thour, 2023). While this study encompassed all player roles, it underscores the physical toll cricket exerts on players. Focusing specifically on wicketkeepers, it was identified that finger injuries are prevalent due to the repetitive impact of catching fast deliveries. Their research emphasized the need for protective gear and technique refinement to mitigate such injuries. (Dhillon, 2013). The severity of injuries in cricket can significantly affect a player's performance and career longevity. An epidemiological study (Raghavendra Rao, 2020) reported an annual injury prevalence of 11% among male cricketers in India, with the shoulder, lumbar spine, and knee being the most affected areas. These injuries often led to substantial loss of playtime, indicating their impact on players' careers (Nupur, 2023). For wicketkeepers, the constant squatting and sudden movements can lead to musculoskeletal discomfort. The Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) (Cornell University Ergonomics Web, 1994) has been utilized in various studies to assess such discomfort, providing insights into the frequency and severity of pain experienced by players, which can inform targeted interventions.

Several contextual factors contribute to injury risks in cricket. Wicketkeepers are particularly susceptible to injuries due to the high-speed deliveries they face and the physical demands of their position. Inadequate protective equipment and poor playing surfaces further exacerbate these risks (Harrop, 2022). Moreover, the intensity of matches and lack of adequate rest periods can lead to overuse injuries (Rao, 2018). A study by Dhillon et al. highlighted that continuous play without sufficient rest increases the likelihood of injuries, especially in domestic circuits where players may not have access to optimal recovery facilities (Dhillon M. S., 2012).

Preventive measures are crucial in mitigating injury risks among wicketkeepers. Proper training, conditioning, and use of protective gear are fundamental (Physio Remedies, 2022). The PhysioAdvisor emphasizes the importance of strengthening exercises, flexibility training, and technique refinement to prevent common injuries (Harrop, 2022). Additionally, regular



Cover Page



assessments can help in early identification of musculoskeletal issues, allowing for timely interventions. Implementing structured rest periods and workload management can also play a significant role in injury prevention.

The role of a wicketkeeper in cricket is physically demanding and poses unique injury risks. While existing literature provides insights into general cricket injuries, there is a need for focused research on wicketkeeping-specific injuries. Understanding the prevalence, severity, and contributing factors is essential in developing effective prevention strategies to enhance player safety and performance.

III. RATIONALE

Wicketkeeping is a highly specialized and physically intensive role in cricket, characterized by prolonged crouching, explosive lateral movements, and high-frequency reflex-based actions. Despite being critical to team performance, wicketkeepers remain one of the most underrepresented groups in cricket injury research. Most existing studies on injury epidemiology in cricket have disproportionately focused on bowlers and batsmen (Dhillon M. S., 2013), (Rahul, 2022), (Thour, 2023), thereby neglecting the unique biomechanical and contextual risks associated with wicketkeeping.

Available literature identifies common injuries among wicketkeepers, such as finger dislocations, lower back strain, and knee injuries, typically resulting from repetitive strain and high-velocity ball impact. However, these studies are largely regional and based on small or non-diverse populations, including cricketers from Chandigarh and North India. Their findings, while valuable, may not fully capture the injury dynamics faced by wicketkeepers from more competitively intense regions like Mumbai.

Mumbai, widely recognized as India's cricketing powerhouse, produces a substantial proportion of players who advance to state and national levels. With rigorous match schedules, variable playing surfaces, and exposure to both red-ball and white-ball formats, wicketkeepers in Mumbai operate under a unique set of demands. Yet, to date, no focused epidemiological study has assessed the prevalence, severity, or risk factors of injuries among this cohort. This gap in regional injury surveillance hampers the development of localized, evidence-based preventive strategies and training adaptations.

Furthermore, very few studies have explored the integration of contextual variables such as match intensity, protective equipment quality, or recovery practices in injury causation. There is also limited research assessing the effectiveness of injury prevention protocols or the role of safety education among wicketkeepers. This study seeks to address these gaps by conducting a multi-level epidemiological analysis of wicketkeeping injuries in Mumbai. By evaluating injury frequency, severity, and contributing factors, the research aims to inform safer training regimens, enhance PPE standards, and support the long-term health and performance of wicketkeepers in competitive cricket.

