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EPIDEMIOLOGICAL STUDY OF LOWER LIMB INJURIES IN MALE KHO KHO PLAYERS IN MAHARASHTRA: A COMPREHENSIVE STUDY

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Abstract:

This study examines the epidemiological patterns of injuries among male Kho Kho players Maharashtra, focusing specifically on the high incidence of lower limb injuries in competitive settings. It analyzes the types, causes, and frequency of injuries across inter-collegiate, inter-zone, and inter-university competition. Data from both urban centers and rural regions provide insights into variations in injury occurrence, with knee, toe, and foot-paw injuries emerging as the most prevalent.

Keywords: *Kho Kho injuries; epidemiology; lower limb injuries; Maharashtra players; injury risk factors; performance factors.*

Introduction:

Kho Kho, one of India's oldest traditional sports, is characterized by rapid sprinting, sudden directional changes, frequent crouching, and intense offensive–defensive interactions, all of which place significant biomechanical stress on the lower limbs. The current study investigates the epidemiological study of injuries among players from both urban centers such as Mumbai, Pune, and Nagpur and rural regions where Kho Kho continues to be deeply rooted culturally. By focusing on injury types such as muscle strain, knee injuries, ankle sprains, foot-paw trauma, and toe injuries,

Scope of the Study:

The present research systematically examines the epidemiological patterns of injuries among male Kho Kho players in Maharashtra, focusing specifically on competitive environments. The scope includes identifying the types, causes, and frequency of injuries sustained during matches across inter-collegiate, inter-zone, and inter-university tournaments. The scope is deliberately limited to lower limb injuries, as they are the most frequent due to the sport's high-speed accelerations, abrupt directional changes, and continuous crouching phases. Specifically, the study focuses on muscle strains, knee injuries, ankle injuries, foot-paw injuries, and toe injuries to create a comprehensive injury profile. Ultimately, the findings aim to contribute to evidence-based injury prevention strategies and safety enhancements for the sport.

Significance of the Study:

The significance of this research lies in its identification of the most common injury types, anatomical locations, and precipitating factors among male Kho Kho players in Maharashtra. Understanding these injury trends allows for recommendations aimed at reducing injury incidence, severity, and recurrence, thereby improving athletic participation and player longevity. They also encourage the establishment of standardized injury-screening procedures for competition.

Importance of the Study:

This study is important because it equips coaches, players, and sports organizers with evidence-based insights into the most common injury types and anatomical vulnerabilities in Kho Kho. The results also

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help sports organizations strengthen on-field medical care and rehabilitation services, addressing the current lack of scientific literature on Kho Kho injury epidemiology. The study supports in developing standardized rehabilitation guidelines, improving infrastructure, and ensuring equitable access to physiotherapy resources. Ultimately, the research promotes long-term athlete welfare, helping players reduce injury recurrence, sustain performance, and extend their sporting careers.

Objectives of the Study:

1. To develop a validated questionnaire for analyzing injuries in Kho Kho.
2. To determine the different types of injuries experienced by male Kho Kho players.
3. To compare injury types according to anatomical regions.
4. To determine the overall proportion of sports injuries among male Kho Kho players.
5. To analyze risk factors intense physical contact, directional changes, lack of warm-up, and playing surface associated with injuries.
6. To assess the frequency and patterns of injuries affecting the muscles, knees, ankles, foot paw, and toes.
7. To propose preventive strategies and recommendations for reducing injury risk in Kho Kho.

Research Hypotheses:

H11: Male Kho Kho players experience identifiable categories of sports injuries.

H12: Injury types differ significantly according to anatomical region.

H13: Intense physical contact, directional changes, insufficient warm-up, and playing surface significantly influence injury occurrence.

Null Hypotheses:

H01: No identifiable differences exist in injury types among players.

H02: Injury types do not differ according to anatomical region.

H03: Contact, movement changes, warm-up, and surface conditions do not contribute to injury occurrence.

Methodology:

A descriptive epidemiological research design was employed to systematically assess injury patterns among male Kho Kho players in Maharashtra. The study included players aged 17 to 25 years who participated in inter-collegiate, inter-zone, and inter-university competition. Data were gathered using a validated questionnaire supported by players, and physiotherapists to ensure accuracy and reliability. Additionally, observations of competitive matches were conducted to supplement self-reported data and verify the nature, frequency, and context of injuries. This multi-method approach strengthened the depth and validity of the injury analysis.

Statistical Analysis:

Table: Frequency of Lower Limb Injuries (n = 87)

Anatomical Region	Frequency(n=87)	Percentage(%)
Muscle Strain	9	10.34%
Bone Fracture	0	0.%
Knee	27	31.03%
Ankle	4	4.59%
Foot Paw	23	26.43%
Toe	24	27.58%

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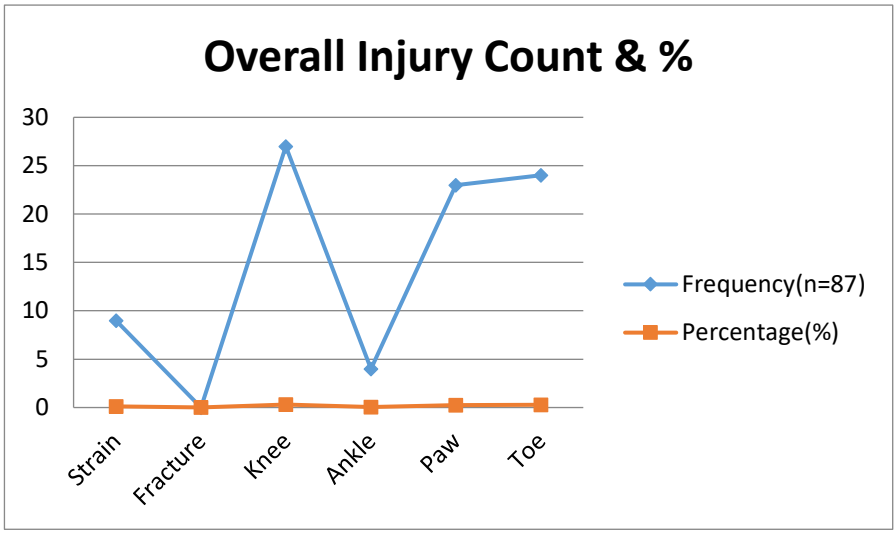

Interpretation:

Knee injuries were the most common (31.03%), followed by toe injuries (27.58%) and foot-paw injuries (26.43%). These injuries reflect the sport's biomechanics—frequent kneeling, toe propulsion, rapid acceleration, and foot contacts. Muscle strains (10.34%) were associated with sudden sprinting demands, while ankle sprains (4.59%) likely resulted from unstable surfaces or poor landing mechanics. Notably, no bone fractures were reported. Injury frequency was highest at the inter-zone and inter-university levels, reflecting higher match intensity.

Conclusion:

This epidemiological study provides a comprehensive understanding of lower limb injury patterns among male Kho Kho players in Maharashtra. Knee, toe, and foot-paw injuries emerged as the most frequent due to the sport's technical demands, while risk factors included rapid directional changes, insufficient warm-up, and inadequate playing surfaces. The research highlights the urgent need for injury-prevention programs, improved safety infrastructure, and standardized screening procedures. Coaches, physiotherapists, and policymakers can use these findings to develop evidence-based interventions that promote player safety and long-term performance.

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