



A Study on Motor Abilities between North and South Zones of Women Kho-Kho Players

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ABSTRACT

The study adopted a comparative research design using independent samples t-tests to examine differences in motor abilities between the two zones. The population comprised elite women Kho-Kho players and 60 players (30 from North Zone, 30 from South Zone) were purposively selected based on their participation in inter-zonal and national competitions (Rao & Kumar, 2021). Variables were defined as follows: the independent variable was zone (North vs. South), while dependent variables included speed, leg explosive power, balance and agility. Standardized motor ability tests were employed: sprint tests for speed, standing broad jump for leg explosive power, stork stand tests for balance and shuttle runs for agility (Verma, 2019; Singh, 2020). Data analysis was conducted using independent samples t-tests, with significance set at $p < .05$. Degrees of freedom were 58 and t-value comparisons were made to determine the statistical significance of differences between North and South Zone players. The study concludes that significant inter-zonal differences exist in selected motor abilities among women Kho-Kho players, with North Zone athletes excelling in speed, and agility and South Zone athletes demonstrating greater leg explosive power. Balance did not differ significantly across zones. These findings highlight the importance of considering regional differences when designing training programs and preparing athletes for competitive events. Coaches and sports scientists should tailor physical conditioning to leverage each region's strengths while addressing specific weaknesses.

Keywords: Motor Abilities, North, South, Zone, Women, Kho-Kho Players

1. INTRODUCTION

Kho-Kho is one of India's oldest traditional sports, characterized by rapid chasing, evasion and strategic movements, which require high levels of physical fitness and motor abilities such as speed, agility and explosive power (Sharma & Singh, 2022). Effective performance in Kho-Kho depends on repeated acceleration, sudden directional changes and sustained muscular effort during both offensive and defensive phases (Rao & Kumar, 2021). Previous studies on female athletes emphasize that motor abilities significantly influence performance in field-based sports like Kho-Kho, Kabaddi (Singh, 2020; Verma, 2019).

Given India's vast geographic and cultural variety, differences in training environments, climatic conditions and coaching facilities may result in distinct motor ability characteristics across regions (Sharma & Singh, 2022). Comparative research on inter-zonal athletes has highlighted that North and South Zone players often differ in speed, agility and endurance due to regional variations in training methods and athletic exposure (Rao & Kumar, 2021). This study aims to examine these differences among women Kho-Kho players to provide knowledge for tailored training programs.

2. SIGNIFICANCE OF THE STUDY

The study holds practical and scientific significance. Practically, it provides coaches and sports scientists with a clear understanding of motor ability profiles specific to North and South Zone players, enabling the development of customized training interventions (Verma, 2019). The findings can also guide talent identification programs in schools, colleges and sports academies by establishing benchmarks for speed, agility and other key performance variables (Singh, 2020).

From a scientific perspective, this research contributes to the limited body of literature on women Kho-Kho athletes, where most studies have primarily focused on male players or generic physical fitness measures (Sharma & Singh, 2022). Furthermore, the results can inform future studies on training methods, including speed, agility and quickness (SAQ) interventions, which have been shown to significantly enhance motor abilities among female athletes (Rao & Kumar, 2021).

3. STATEMENT OF THE PROBLEM

Despite Kho-Kho's widespread popularity and inclusion in national competitions, empirical evidence on inter-zonal differences in motor abilities among women is scarce. There is a need to investigate whether significant differences exist in speed, leg explosive power, balance and agility between North and South Zone players. Such information is essential for identifying zone-specific strengths and weaknesses to optimize performance outcomes.

4. OBJECTIVES OF THE STUDY

The study was designed to achieve the following objectives:

1. To assess differences in speed performance across zones.
2. To evaluate leg explosive power variations between zonal groups.

3. To compare balance performance between north and south Zone players.
4. To examine agility differences across regions.

5. HYPOTHESES OF THE STUDY

Based on the objectives, the following hypothesis was formulated:

1. There is no significant difference in the selected motor abilities between North and South Zone players.

6. METHODOLOGY

The study adopted a comparative research design using independent samples t-tests to examine differences in motor abilities between the two zones. The population comprised elite women Kho-Kho players and 60 players (30 from North Zone, 30 from South Zone) were purposively selected based on their participation in inter-zonal and national competitions (Rao & Kumar, 2021). Variables were defined as follows: the independent variable was zone (North vs. South), while dependent variables included speed, leg explosive power, balance and agility. Standardized motor ability tests were employed: sprint tests for speed, standing broad jump for leg explosive power, stork stand tests for balance and shuttle runs for agility (Verma, 2019; Singh, 2020). Data analysis was conducted using independent samples t-tests, with significance set at $p < 0.05$. Degrees of freedom were 58 and t-value comparisons were made to determine the statistical significance of differences between North and South Zone players.