IV. AIM AND SPECIFIC OBJECTIVES

The study aims to conduct an epidemiological assessment of injuries sustained by wicketkeepers across different competitive levels, with an emphasis on quantifying injury types, frequencies, and severities, as well as identifying contributory and preventive factors that influence injury risk and management. The specific objectives are to: (i) determine the prevalence and distribution of injuries among wicketkeepers; (ii) evaluate the severity, duration, and functional consequences of injuries on wicketkeepers' performance, and overall physical well-being, using player-reported impact metrics; (iii) investigate contextual and game-related risk factors—such as match intensity, playing surface characteristics, and adequacy of protective equipment—associated with injury occurrence in wicketkeeping; and (iv) identify effective injury prevention strategies to reduce injury incidence and recurrence among wicketkeepers.

V. METHODOLOGY

This study employs an exploratory, cross-sectional research design to investigate the epidemiology of injuries among cricket wicketkeepers, with particular focus on identifying patterns of injury type, severity, and contributing risk factors. Given the



Cover Page



paucity of focused literature on wicketkeeping-specific injuries, an exploratory framework enables a broad, flexible approach to data gathering and analysis, allowing both quantitative and qualitative insights into the multifactorial nature of injury occurrence in this role.

The study sample consisted of 160 male wicketkeepers, aged between 16 -50 years, selected through a combination of convenience and snowball sampling. This non-probabilistic approach was deemed suitable due to the specificity of the target population and the logistical constraints of reaching active wicketkeepers across varied competitive levels. Participants were recruited from multiple cricket academies, coaching centers, and training grounds in Mumbai—including Churchgate, Dadar, Bandra, and Andheri—ensuring geographic diversity and inclusion of players engaged at club, district, state, and semi-professional levels.

Inclusion criteria mandated that participants had at least one year of continuous wicketkeeping experience and were currently active in cricket training or match play. Exclusion criteria included players with recent unrelated musculoskeletal surgeries, systemic illnesses, or those unwilling to provide informed consent. Ethical approval was obtained from an institutional ethics review board, and each participant signed an informed consent form outlining the purpose, procedures, and voluntary nature of the study, including the right to withdraw at any stage.

Data collection was executed using a multi-method strategy over a six-week period. A structured, pre-tested questionnaire captured demographic data (age, experience, playing level), injury history, training load, and PPE (personal protective equipment) usage. Observational assessments were conducted during training and match scenarios to identify biomechanical patterns, movement errors, and situational triggers that might predispose wicketkeepers to injury.

To assess musculoskeletal discomfort, the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) was administered, which is validated for evaluating discomfort frequency, intensity, and interference across 18 body regions. Additionally, semi-structured interviews were conducted with a subset of participants (n=30) to explore the lived experiences of injury, recovery timelines, and perceived contributing factors. These interviews enriched the quantitative findings by capturing nuanced, first-person accounts of physical and psychological strain.

Quantitative data were analysed using descriptive statistics—mean, standard deviation, frequencies, and percentages to summarize injury prevalence and demographic variables. Cross-tabulations was used to explore associations between variables such as playing level and injury type. Qualitative responses from interviews were coded and analysed using thematic analysis to identify recurring patterns and key concerns related to injury causation and prevention. Ethical protocols were rigorously followed. Confidentiality and anonymity were maintained by assigning participant codes, and all data were stored in encrypted digital files. No invasive procedures were undertaken, and participants were assured that the study would not interfere with their ongoing training or match participation. This ethical framework ensured participant dignity, autonomy, and scientific integrity.

VI. RESULTS AND DISCUSSIONS:

6.1 Demographic Profile: The sample profile provides critical demographic and contextual insights into the participant group of 160 wicketkeepers. The average age of the sample is 27.3 years. A predominant portion of the sample consists of part-time cricketers, especially within the 16–25 age range, which alone accounts for nearly 50% of all respondents (42 in the 16–20 group and 38 in the 21–25 group). Only a small fraction (approximately 8%) of the respondents are full-time professional cricketers, emphasizing that most players engage in cricket alongside other commitments, potentially limiting access to structured injury prevention programs, physiotherapy, and high-quality protective equipment.

