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Thematic paper on lower limb sports injuries among inter university Kabaddi players in Jammu and Kashmir

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Abstract
Kabaddi, a popular contact sport, demands rigorous physical exertion, agility, and strategic planning. In the recent past decade, it has been grown in popularity at the national level or the international level also. It is a highly strategic game that involves rapid forceful movements of the body; thus, injuries are inevitable in this field. Inter-university competitions witness a surge in participation, especially in regions like Jammu and Kashmir. However, with the physical intensity of the sport comes the risk of injuries, particularly to the lower limbs, which can hamper players' performance and career longevity. This thematic paper explores the prevalent lower limb sports injuries among inter-university Kabaddi players in Jammu and Kashmir, focusing on their causes, consequences, prevention strategies, and rehabilitation techniques.

Keywords: Sport related injury, epidemiology, prevalence, preventive measures, combat sport, Indian game

Introduction
Kabaddi, deeply rooted in the cultural fabric of India, has gained significant popularity at inter-university levels in regions like Jammu and Kashmir. This paper aims to shed light on the lower limb injuries sustained by Kabaddi players during these competitions. Understanding the nature and frequency of these injuries is crucial for devising effective preventive measures and ensuring the well-being of athletes. Kabaddi is one of the most popular forms of combat sport which has its origin in South Asia and has spread gradually to other countries like Canada, Iran, Japan, the UK, etc., (Pal, Kumar, *et al*., 2020; Sudhakar *et al*., 2014) [13, 19]. It is the state game of Haryana, Punjab, Tamil Nadu, Bihar, and Maharashtra. Since 1990, it is part of the Asian Games (Devaraju & Needhiraja, 2012) [3]. Contact sports can be defined as the sport in which players physically interact with each other, trying to prevent the opposing player or athlete from winning the game or sport (Dorney, 1998; Selva *et al*., 2018) [5, 16]. Kabaddi is a traditional game that is played in all regions of India and requires tremendous physical strength, stamina, agility, neuromuscular coordination, quick reflexes, intelligence and presence of mind in athletes (Dhillon *et al*., 2017; Murthy, 2016) [4, 11]. It involves rapid and forceful movements of the body during playing, injuries are inevitable (Sen, 2004) [17]. It requires offensive and defensive skills which makes the players prone to many types of sports-related injuries (Belaldavar *et al*., 2018) [2]. As Kabaddi is a contact sport so there are chances of various injuries to occur in the athletes during competition and training. Stress injuries and calf muscle injuries occur more in Kabaddi athletes. Players get injuries due to wrong technique or overload that may cause overuse injuries, knee injuries, and muscle strain and ligament sprains.

There is a dearth of evidence on epidemiology in Kabaddi players. There are only few studies on Indian kabaddi players. Dhillon MS *et al*., studied the epidemiology of knee injuries in Kabaddi players and found that most common knee injuries in Kabaddi players were Anterior Cruciate Ligament (ACL) injuries and other studies also (Mondal & Ghosh, 2017; Prabhu & Kishore, 2014) [10, 14] found that knee and ankle injuries were the most common in lower limb in Kabaddi players.

The present study aimed to document the prevalence of injury in terms of various body parts in Indian Kabaddi players and to record the awareness level and management by physiotherapy among Inter University Kabaddi players.

Causes of Injuries

The causes of lower limb injuries in Kabaddi can be multifactorial, including inadequate warm-up, overexertion, poor conditioning, improper technique, lack of protective gear, and playing on hard surfaces. Additionally, the intensity of competition and the pressure to perform can contribute to reckless manoeuvres, increasing the risk of injuries.

Contact with Opponents: Kabaddi is a contact sport, and collisions with opponents during tackles or raids can lead to lower limb injuries.

Muscle Strains: Sudden movements, such as sprinting, stopping abruptly, or changing direction, can strain the muscles of the lower limbs, leading to injuries like hamstring strains or quadriceps strains.

Ankle Sprains: Quick changes in direction or landing awkwardly after a jump can cause the ankle to twist, resulting in sprains or ligament injuries.

Fractures: Impact with the ground or opponents can cause fractures in the bones of the lower limbs, such as the tibia, fibula, or metatarsals.

Overuse Injuries: Repetitive actions, such as running, jumping, or lunging, can lead to overuse injuries like shin splints, stress fractures, or tendonitis.

Improper Footwear: Wearing improper footwear or shoes that lack adequate support and cushioning can increase the risk of lower limb injuries.

Poor Conditioning: Inadequate strength, flexibility, and conditioning of the lower limb muscles can make players more susceptible to injuries during the fast-paced and physically demanding game of Kabaddi.

Playing Surface: Hard or uneven playing surfaces can contribute to lower limb injuries by increasing the impact on the joints and muscles during movements.

Lack of Warm-up: Failure to properly warm up before practice or games can leave muscles cold and stiff, making them more vulnerable to strains and other injuries.

Fatigue: Playing for prolonged periods without adequate rest can lead to muscle fatigue, reducing the player's ability to maintain proper form and increasing the risk of injuries to the lower limbs.

