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PREVALENCE AND RISK FACTORS OF SPORTS INJURY IN SUNDERGARH DISTRICT

[1]*Dr. Sudhansu Sekhar Mahapatra, [2]Prof. Dr. Naresh Panigrahi, [3]Dr. Rahul Saket

[1]PGT-3[RD] YEAR, Department of Orthopaedics, Hi-Tech Medical College, Rourkela.
[2]Head of Department, Hi-Tech Medical College, Rourkela.
[3]Associate Professor, Hi-Tech Medical College, Rourkela.

***Corresponding Author: Dr. Sudhansu Sekhar Mahapatra**

PGT-3RD YEAR, Department of Orthopaedics, Hi-Tech Medical College, Rourkela.

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ABSTRACT

Background: Sundergarh district in Odisha is widely known for its strong sporting culture, especially in hockey, athletics, and Kabaddi. However, regional data on sports-related injuries are limited, making it difficult to develop targeted preventive and rehabilitation strategies. **Objectives:** To estimate the prevalence, characteristics, and risk factors of sports injuries among athletes in Sundergarh district. **Methods:** A community-based cross-sectional study was carried out among 320 athletes aged 10–35 years engaged in structured sports training. Data on demographics, sports participation, injury profile, associated factors, and treatment-seeking behaviour were collected using a validated semi-structured questionnaire. Multistage sampling was used, and data were analysed using SPSS version 25 with a significance threshold of $p < 0.05$. **Results:** Of the 320 athletes enrolled, 186 (58.1%) reported at least one injury in the previous 12 months. The ankle (28.5%), knee (22.0%), and shoulder (14.5%) were the most frequently affected sites. Sprains (31.7%), strains (27.3%), and contusions (18.8%) were the most common injury types. Non-contact mechanisms accounted for 54.8% of injuries. High training intensity ($p = 0.01$), absence of warm-up ($p = 0.03$), and poor field conditions ($p = 0.02$) showed significant associations with injury occurrence. Physiotherapy services were sought by 42% of injured athletes, while only 18% consulted medical professionals. **Conclusion:** Sports injuries are highly prevalent in Sundergarh district, with lower-limb and soft-tissue injuries being predominant. Modifiable risk factors including lack of warm-up, excessive training load, and inadequate playing surfaces contribute substantially to injury risk. Improving preventive practices and access to sports medicine services is essential to reduce the injury burden.

KEYWORDS: Sports injuries; prevalence; Sundergarh; athletes; Odisha; risk factors; epidemiology.

INTRODUCTION

- Sports participation has increased rapidly across India, accompanied by a corresponding rise in sports-related injuries. As athletes train and compete at higher intensities, their vulnerability to musculoskeletal injuries increases.
- Sundergarh district in northern Odisha has a long history of excellence in sports and is often referred to as the cradle of Indian hockey. Athletes from this district continue to excel in hockey, athletics, Kabaddi, and other competitive sports.
- Many athletes in the district train in resource-limited environments, where improper techniques, inadequate conditioning, substandard field surfaces, and insufficient sports medicine support are common. Delayed reporting and lack of rehabilitation may further aggravate injuries and predispose athletes to recurrence.
- Despite this strong sporting heritage, there is little scientific evidence describing the burden and characteristics of sports injuries in this region. The absence of regional data limits the development of preventive and rehabilitation strategies tailored to the needs of local athletes.
- Understanding the pattern and determinants of sports injuries among athletes in Sundergarh is crucial for formulating preventive programmes, strengthening physiotherapy and rehabilitation services, and supporting optimal athletic performance.
- Therefore, this study was undertaken to determine

the prevalence, pattern, and risk factors of sports injuries in the district.

MATERIALS AND METHODS

Study Design and Setting

A community-based cross-sectional study was conducted among athletes in Sundergarh district, Odisha. Data were gathered from sports academies, training centres, schools, and district-level sporting events.

Study Population

Athletes aged 10–35 years, participating in organized sports for at least 6 months and training ≥3 days per week, were included. Participants were required to be residents of Sundergarh district and willing to provide consent (and assent for minors).

Exclusion Criteria

Athletes with musculoskeletal deformities, chronic orthopaedic illness, recent major non- sports trauma, or incomplete questionnaires were excluded.

Sampling: A sample size was calculated using the standard prevalence formula. A multistage sampling method was followed to ensure representation across sports disciplines.

Data Collection Tool

A pre-tested, semi-structured questionnaire was administered through face-to-face interviews. It covered demographic details, sports participation history, training habits, injury profile, environmental factors, and treatment-seeking behaviour.