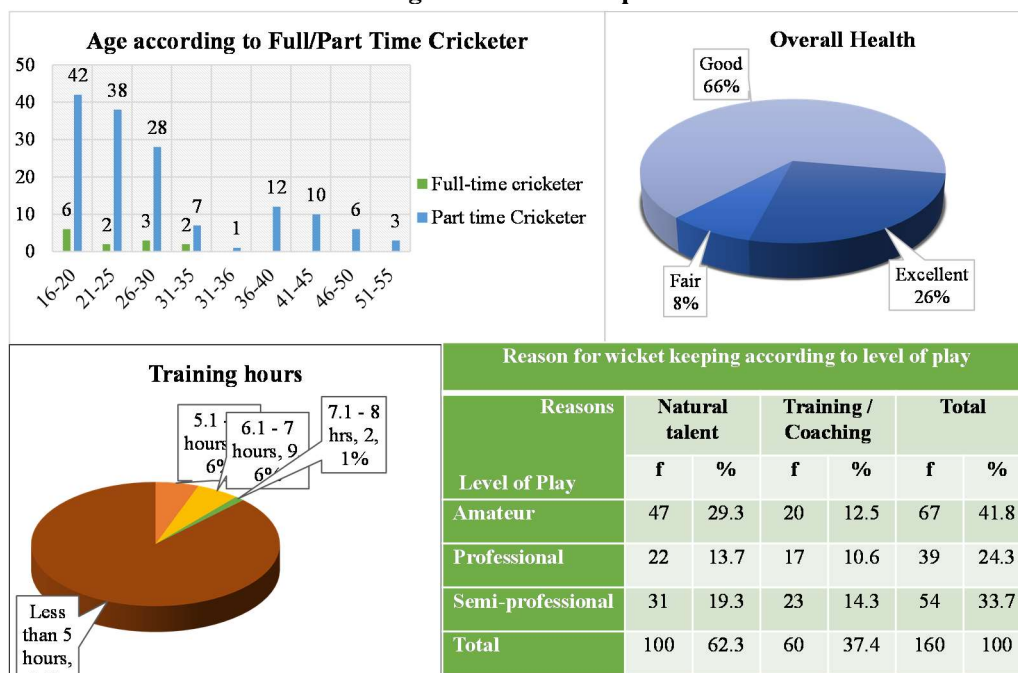
In terms of overall health status, the majority (66%) reported “good” health, while 26% rated their health as “excellent.” Only 8% identified their health as “fair,” indicating a generally positive self-perception of physical well-being. However,



this may not fully account for chronic or recurring pain commonly underreported among athletes, especially those playing at amateur or semi-professional levels.

The average playing experience is 6 years. Training duration revealed that 110 participants (69%) train for less than 5 hours daily, which may be insufficient for developing injury-resilient conditioning in a high-impact role like wicketkeeping. Only a marginal percentage (7%) trained more than 6 hours, suggesting limited exposure to structured physical preparation that supports endurance, flexibility, and strength, critical for preventing repetitive strain injuries common in this position. The table indicating reasons for taking up wicketkeeping reveals that natural talent was the dominant reason (62.3% of the total sample), followed by training or coaching (37.7%). A deeper look shows that 29.3% of amateur wicketkeepers and 19.3% of semi-professional players relied on natural aptitude, which might correlate with a lack of formal guidance in injury prevention techniques. Conversely, professional wicketkeepers were more likely to have received structured coaching (17 out of 39), suggesting that technical training becomes more prevalent at higher competitive levels.

