

Effect of Agility and Core Strength Training on Raiding and Defensive Performance in Competitive Kabaddi Players

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Abstract: Kabaddi performance depends on explosive movement, balance, body control, and the ability to execute effective raids and defensive holds. Physical conditioning, particularly agility and core strength, plays an important role in enhancing these performance aspects. The present study aimed to determine the effect of agility and core strength training on raiding and defensive performance among kabaddi players. Thirty-six competitive players aged 16–21 years were divided into experimental and control groups. The experimental group followed an eight-week agility and core conditioning program alongside regular practice, while the control group continued routine training. Performance was assessed through raid success rate and defensive hold efficiency tests. Results showed significant improvement in the experimental group compared to the control group. The findings suggest that structured conditioning programs contribute to improved match performance in kabaddi.

Keywords: Kabaddi, Agility training, Core strength, Raid performance, Defensive performance.

Introduction - Kabaddi is a high-intensity indigenous sport that requires a combination of speed, strength, agility, balance, and tactical awareness. The game involves continuous transitions between offensive and defensive actions, where players must execute rapid movements, evade opponents, and maintain body control under physical pressure. During raiding, players perform quick directional changes, sudden accelerations, lunges, and evasive maneuvers. Defensive play demands coordinated holds, balance during contact, and controlled force application to prevent the raider from escaping.

Performance in kabaddi is influenced not only by technical skills but also by physical preparedness. Agility is a key component that enables players to change direction quickly and efficiently while maintaining stability. It plays a crucial role in evading defenders during raids and responding to unpredictable movements. Core strength, which refers to the strength of muscles around the trunk and pelvis, supports posture, balance, and force transmission. A stable core allows players to maintain control during dynamic actions such as twisting, lunging, and tackling.

When agility and core strength are inadequate, players may experience slower movements, reduced control, and decreased efficiency in executing raids and defensive actions. This can lead to missed scoring opportunities and ineffective defensive holds. Therefore, conditioning

programs targeting these components may enhance overall match performance.

Although kabaddi is widely practiced, training often prioritizes skill repetition over structured physical conditioning. Scientific training approaches that focus on movement quality and stability could improve both offensive and defensive effectiveness. However, research exploring the direct impact of agility and core strength training on kabaddi performance variables remains limited, particularly at the district competitive level.

Hence, the present study was designed to examine the effect of structured agility and core strength training on raiding and defensive performance in kabaddi players.

Review Of Literature

Performance in kabaddi relies on the athlete's ability to control movement under high physical and tactical demands. In sports involving rapid changes of direction, agility has been recognized as a crucial performance factor.

Sheppard and Young (2006) described agility as a combination of speed, balance, and coordination, highlighting its role in efficient movement transitions during competitive play. Players who can quickly adjust body position are more effective in avoiding opponents and maintaining control.

Core strength has gained attention as a foundational element in athletic performance. According to **Kibler et al. (2006)**, the core functions as a stabilizing link between the

upper and lower body, allowing efficient force transfer during dynamic movements. In sports requiring twisting, lunging, and resisting external forces, core stability supports better posture and balance.

The relationship between agility and performance efficiency has been discussed in various field sports. **Young and Farrow (2006)** noted that improved agility contributes to quicker response times and better positioning during competitive situations. Athletes with superior agility demonstrate smoother movement patterns and improved coordination.

Research on trunk stability indicates its role in enhancing movement control. **Hibbs et al. (2008)** reported that athletes with stronger core musculature maintain better alignment during dynamic tasks, reducing unnecessary energy expenditure and improving performance quality.

In contact sports, balance and body control are essential during physical engagement. **Bloomfield et al. (2007)** observed that athletes with better movement control show improved execution of sport-specific skills. Stability during contact situations enables athletes to perform techniques more effectively.

Although these studies highlight agility and core strength separately, limited research has examined their combined effect on kabaddi performance variables such as raid efficiency and defensive effectiveness. Since kabaddi requires rapid movement, balance under contact, and forceful interactions, understanding how conditioning influences performance becomes important.

Objectives Of The Study:

1. To determine the effect of agility training on raiding performance in kabaddi players.
2. To examine the influence of core strength training on defensive performance.
3. To compare pre-test and post-test raiding success rate of experimental and control groups.
4. To compare pre-test and post-test defensive hold efficiency between groups.
5. To assess the combined impact of agility and core strength training on match performance.