7. DATA ANALYSIS AND INTERPRETATION

Table-1: Table shows 't' test results on zone wise scores of different motor abilities of women Kho-Kho players.

Motor Abilities	Zones	Number	Mean Scores	Standard Deviation	't' Value	Level of Sig.
Speed	North	30	6.295	1.028	7.27	*
	South	30	4.792	0.474		
Leg Explosive Power	North	30	167.533	17.232	2.03	*
	South	30	176.900	18.428		
Balance	North	30	28.966	1.711	0.63	NS
	South	30	29.200	1.063		
Agility	North	30	19.311	2.751	5.22	*
	South	30	16.555	0.885		

Note : Table Value of 't' for N=60; df=58 is 2.00 for (*)Significant at 0.05 level; NS-Not Significant.

The data collected from 60 women Kho-Kho players (30 North Zone and 30 South Zone) were analyzed using independent samples t-tests to compare motor abilities across zones. Results revealed significant differences in most motor abilities except balance. North Zone players exhibited higher mean scores in Speed also showed a significant difference, with North Zone players outperforming South Zone players ($M = 6.295$ vs. $M = 4.792$, $t = 7.27$, $p < .05$). Interestingly, South Zone players scored higher in leg explosive power ($M = 176.900$) than North Zone players ($M = 167.533$) and this difference was statistically significant ($t = 2.03$, $p < .05$). Balance did not show a significant difference ($t = 0.63$, NS), suggesting similar equilibrium control across zones. Agility was significantly higher in North Zone players ($M = 19.311$) than South Zone players ($M = 16.555$, $t = 5.22$, $p < .05$). These results suggest region-specific strengths in motor abilities among women Kho-Kho athletes.

8. DISCUSSION OF FINDINGS

The findings indicate that North Zone women Kho-Kho players demonstrate superior speed and agility, while South Zone players excel in leg explosive power. The higher speed among North Zone athletes may reflect rigorous physical conditioning and intensive training practices prevalent in northern regions (Rao & Kumar, 2021). Similarly, enhanced agility suggests that North Zone players are more adapted to the fast-paced, chase-oriented demands of Kho-Kho (Sharma & Singh, 2022).

Conversely, South Zone players' higher leg explosive power may be attributed to region-specific training that emphasizes lower body strength and jumping ability, possibly reflecting engagement in multi-sport training or indigenous physical culture (Verma, 2019). The absence of significant differences in balance suggests that equilibrium is a fundamental motor ability equally developed in both regions, likely due to the sport's intrinsic demands for stability during rapid movements (Singh, 2020). These findings align with previous research highlighting the influence of regional training patterns and environmental factors on motor ability development among athletes.

9. CONCLUSION

The study concludes that significant inter-zonal differences exist in selected motor abilities among women Kho-Kho players, with North Zone athletes excelling in speed and agility and South Zone athletes demonstrating greater leg explosive power. Balance did not differ significantly across zones. These findings highlight the importance of considering regional differences when designing training programs and preparing athletes for competitive events. Coaches and sports scientists should tailor physical conditioning to leverage each region's strengths while addressing specific weaknesses.

10. IMPLICATIONS OF THE STUDY

The study has several practical and scientific implications:

- Coaches design the zone-specific training regimens, emphasizing speed and agility for South Zone players and explosive leg power for North Zone players.
- Regional motor ability profiles aids in early identification of players with specialized strengths suitable for advanced competitive levels (Sharma & Singh, 2022).

- Sports academies and governing bodies allocates resources strategically to develop motor abilities that are relatively weaker in each zone.
- The study contributes to the limited literature on women Kho-Kho players, providing baseline data for future research on performance enhancement interventions.

11. SUGGESTIONS FOR FUTURE RESEARCH

Based on the study findings, the following suggestions are made:

1. Future studies should include larger sample sizes across more zones to generalize findings for all women Kho-Kho players.
2. Extended research examines the effects of specific training interventions on motor ability development over time.
3. Comparative studies involving male and female athletes could explore gender differences in motor abilities across zones.
4. Incorporating psychological and cognitive variables namely decision-making speed, concentration and stress resilience may provide a overall understanding of Kho-Kho performance.
5. Advanced technologies like motion analysis and biomechanical assessment can be used to refine training strategies and enhance performance precision.

12. REFERENCES

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