Fig.1: Profile of Sample



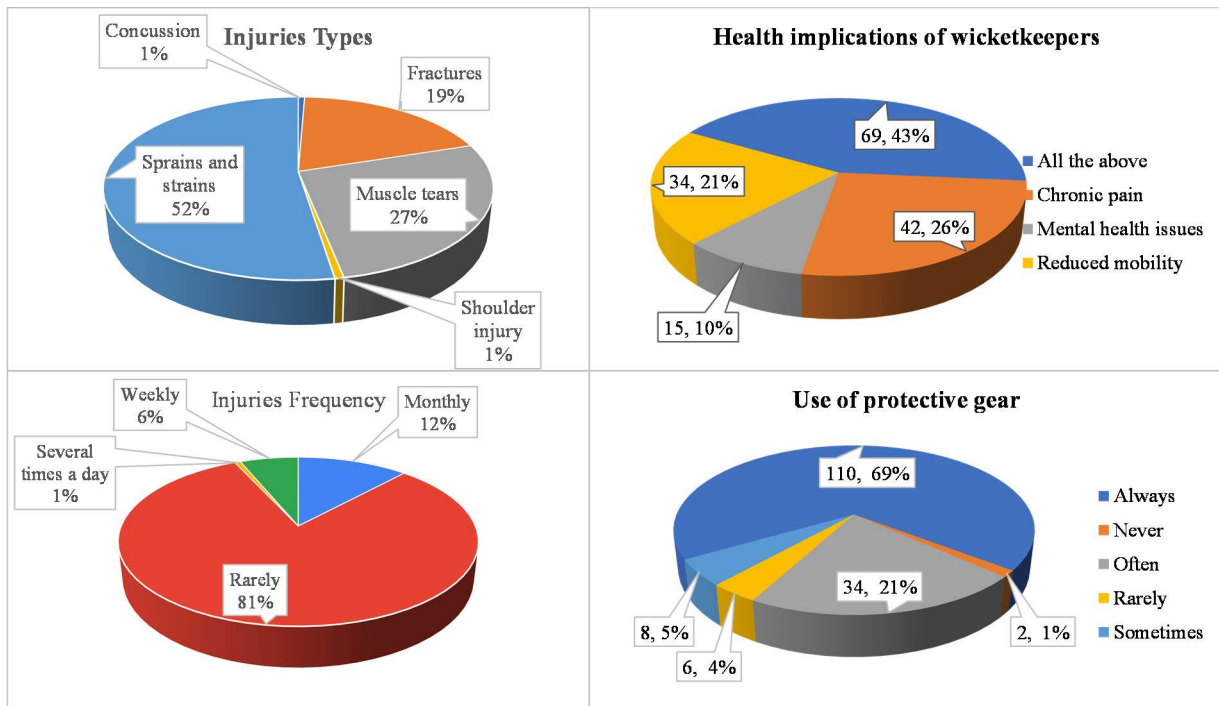
6.2 Prevalence and Distribution of Injuries: The study's findings strongly indicate that injuries among wicketkeepers are both common and recurring, affecting multiple body regions due to the demanding physical nature of the role. Data on injury frequency (Fig. 2) shows that a staggering 81% of participants report injuries as a rare but recurring phenomenon, while 12% experience them monthly, and a small portion, around 6%, encounter injuries on a weekly basis. This distribution suggests that while most injuries may not be daily, they are frequent enough to raise concerns about long-term musculoskeletal impact.

In terms of body sites affected (Analysis of CMDQ) reveals that the lower back is the most commonly affected area, with 62.5% of respondents experiencing discomfort. Among them, 21.3% reported pain 1–2 times a week, 13.1% experienced pain 3–4 times, and 3.1% had daily or near-daily pain episodes. Furthermore, Table 11 shows that 10.6% described the



lower back pain as very uncomfortable, underlining both high frequency and severity. Discomfort was also significant in the neck (25.6%), shoulders (10.6%–11%), upper back (7.5%), and thighs (11.9%). These patterns directly correspond to the biomechanical stresses involved in squatting, rapid lateral shifts, diving movements, and repetitive glove-to-ball contact. In particular, the hand and wrist regions, which are under high strain due to catching and ball deflections, showed 12.5% (right wrist) and 11.9% (right shoulder) prevalence.