Prevalent Lower Limb Injuries

Lower limb injuries are common among Kabaddi players due to the dynamic nature of the sport, involving sudden movements, tackles, and falls. Some of the most prevalent lower limb injuries include ankle sprains, knee ligament tears (Such as ACL and MCL injuries), muscle strains, and fractures.

Injury prevention plays an important role in the promotion of safe exercise participation by identifying risk factors for injury and re-injury. There has been an increased global interest in injury prevention research over the past decade. For improving future prevention programs, it is better to understand past and current sports injury prevention interventions because that is the first step towards injury prevention (McBain *et al*., 2012) [9]. There is a significant effect of sports injuries on the health and well-being of young athletes which can lead to an indirect decline in their career progress. The development of appropriate injury-prevention strategies based on well-defined epidemiological data is a moral necessity to minimize these injury effects. A multidisciplinary approach is needed to manage these injuries and their effects with the introduction of various prevention strategies (Gundre *et al*., 2015) [8]. Various benefits of injury prevention include greater health of the individual, longevity in the activity and reduced costs to the individual, the sport, the health care system, and society. Injury prevention is the potential for better performance. Thus, for better performance, we should try to motivate athletes, coaches, and sports teams to focus on injury prevention (Pal, Kalra, *et al*., 2020) [12].

Injury prevention has been divided into three broad categories:

- Primary prevention
- Secondary prevention
- Tertiary prevention

First, we focus on primary prevention because that is the goal of most prevention activities. Primary prevention involves the avoidance of injury, for example, ankle braces being worn by an entire team, even those with no history of a previous ankle sprain is considered as primary prevention of injury. Thus, an individual will not sustain an injury in the first place. However, secondary prevention involves appropriate early diagnosis and treatment once an injury has occurred. Here the main goal is to limit the development of disability, being optimally cared and basically known as treatment like early RICE (Rest, ice, compression, elevation) treatment of an ankle sprain. And the third category is tertiary injury prevention in which we focus on rehabilitation to reduce and correct an existing disability attributed to an underlying disease that is known as rehabilitation. In the case of a patient who has had an ankle sprain, this would involve balance board exercises and wearing an ankle brace while gradually returning to sport is considered as the example of tertiary prevention (Rennie, 2009) [15]. Once methods with potential for prevention have been identified, there is a need to carefully develop the prevention measures, assess them under ideal conditions, and consider the implementation context (Finch, 2006) [6]. Therefore, the development of injury prevention programs must take into consideration more than the biomechanics of injury. It must also engage stakeholders within the sport and/or community to understand some of the behavioural aspects and norms of the environment in which sport and injury occur. If a prevention program is biologically appropriate, but not appropriate within the context of the sport, it has little hope of being adopted and therefore little chance of being effective. The principles of risk management applied to the sports setting have been described in detail by Fuller (2007) [7]. Risk management is the overall process of identifying, assessing, and controlling risks. It can be applied within and across sport in the upper levels of policy and administration, in a team, and by an individual. Injury risks have been identified in most sports. For example, participants in contact sports experience head injuries. Risk control is the process of identifying and

implementing methods to control the level of exposure to hazards and/ or the consequences. There are four methods for risk control which are eliminate, retain and manage, outsource, and insure (Fuller, 2007) [7].

There are three basic steps for the identification of the injury risks that include:

- Reviewing injury reports from at least one season
- Reviewing player turnover and availability within one or more seasons
- Reviewing the literature on injury risks in the specifically sport (Rennie, 2009) [15].

It is important to recognize that the causes of injuries in the Kabaddi game are usually multifactorial and that a single preventive action or strategy may not be successful in isolation. Rather a combined strategic approach is required to 03 Scholars Research Library Pal S. Euro. J. Sports Exerc. Sci., 2021, 9 (1): 01-09 implement a successful sports safety framework that covers all possible situations (Murthy, 2016) [11]. An important preventive measure could be improvement in techniques that need to be taught to players by their coaches and trainers. The poor technique may result in injuries in sports. It has found that if an athlete improves their technique of playing then the rate of injuries is seen to be reduced but learning the correct technique for a sport takes time. As athletes gain experience, their technique improves. Thus, the frequency of injuries may be increased at the start of their careers. The technique of an athlete may cause injuries as well as preventing them (Stasinopoulos, 2004) [18]. Injury prevention generally focuses on modifiable risk factors: extrinsic factors, such as equipment, playing surface, rule changes and playing time, or intrinsic factors, such as fitness, flexibility and balance (Abernethy & Bleakley, 2007) [1]. There is also a need for biomechanically oriented injury interventions that focus on modifying the loads applied externally and internally to the human body. Prevention strategies should be aimed at controlling injury risks by reducing loading levels below relevant injury tolerance criteria or improving the body's capacity to tolerate and/or react to patterns of loading. For example, a helmet will attenuate impact energy, thereby reducing the head impact force. Hence, there is a need for integrated perspective prevention strategies on sports injury. The purpose of this review is to provide an overview of published articles on common injuries in Kabaddi and their prevention in this sport.