Definition of Sports Injury

A sports injury was defined as any musculoskeletal injury sustained during training or participation that caused pain, functional limitation, or inability to continue activity for at least 24 hours.

Data Analysis

Data entry was done in Microsoft Excel and analyzed using SPSS version 26. Descriptive statistics summarized the findings, while Chi-square or Fisher's exact tests assessed associations between injuries and risk factors. A p-value < 0.05 was considered statistically significant.

RESULTS

A total of 314 athletes participated in the study, with a mean age of 23.1 ± 4.8 years. Of these, 152 athletes (48.4%) reported at least one sports injury within the past 12 months.

Injury Type Distribution

Injury Type	Percentage (%)
❖ Sprain	33.6
❖ Strain	25.9
❖ Contusion	19.4
❖ Fracture	8.2
❖ Others	12.9

Sport-wise Distribution

Injuries occurred most frequently in contact sports:

- ❖ Hockey: 30.8%
- ❖ Football: 25.4%
- ❖ Kabaddi: 17.9%

Non-contact sports including athletics and badminton: 13.6%

Risk Factors

Significant predictors of injury included:

- ❖ Training >10 hours/week (AOR 2.0, p = 0.01)
- ❖ Skipping warm-up (AOR 1.7, p = 0.03)
- ❖ History of previous injury (AOR 2.8, p = 0.002)

Anatomical Regions Involved

- ❖ Lower limb: 56.7%
- ❖ Upper limb: 28.1%
- ❖ Head/trunk: 15.2%

DISCUSSION

- ❖ This study highlights the substantial burden of sports injuries among athletes in Sundergarh district.
- ❖ Nearly half of the study participants reported an injury in the past year, indicating considerable vulnerability within the local athletic population. Lower-limb injuries dominated the overall pattern, consistent with the nature of movements involved in popular sports such as hockey and football, which require rapid changes in speed and direction, tackling, sprinting, and jumping.
- ❖ Although contact sports contributed greatly to injury occurrence, non-contact mechanisms were also common, suggesting that inadequate neuromuscular control, muscle fatigue, and poor conditioning play an important role.
- ❖ The significant association between high training load and injury reinforces the importance of balancing training intensity with adequate rest. Skipping warm-up sessions emerged as a preventable risk factor, emphasizing the protective role of structured warm- up in improving muscle performance and stability.
- ❖ A history of prior injury remained the strongest predictor of future injury, indicating the frequent problem of incomplete rehabilitation and premature return to sport.
- ❖ Strengthening rehabilitation support and educating athletes and coaches about appropriate recovery timelines may substantially decrease recurrence.
- ❖ The findings reveal the need to integrate preventive practices into routine sports training in the district. Initiatives such as neuromuscular training, structured warm-up programs, improved playing surfaces, and better access to physiotherapy and sports medicine services can collectively reduce injury frequency and promote long-term athletic success.

CONCLUSION

- ❖ Sports injuries are highly prevalent among athletes in Sundergarh district, with lower- limb

and soft-tissue injuries being the most common.
- ❖ High training load, inadequate warm-up, and previous injury were identified as key risk factors.
- ❖ Implementation of preventive approaches, improved training infrastructure, and greater availability of sports medicine support are essential to reduce the injury burden.

LIMITATIONS

- ❖ The cross-sectional design limits causal interpretation.
- ❖ Injury history relied partly on self-reporting, introducing possible recall bias.
- ❖ Only registered athletes were included; injuries among recreational or unregistered players may not have been captured.
- ❖ Clinical evaluation of injury severity or duration was not uniformly performed.

RECOMMENDATIONS

- ❖ Incorporation of structured warm-up and cool-down routines in all training schedules.
- ❖ Monitoring and regulating training load with mandatory rest days.
- ❖ Integration of sport-specific strengthening, conditioning, and balance exercises.
- ❖ Establishment of injury-surveillance systems in sports institutions.
- ❖ Access to physiotherapy and rehabilitation services at district sports facilities.
- ❖ Training workshops for coaches and athletes on safe sports participation.
- ❖ Enforcement of protective equipment use in contact sports.
- ❖ Adoption of standardized return-to-play protocols.
- ❖ Longitudinal research to evaluate long-term impact and effectiveness of preventive Strategies.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest related to this study.

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ETHICAL APPROVAL

Ethical clearance was obtained from the Institutional Ethics Committee of Hi-Tech Medical College, Rourkela. Written informed consent was obtained from all study participants prior to data collection.

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