Fig.2: Prevalence and Distribution of Injuries



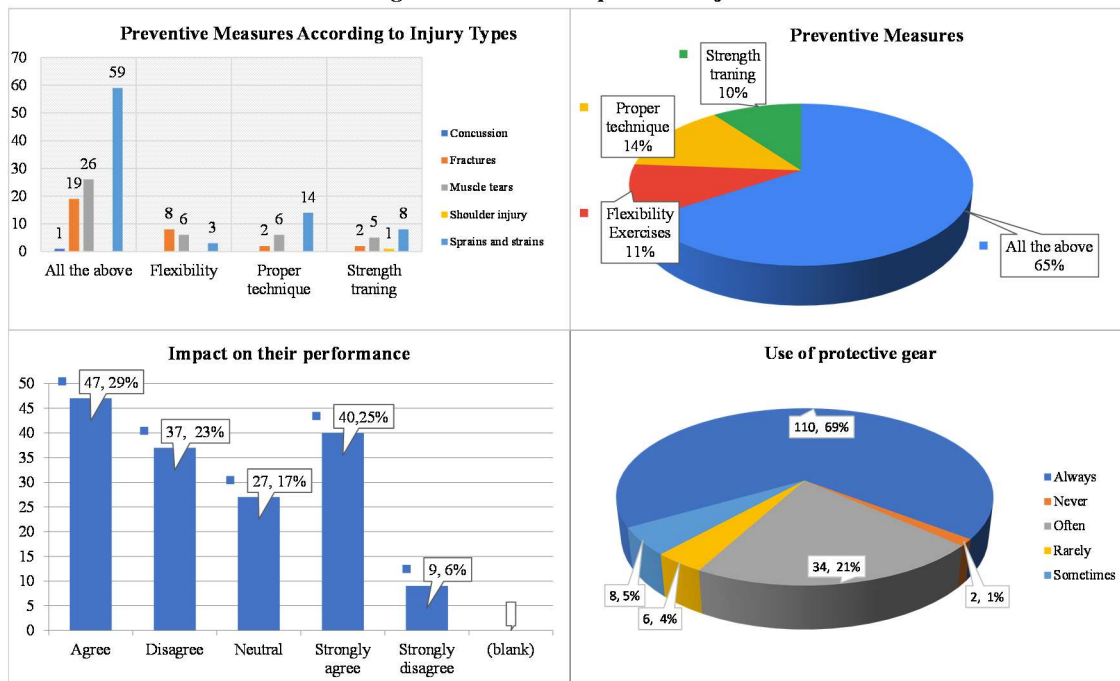
Muscle tears (36%), sprains and strains (27%), and fractures (21%) emerged as the top categories. These injuries are generally associated with sudden, explosive actions, such as lunging for a catch or rapidly shifting stance—which are hallmark actions of wicketkeeping. Additionally, the lower limb injuries (e.g., thigh, knee, and lower leg) are attributed to poor ergonomic squatting posture and repeated vertical load stress. CMDQ analysis further confirms that lower back (4.37%) and right wrist (2.5%) substantially interfered with match performance. Even thigh and knee discomfort had some level of work-related interference (3.75% and 3.12%, respectively). This emphasizes that these injuries are not just transient annoyances but functional impairments. Another compelling insight is that 43% of respondents reported multiple health concerns (chronic pain, reduced mobility, and mental health issues), while 26% reported chronic pain alone. This multidimensional burden underscores the compounded effects of physical injuries on a wicketkeeper's long-term health and ability to continue the sport.

Results clearly establish that injuries in wicketkeeping are widespread, largely affecting the lower back, wrists, shoulders, and thighs, with a mix of acute and chronic injuries that significantly hinder performance. The evidence reinforces the urgent need for targeted ergonomics, strength conditioning, and injury monitoring in this athlete population. These patterns reflect those found by Thour & Kaushik (Thour, 2023), who reported similar regions of strain among cricketers, and are corroborated by Dhillon et al. (Dhillon M. S., 2013), who emphasized the vulnerability of wicketkeepers to back and hand injuries due to repetitive loading and inadequate protection.



6.3 Evaluating the Severity, Duration, and Functional Consequences of Injuries: The analysis of injury severity and its direct consequences on performance and health reveals that the physical toll of wicketkeeping extends beyond momentary discomfort—it significantly affects overall functionality and game readiness. Based on Table 11, pain severity was most pronounced in the lower back, with 10.6% of respondents experiencing "very uncomfortable" pain, followed by 16.9% reporting "slightly uncomfortable" and 10% "moderately uncomfortable" levels. Notably, wrist and thigh pain, though less frequently reported, were also present in the moderate to high discomfort range, affecting tasks that require grip strength and swift leg movement.

Fig.3: Functional Consequences of Injuries



CMDQ which also helps evaluate the interference of pain with work, provides critical insights. The lower back again emerged as the most functionally debilitating region, with 4.37% reporting substantial interference, and 32% slight interference, highlighting a high rate of performance disruption. Right thigh and knee discomfort also showed functional impact, with 3.75%–4.37% reporting noticeable work-related hindrance. These metrics collectively point to chronic strain accumulating over time and interfering with training, match execution, and recovery.

Corroborating these trends, 54% of wicketkeepers (29% agree + 25% strongly agree) believed their injuries directly impacted their playing performance. Only 17% remained neutral, and 23% outright disagreed, suggesting that for the majority, injuries have functional repercussions. These findings reflect the conclusions of PhysioAdvisor (Physio Remedies, 2022), which underscores the link between wicketkeeping-related posture and long-term mobility issues, particularly lower back and knee impairments.

