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## Comparison of core strength and dynamic balance between Kabaddi and Kho-Kho players

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### Abstract

Aim of the study was to measure and compare the core strength and dynamic balance of Kabaddi and Kho-Kho players at intercollegiate level. 20 male kabaddi players and 20 male Kho-Kho players randomly selected for the study. To measure core muscle strength the sit up test for a minute and y balance test is administered for measuring dynamic balance on Kabaddi and Kho-Kho players. Based on the results the study conclude that there is no significant difference in core strength and dynamic balance among inter collegiate level Kabaddi and Kho-Kho players.

**Key words:** Core, dynamic, Kabaddi, Kho-Kho

### Introduction

Core stability is essential to maintaining a solid foundation for the body, and a strong core will support any other sports or physical activity for better performance. Strong core muscles provide a strong base for all motor activities, and without strong core muscles, a sportsperson cannot perform in any sporting event. The core muscles align the spine, ribs, and pelvis of a person to resist a specific force, whether static or dynamic. Major muscles included are the pelvic floor muscles, transverse abdominis, multifidus, internal and external oblique, rectus abdominis, erector spine (Sacrospinalis), especially the longissimus thoracis, and the diaphragm. Minor core muscles include the latissimus dorsi, gluteus maximus, and trapezius (Y Srinivasulu & B Ganesh).

Core training develops the lumbo-pelvic hip complexes, or transversus abdomen muscles, which are crucial for posture and lumbar spine stabilization. The core has been described as a muscular corset with the abdominals in the front, erector spinae and gluteals in the back, the diaphragm as the roof, and the pelvic floor and hip girdle musculature in the bottom (Akuthota *et al.*, 2008) <sup>[3]</sup>.

Core strength training is also very important to reducing and preventing lower and knee joint injuries. In recent years, core strength training has been widely used to improve performance. Thus, it is clearly understood that core strength helps to improve dynamic balance and muscle coordination between the lower and upper extremities, as well as reducing injury risk and muscle imbalances.

Kabaddi and Kho-Kho are the indigenous games that require a high level of motor fitness to play and perform better in competitions. Both games involve rigorous movements or skills to overcome opponents in competitions. It includes jumping, running, and enduring. So, in training, the players also undergo core strength training regularly. Thus, the purpose of this study was to investigate the core strength and dynamic balance among Kabaddi and Kho-Kho players.

### Methods

In this study investigator selected randomly 20 kabaddi players and 20 Kho-Kho players as subjects. All the players played for university level intercollegiate tournaments in respective events. To measure core muscle strength the sit up test for a minute and y balance test is administered for measuring dynamic balance in this study. All the data were analysed using Pearson correlation efficiency to find the relation between core strength and dynamic balance.

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## Procedure

Before the test the procedure clearly explained to all the subjects. For sit up test the subject was seated with feet flat on the ground and knees bent to 90 degree feet about 12 inches apart and hands at the side of subjects head. Assistant should hold subjects feet to the floor. The number of proper sit ups in a minute is counted for core muscle strength.

Dynamic balance was assessed by administering Y-balance test. For the test, three Lines drawn on floor in Anterior, posteromedial and posterolateral directions. The lines were overlapped by three measuring tapes. Subject was made to stand on one leg where the ball of touching foot was placed in intersecting point of the three lines. The subject has to reach as far as possible with the opposite leg in each direction (Anterior, Posteromedial and Posterolateral) without losing balance. The point to contact on the measuring tape was taken for reading. The test was followed for both legs. Length of both Limbs was measured before the test administered. Calculation involved taking average of three reach distances. Data was then normalized by dividing it by limb length of the same leg and multiplied by 100.

## Results and Discussion

Collected data were analysed using mean standard deviation and t-test to compare between kabaddi and Kho-Kho players core muscle strength and balance.

**Table 1:** Comparison of core muscle strength between Kabaddi and Kho-Kho players

Variable	Players	Mean	SD	P-Value
Core muscle strength	Kabaddi	37.35	5.98	0.19
	Kho-Kho	34.50	7.53	

**Table 2:** Comparison of dynamic balance between Kabaddi and Kho-Kho players

Variable	Players	Mean	SD	P-Value
Dynamic balance (R)	Kabaddi	0.38	2.65	0.79
	Kho-Kho	0.97	1.52	
Dynamic balance (L)	Kabaddi	0.43	2.69	0.82
	Kho-Kho	1.00	1.52	

Above Table number one shows that the mean and standard deviation of core muscle strength of kabaddi players 37.35 (5.98) and Kho-Kho players 34.50 (7.53) and p value is 0.19. It says that there is no significant difference in core muscle strength between Kabaddi and Kho-Kho players at inter collegiate level. Table number two indicates that there is no significant difference (p-value is 0.79 and 0.82) in dynamic balance between Kabaddi and Kho-Kho players at inter collegiate level.

Kabaddi and Kho-Kho are high-intensity sports that require a high level of physical attributes. The sports-specific fitness demands, including agility, speed, strength, power, and endurance, are all crucial for success in the competition in both events. Core muscle strength and balance are crucial for stability and control on the kabaddi as well as Kho-Kho competitions, forming the foundation upon which players can confidently execute agile movements, evade opponents, and maximize their defensive and offensive skills. Hence, core strength is considered a key component in ensuring good performance in Kabaddi and Kho-Kho players. Core strength helps improve the dynamic balance and coordination in the lower and upper extremities. Therefore, both the Kabaddi and Kho-Kho players concentrate on

improving core muscle strength to perform better in competitions, and no difference is found between the Kabaddi and Kho-Kho players with the above variables. The study concludes that there is no significant difference in core muscle strength or dynamic balance between Kabaddi and Kho-Kho players.

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