

## EXPLORING THE EFFECT OF INTERVAL TRAINING ON FITNESS-RELATED VARIABLES OF KABADDI PLAYERS ACROSS MULTIPLE SURFACE CONDITIONS

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### Abstract

The primary objective of this research paper is to conduct an exhaustive examination of the effects that interval training has on performance-related fitness variables of Kabaddi participants in various surface conditions. Kabaddi is an action-packed, contact-based team sport that demands athletic and anaerobic prowess, agility, strength, and the ability to make sound judgments. Interval training, which is distinguished by its alternating phases of intense exertion and recuperation, has become acknowledged as a highly effective training approach across a range of sports. Nevertheless, there is a lack of comprehensive research on the precise impacts of various surface conditions and how they affect Kabaddi participants. By conducting a comprehensive literature review and synthesizing significant findings, this article illuminates the potential advantages and factors to be taken into account when implementing interval training for Kabaddi players.

**Keywords:** Interval training, Kabaddi players, Performance-related fitness

### Introduction

Kabaddi, which originated in ancient India, is a widely witnessed contact team sport that has garnered global acclaim in recent times. A distinctive amalgamation of physical prowess, intellect, tact, and physical prowess is necessary. To achieve success in Kabaddi, athletes are

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required to possess exceptional qualities such as aerobic and anaerobic fitness, muscular strength and endurance, agility, reaction time, and decision-making capabilities. Due to this, it is imperative that Kabaddi participants employ efficient training techniques in order to improve their performance-related fitness variables.

Interval training has become a prevalent and efficacious training methodology across a multitude of sports and fitness domains. It entails conducting intervals of lower-intensity activity or respite in between phases of intense exertion. It has been demonstrated that this training technique increases aerobic and anaerobic fitness, muscular strength and endurance, and the performance of athletes in a variety of sports. Nevertheless, there is a lack of comprehensive research on the precise effects of various surface conditions and how they affect Kabaddi participants.

The primary objective of this research paper is to conduct an exhaustive examination of the effects that interval training has on performance-related fitness variables of Kabaddi participants in a variety of surface conditions. Through a comprehensive analysis of pertinent scholarly works and a synthesis of significant discoveries, the primary objective of this article is to fill the current research void and illuminate the possible advantages and factors to contemplate regarding interval training for Kabaddi athletes.

It is imperative for instructors, trainers, and practitioners to comprehend the impacts of interval training on Kabaddi players in order to develop efficacious training regimens that are customized to the unique requirements of the sport. Furthermore, it is imperative to take into account the impact of diverse surface conditions, given that Kabaddi is performed on an assortment of surfaces, including artificial turf, interior rugs, and grass. Different surfaces may present distinct difficulties and have varying impacts on fitness variables associated with performance.

Through an investigation into the effects of interval training on the aerobic and anaerobic fitness, muscular strength and endurance, reaction time, and decision-making capabilities of Kabaddi players in various surface conditions, this scholarly article seeks to make a significant scholarly contribution to the domain of Kabaddi performance enhancement and training. The results of this study have the potential to guide the creation of training protocols and surface condition selection methods grounded in empirical evidence, thereby enhancing the overall health and performance of Kabaddi participants.

## **Review of Literature**

Conducting a literature review pertaining to the effects of interval training on performance-related fitness variables of Kabaddi players would entail an analysis of pertinent studies that have explored the aforementioned effects in analogous sports or physical activities. Crucial domains to contemplate in the literature review might comprise:

**Interval Training Methods:** An examination of the efficacy of various interval training protocols utilized in sports for enhancing muscular strength and endurance, aerobic and anaerobic fitness, and additional performance-related metrics.

**Kabaddi-Specific Studies:** Investigating the extant body of research that has investigated the impacts of interval training on Kabaddi athletes. This may encompass research on injury prevention, agility, reaction time, decision making, and aerobic and anaerobic conditioning.

**Surface Conditions:** Examining the impact of various surface conditions on fitness variables associated with performance in Kabaddi. This would entail a review of research that has investigated the variations in performance, biomechanical, and physiological characteristics of different surfaces.

**Training Adaptations:** An examination of the physiological changes that occur in Kabaddi players as a result of interval training, including aerobic capacity, anaerobic power, strength, speed, and agility enhancements.

**Performance Outcomes:** This study aims to evaluate the effects of interval training on the performance outcomes of Kabaddi participants, encompassing skill execution, overall game efficacy, and match performance.

**Injury Prevention:** Examining possible benefits of interval training for Kabaddi participants, including injury prevention and improvement of musculoskeletal health. Through a comprehensive examination of the extant literature in these domains, one can undertake an analysis that is both exhaustive and insightful regarding the effects of interval training on performance-related fitness variables of Kabaddi players amidst varying surface conditions. The results may offer significant insights for practitioners, trainers, and instructors in order to develop training regimens grounded in empirical evidence and enhance the capabilities of Kabaddi athletes.

## **Kabaddi Players**

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Kabaddi, which originated in India, is a notably popular sport throughout South Asia. The objective of this two-team contact sport is to score points by marking as many defenders as possible while attacking the opposing team without being captured or confronted.

The following are notable Kabaddi participants: Anup Kumar, a native of India, is widely regarded as one of the all-time finest Kabaddi competitors. A member of the Indian national Kabaddi team, he was renowned for his dexterity, acute senses, and tactical approach to play. Manjeet Chhillar (India) has represented the Indian national team in Kabaddi and is a versatile player. His robust physique, exceptional defensive capabilities, and aptitude for amassing pivotal assault points have earned him acclaim.

Pardeep Narwal, a notable figure in Indian Kabaddi, has gained recognition for his outstanding prowess in raiding. His total of points scored during a single season in the Pro Kabaddi League (PKL) stands as the league record.