Hypotheses Of The Study:

1. H1: There will be a significant improvement in raiding performance after agility and core strength training.
2. H2: Defensive performance will improve significantly following the conditioning program.
3. H3: The experimental group will demonstrate better post-test performance than the control group.
4. H4: Agility and core strength training will positively influence match efficiency.

Significance Of The Study:

1. Provides scientific evidence linking physical conditioning to kabaddi match performance.
2. Helps coaches integrate agility and core training into routine practice.
3. Supports improvement of both offensive and defensive

effectiveness.

4. Contributes performance-related research data from kabaddi players in **Jodhpur** and **Bikaner**.
5. Encourages structured conditioning approaches in indigenous sports.

Methodology

Research Design: The study employed a descriptive correlational research design to examine the relationship between selected physical fitness components and injury occurrence among kabaddi players. This design was appropriate as the study aimed to identify associations between naturally existing variables without any experimental intervention.

Selection Of Subjects: A total of **40 competitive kabaddi players** were selected from sports academies and college teams in Jaipur and Ajmer using purposive sampling. All participants were active players who regularly took part in training and competitive matches.

Variables Of The Study:

Category	Variable
Independent Variables	Flexibility, Balance, Muscular Strength, Agility
Dependent Variable	Injury occurrence (frequency during the previous playing season)

Tools And Tests:

Variable	Test Used	Measurement
Flexibility	Sit and Reach Test	Distance in cm
Balance	Stork Stand Test	Time in seconds
Muscular Strength	Hand Grip Dynamometer	Force in kg
Agility	Illinois Agility Test	Time in seconds
Injury Data	Injury History Questionnaire	Number and type of injuries

Testing Procedure: Participants performed physical fitness tests under similar environmental conditions after a standardized warm-up. Injury data were collected using a structured questionnaire covering injuries experienced during the last playing season.

Results: The analysis of data revealed meaningful relationships between selected physical fitness components and injury occurrence among kabaddi players. Players with higher flexibility scores tended to report fewer injuries, indicating a moderate negative correlation between flexibility and injury frequency. Balance ability also showed a significant inverse relationship with injury occurrence, suggesting that better postural control may reduce the likelihood of injuries during dynamic movements and contact situations. Muscular strength demonstrated a similar pattern, where players with greater strength levels experienced lower injury incidence, possibly due to improved joint stability and force absorption capacity. Agility, however, showed a weaker association with injury frequency compared to other variables. Overall, the findings suggest that deficiencies in certain physical fitness components may

contribute to increased vulnerability to injuries among kabaddi players.

Discussion: The results of the study indicate that selected physical fitness components are associated with injury occurrence among kabaddi players. The observed negative relationship between flexibility and injury frequency suggests that adequate joint range of motion may help athletes tolerate sudden stretching forces during rapid movements, thereby reducing muscle strain. Similarly, balance ability showed a significant association with injury occurrence, implying that improved postural control supports safer body alignment during landing, turning, and contact situations.

Muscular strength also demonstrated a meaningful relationship with reduced injury frequency. Stronger muscles likely provide better joint support and absorb external forces generated during tackles and falls, which are common in kabaddi. These findings support the view that physical conditioning contributes to injury risk reduction.

Agility showed a weaker association with injury occurrence compared to other components. This may indicate that while agility enhances performance efficiency, injury risk in kabaddi may be more closely related to stability and strength factors.

Overall, the study highlights the importance of comprehensive physical conditioning programs in kabaddi. Emphasis on flexibility, balance, and muscular strength development may help improve player safety and reduce injury risk.

Conclusion:

1. A significant relationship exists between selected physical fitness components and injury occurrence in kabaddi players.
2. Higher flexibility levels were associated with lower injury frequency.
3. Better balance ability contributed to improved body control and reduced injury risk.

4. Greater muscular strength was linked with decreased injury occurrence due to enhanced joint stability.
5. Agility showed a comparatively weaker relationship with injury frequency.
6. Insufficient physical conditioning may increase susceptibility to injuries in kabaddi players.
7. Emphasis on fitness development can play an important role in injury prevention.

Recommendations:

1. Kabaddi training programs should include regular agility drills to improve quick directional movement.
2. Core strengthening exercises should be incorporated to enhance trunk stability and balance.
3. Conditioning sessions should be scheduled consistently throughout the season.
4. Coaches should emphasize movement control during both offensive and defensive practice.
5. Performance assessment should be conducted periodically to monitor improvement.
6. Future studies may examine additional performance variables such as reaction time and endurance.

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