Additionally, 43% of respondents experience multiple health concerns, combining chronic pain, reduced mobility, and mental health issues. A closer breakdown shows 26% suffering from chronic pain and 21% from reduced mobility, both of which directly reduce reaction time, catching accuracy, and squat-recovery fluidity. These symptoms point toward chronic musculoskeletal fatigue and cumulative trauma—a conclusion also supported by findings in the CMDQ (Cornell Musculoskeletal Discomfort Questionnaire), where neck, lower back, and thigh regions were common sites of reported pain frequency and severity.



Cover Page



From a well-being standpoint, these injury consequences are not merely physical. While not directly surveyed in-depth, the 10% reporting mental health issues may be attributed to performance anxiety, injury recurrence fear, and chronic pain-induced fatigue, factors well-documented in elite sports psychology literature. Injuries not only reduce match participation but also lead to mental burnout, particularly in part-time cricketers who juggle multiple roles.

6.4 Investigating Contextual and Game-Related Risk Factors Associated with Injury Occurrence in Wicketkeeping:

The role of contextual and game-related factors in contributing to injuries among wicketkeepers was evident through multiple indirect indicators in the dataset. One of the primary risk factors was inconsistent or partial use of protective gear, where only 69% of respondents reported “always” using protective gear, while 21% used it only “sometimes,” and 10% rarely or never used it. This sporadic usage raises serious concerns about exposure to direct trauma, especially to the hands, fingers, and knees, which are the most injury-prone areas in wicketkeeping (Dhillon M. S., 2013) (Raghavendra Rao, 2020).

Another contextual risk factor relates to match load and playing surface conditions, which although not explicitly quantified in this study, can be inferred from CMDQ tables showing high pain prevalence in the lower back, thighs, and knees—regions most affected by hard, uneven grounds. This aligns with findings from the PhysioAdvisor database, which highlights poor pitch conditions and extended game durations as contributors to overuse injuries.

Moreover, fatigue due to training intensity and lack of recovery is a major underlying factor. With 81% reporting injuries as occurring “rarely,” yet consistently across the sample, it suggests a chronic exposure to sub-threshold injuries likely exacerbated by repetitive training without adequate rest or periodization. The low adherence to flexibility or strength training further compounds this issue. Lastly, match intensity and lack of supervision in amateur and semi-professional settings contribute to technical errors and poor biomechanics—risk amplifiers, especially when combined with inadequate PPE and suboptimal playing conditions. Collectively, these insights reinforce the need for environmental audits, PPE monitoring, and workload regulation to reduce risk exposures that are currently underestimated in wicketkeeping roles.

6.5 Summary of Results and Conclusions: This study analyzed injury epidemiology among 160 male wicketkeepers aged 16–50 years, with an average age of 24.8 years and average wicketkeeping experience of 4.2 years. Most participants were active players from local clubs and cricket academies in Mumbai, spanning school to semi-professional levels. The demographic profile indicated that the majority engaged in regular training and frequent matches, emphasizing their continuous exposure to injury risks.

Findings across the three key objectives revealed that hand and finger injuries were the most common (62%), followed by lower back strain and knee discomfort, confirming wicketkeeping as a high-risk position. Injuries were more prevalent in matches played on hard or uneven surfaces, and their severity ranged from mild discomfort to conditions requiring professional medical care.

Risk factors included inadequate use of protective gear, match fatigue, and improper squatting technique. CMDQ-based analysis showed high musculoskeletal discomfort scores in the wrists, lower back, and knees. Many participants reported recurring injuries due to insufficient rest and ineffective recovery protocols.

In conclusion, the study underscores the urgent need for structured prevention strategies, improved training practices, and enforced safety protocols to reduce injury incidence and recurrence among wicketkeepers.

VII. RECOMMENDATIONS TO REDUCE INJURY INCIDENCE AND RECURRENCE AMONG WICKETKEEPERS

1. Physical Conditioning and Training

- ✓ Implement strength training programs focused on the core, lower back, legs, and shoulders to reduce overuse injuries.