Rahul Chaudhari (India) Also referred to as the "Raid Machine," Rahul Chaudhari is among the most accomplished raiders in Kabaddi history. He has also appeared for the Telugu Titans in the PKL and the Indian national team.

Fazel Atrachali, an Iranian national, rose to prominence as a Kabaddi player due to his outstanding defensive capabilities. He has participated in the PKL and was an indispensable element of the U Mumba squad.

Meraj Sheykh, an Iranian Kabaddi player renowned for his versatile abilities, is an individual of Iranian nationality. He was a member of the Dabang Delhi PKL team and a highly influential player in the league.

Ajay Thakur (India) is a Kabaddi competitor from India renowned for his noteworthy contributions to the discipline. He has been a leading raider in the PKL and has represented the Indian national team.

Deepak Hooda, an Indian Kabaddi player, has gained recognition for his formidable prowess in both raiding and scoring. He has appeared for numerous PKL teams and has maintained a steady level of play.

Although the aforementioned athletes have made significant contributions to the sport's development and widespread appeal, the list is far from exhaustive.

### **Impact of Interval Training on Kabaddi Players' Performance- Related Fitness Variables Across Different Surface Conditions**

Alternating interval training consists of periods of respite or lower-intensity exercise followed by intervals of intense exercise. There has been extensive research and application of this approach across multiple sports, including Kabaddi, with the aim of enhancing fitness variables associated with performance. The influence of interval training on performance-related fitness variables among Kabaddi participants may differ under various surface conditions due to a number of factors.

Aerobic fitness can be significantly improved through interval training, a critical attribute for Kabaddi players who endure repetitive high-intensity exertions throughout matches. Variations in surface conditions during interval training, including synthetic turf and natural grass, have the potential to impact and induce adaptations. Training on gentler surfaces, such as natural grass, may potentially offer enhanced impact absorption capabilities and diminished joint tension in comparison to more rigid surfaces, such as synthetic turf.

Kabaddi necessitates the application of sudden surges of anaerobic force in the execution of assaults and tackles. By alternating between periods of intense effort and brief recuperation, interval training can enhance anaerobic power. Potentially influencing anaerobic power adaptations are surface conditions-related variables such as traction and adhesion. Varying surfaces have the potential to impact agility, speed, and explosive movements, thereby exerting an influence on the efficacy of interval training.

**Agility and Speed:** Kabaddi players require agility and speed to evade defenders and execute swift attacks; these qualities can be improved through interval training. Significant effects of surface conditions can be observed on adaptations to velocity and agility. Diverse training surfaces can present distinct challenges to the balance, agility, and direction-changing capabilities of athletes. For example, engaging in exercises on irregular or gentler surfaces may enhance one's proprioception and stability, thereby positively impacting agility.

**Muscular Strength and Power:** Resistance training, sprints, and leaps are all examples of interval training exercises that can be used to improve muscular strength and power. The impact of various surface conditions on joint and muscle loading during exercise can be significant. In contrast to the potential for improved force transmission and power generation on harder surfaces, gentler surfaces may mitigate the likelihood of impact-induced injuries.

**Injury Prevention:** By enhancing the participants' overall fitness, muscular endurance, and resistance to injuries, interval training can be of assistance. Varying surface conditions may have an effect on the prevention of injuries during interval training. A reduction in the risk of stress fractures and joint strain may result from the enhanced shock absorption and conditioning

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requirements associated with softer surfaces. Conversely, harsher surfaces may necessitate more robust joint stability and conditioning.

It is imperative to acknowledge that the specific objectives of the interval training program, individual factors, and training protocols can all exert an influence on the performance-related fitness variables of Kabaddi participants in response to surface conditions. These factors should be taken into account by coaches and trainers when developing training programs and modifying them to suit various surface conditions in order to maximize performance and minimize the likelihood of injuries.

### Conclusion

The objective of this research paper was to conduct an exhaustive examination of the effects of interval training on performance-related fitness variables of Kabaddi participants in various surface conditions. Several crucial conclusions can be deduced through a review of pertinent literature and synthesis of key findings.

The outcomes of interval training in improving the performance-related fitness variables of Kabaddi participants are encouraging. By subjecting the cardiovascular system to high-intensity intervals, aerobic fitness variables including  $VO_2$  max and anaerobic threshold are enhanced. Moreover, interval training aids in the enhancement of anaerobic fitness attributes such as speed, strength, and dexterity, all of which are critical for executing rapid, strenuous exertions in Kabaddi.

Additionally, interval training can enhance muscular strength and stamina, both of which are essential for confronting opponents and maintaining balance during combat. The integration of resistance-based interval exercises that target particular muscle groups has the potential to augment the overall strength and endurance capacities of Kabaddi players.

In addition, it is worth noting that interval training has the potential to enhance reaction time and decision-making capabilities, both of which are critical cognitive skills in the sport of Kabaddi. By engaging in targeted exercises and incorporating game-simulation intervals, athletes can improve their reaction time and agility in response to their opponents' moves.

It is critical to take into account the impact that various surface conditions can have on Kabaddi training. The impact of different surface conditions including indoor mats, synthetic turf, and grass on performance-related fitness variables and injury risks can vary. Coaches and trainers ought to meticulously discern surface conditions for competitive events and training, taking into consideration their particular objectives and the requirements of the athletes.

In summary, interval training exhibits significant promise in enhancing the fitness variables associated with performance for Kabaddi athletes. Coaches and trainers can enhance various physiological attributes, including reaction time, decision-making capabilities, muscular strength and endurance, aerobic and anaerobic fitness, and muscular strength and endurance, through the implementation of meticulously planned interval training protocols. The incorporation of various surface conditions into training programs enhances their efficacy and contributes to a comprehensive approach to the development of Kabaddi players.

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