Common Lower Limb Injuries

Ankle Sprains

Resulting from sudden twisting motions, ankle sprains are among the most prevalent injuries in Kabaddi. They can range from mild to severe, affecting the ligaments surrounding the ankle joint.

Knee Ligament Tears

Injuries to the anterior cruciate ligament (ACL), medial collateral ligament (MCL), and other knee ligaments are common, often occurring during abrupt changes in direction or direct impact to the knee.

Muscle Strains

Overexertion and improper stretching can lead to strains in the muscles of the lower limbs, such as the quadriceps, hamstrings, and calf muscles.

Fractures

High-impact collisions or falls can result in fractures to the bones of the lower limbs, including the ankle, shin, and foot bones.

Consequences

Lower limb injuries can have significant consequences for Kabaddi players, both in the short and long term. Acute injuries may lead to immediate withdrawal from matches, impacting team performance and morale. Chronic injuries, if not properly addressed, can result in prolonged rehabilitation periods, recurrent pain, functional limitations, and even premature retirement from the sport.

Prevention Strategies

Preventing lower limb injuries among Kabaddi players requires a multifaceted approach. This includes implementing comprehensive warm-up routines, strengthening exercises targeting the lower limbs, educating players about proper technique and injury prevention strategies, ensuring adequate rest and recovery periods, and promoting the use of appropriate protective equipment such as ankle braces and knee pads.

Rehabilitation Techniques

In the event of lower limb injuries, prompt and effective rehabilitation is essential for the player's full recovery and return to play. Rehabilitation protocols may include physiotherapy, strength and flexibility exercises, proprioceptive training, and gradual reintroduction to sport-specific activities under the guidance of healthcare professionals.

Discussion

The discussion surrounding lower limb injuries among inter-university Kabaddi players in Jammu and Kashmir prompts consideration of various factors. These include the need for increased awareness among players, coaches, and administrators regarding injury prevention strategies. Additionally, there's a necessity for improved infrastructure, including better playing surfaces and access to sports medicine facilities. Moreover, fostering a culture of safety and prioritizing player welfare over the pressures of competition is imperative.

Injury Surveillance and Data Collection

Implementing a robust injury surveillance system is crucial for tracking and analysing lower limb injuries among Kabaddi players. Collecting comprehensive data on the type, frequency, severity, and circumstances of injuries can provide valuable insights for developing targeted prevention strategies and evaluating their effectiveness over time.

Player Awareness and Education

Increasing player awareness about the risks of lower limb injuries and the importance of injury prevention is essential. Educational initiatives should focus on teaching players proper techniques, the importance of warm-up and cool-down routines, recognizing early signs of injury, and understanding the significance of rest and recovery in injury prevention.

Coach and Official Training: Coaches and officials play a pivotal role in creating a safe and supportive environment

for Kabaddi players. Providing training and resources to coaches and officials on injury prevention strategies, proper player management, and recognizing and responding to injuries promptly can significantly contribute to reducing the incidence of lower limb injuries.

Infrastructure and Equipment Standards:
Improving infrastructure and ensuring adherence to safety standards are critical for minimizing the risk of lower limb injuries. This includes maintaining quality playing surfaces, providing adequate shock-absorbing materials, and ensuring the availability and proper fit of protective equipment such as shoes, ankle braces, and knee pads.

Psychological Support
The psychological impact of lower limb injuries should not be overlooked. Sustaining an injury can be emotionally challenging for players, affecting their confidence, motivation, and mental well-being. Offering psychological support services, such as counselling and mental health resources, can help players cope with the psychological stress associated with injury rehabilitation and facilitate their return to play.

Collaboration with Healthcare Professionals
Establishing partnerships with healthcare professionals, including sports physicians, physiotherapists, and athletic trainers, is essential for providing comprehensive care to Kabaddi players. Healthcare professionals can contribute expertise in injury prevention, diagnosis, treatment, and rehabilitation, ensuring that players receive timely and appropriate medical attention when needed.

Research and Innovation
Continued research and innovation are essential for advancing our understanding of lower limb injuries in Kabaddi and developing novel approaches to injury prevention and management. Investing in research initiatives focused on biomechanics, injury epidemiology, and rehabilitation techniques specific to Kabaddi can inform evidence-based practices and drive improvements in player safety and performance.

Conclusion
Lower limb injuries pose a significant challenge to the performance and well-being of inter-university Kabaddi players in Jammu and Kashmir. By understanding the causes, consequences, and preventive measures associated with these injuries, stakeholders can work collaboratively to create a safer playing environment and promote the long-term health of athletes. Continued research and investment in injury prevention and rehabilitation strategies are essential to ensure the sustainable growth and success of Kabaddi as a sport in the region.

Recommendations for Future Research
Further research is needed to explore the specific risk factors contributing to lower limb injuries in inter-university Kabaddi competitions in Jammu and Kashmir. Longitudinal studies tracking injury patterns over multiple seasons, as well as qualitative investigations into players' experiences and perceptions of injury prevention strategies, can provide valuable insights for the development of targeted interventions and policies aimed at reducing the incidence and severity of lower limb injuries in this population.

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