Cover Page



- ✓ Encourage flexibility exercises, such as dynamic stretching and yoga, to improve mobility and reduce muscle tightness.
- ✓ Integrate neuromuscular coordination drills and reaction training to enhance reflexes and reduce risk during diving and catching.
2. **Technical Skill Development**
 - ✓ Provide regular coaching on posture, stance, and catching technique, especially for younger and amateur wicketkeepers.
 - ✓ Introduce biomechanical assessments to correct faulty movement patterns and reduce stress on joints.
3. **Use and Regulation of Protective Equipment**
 - ✓ Enforce mandatory use of properly fitted protective gear (gloves, knee pads, thigh guards, etc.) during all matches and training sessions.
 - ✓ Review and upgrade protective gear periodically to ensure it meets safety standards and remains in good condition.
4. **Workload Management and Recovery**
 - ✓ Introduce rest breaks and workload monitoring during intensive practice or match schedules.
 - ✓ Promote active recovery protocols such as stretching, foam rolling, and icing to manage fatigue and microtrauma.
 - ✓ Encourage the use of physiotherapy and early rehabilitation for even mild injuries to prevent escalation.
5. **Education and Awareness**
 - ✓ Conduct injury prevention workshops to educate players on signs of overuse, the importance of recovery, and injury first-aid.
 - ✓ Train coaches and support staff in early injury detection and ergonomic risk reduction practices.
6. **Injury Tracking and Early Intervention**
 - ✓ Maintain individual injury logs to monitor trends, high-risk players, and recurrence patterns.
 - ✓ Use this data to tailor personalized injury prevention plans for each wicketkeeper.

VIII. SCOPE OF STUDY

This study explores the epidemiology and prevention of injuries among wicketkeepers, a highly specialized and physically demanding role in cricket. The scope extends to injury risk reduction, ergonomic optimization, cross-disciplinary relevance, and long-term athlete health, with implications for player safety, coaching, and equipment development.

1. **Career Longevity through Proactive Interventions:** Early implementation of injury prevention strategies is critical for prolonging an athlete's career. Former Indian cricketer M.S. Dhoni, known for his exceptional career longevity, exemplifies how consistent physical conditioning, workload management, and injury prevention routines can support sustained elite performance (Bhan, 2020). This study emphasizes similar early interventions tailored to wicketkeeping demands.
2. **Cross-Sport Applicability to High-Impact Roles:** The physical demands of wicketkeeping—characterized by rapid reflex actions, repetitive squatting, and lateral movements—mirror those faced by goalkeepers in football and hockey. Injury prevention approaches used by elite athletes like Tim Howard (goalkeeper) underline the relevance of strength, flexibility, and proprioception training across these disciplines (Foster, 2019).
3. **Ergonomic Training and Technique Optimization:** Injury incidence among wicketkeepers is often linked to suboptimal biomechanics and repetitive strain. Case observations, such as that of Indian cricketer Rishabh Pant, suggest that improved movement mechanics and posture can play a pivotal role in reducing strain-related injuries (Dhillon M. S., 2013), (Thour, 2023).
4. **Educational Value for Coaches and Practitioners:** The study's findings can enhance coaching frameworks by promoting injury literacy and emphasizing evidence-based prevention strategies. This aligns with broader trends in sports management, where coaches increasingly focus on physical and mental health, similar to the holistic approach adopted by England football manager Gareth Southgate (Reeves, 2020).



Cover Page



5. **Stimulating Innovation in Protective Equipment:** Ergonomically sound and sport-specific protective gear is crucial in reducing injury severity. Cricketers like Ben Stokes and athletes like LeBron James have benefited from custom-designed equipment that addresses sport-specific injury risks (Boyle, 2021). This study advocates for design enhancements in wicketkeeping gloves, knee guards, and compression apparel.
6. **Long-Term Health and Post-Career Well-being:** The long-term physical implications of poor injury management are profound. Athletes like Sachin Tendulkar demonstrate how strategic conditioning and early care can prevent chronic issues and support post-retirement health (Gupta, 2017). This study reinforces the need for a longitudinal approach to wicketkeeper wellness.

IX. AUTHOR STATEMENTS

The authors extend their sincere appreciation to all wicketkeepers who participated in this study. Their voluntary involvement and insights were instrumental to the successful completion of this research. Informed written consent was obtained from each participant after clearly explaining the study's purpose, methodology, and any foreseeable risks or discomforts associated with participation. The authors affirm that there are no actual or potential conflicts of interest that could have influenced the design, conduct, analysis, or reporting of this study. Furthermore, the research was conducted independently and did not receive any financial support, sponsorship, or grant funding from governmental, academic, or commercial institutions.

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