A comparative study on the speed and agility ability of kho-kho and kabaddi players

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Abstract

The purpose of this study was to compare the speed and agility ability of Kho-Kho and Kabaddi players. A total of sixty (N=60) subjects were randomly chosen for this study. Out of 60 players, 30 players were from Kho-Kho and 30 from Kabaddi. The age of the players ranged from 18 to 28 years. The variable undertake for the study are : selected psychomotor variables namely speed and agility were considered as criterion for the study. Speed ability was tested by 50m dash sprint, whereas agility ability was tested by 4X10m shuttle run. Mean and standard deviation of each variable were calculated and t-test was computed to analyze the significance of difference between the means. All statistical calculations were done by standard statistical procedure. To determine the differences, if any, between the two groups of players, the independent t-test was calculated. Statistical significance was tested at 0.05 level of confidence. It is concluded from the result that Kho-Kho players are superior to Kabaddi players in the terms of speed and agility.

Key Words: Speed, Agility, Kho-Kho, Kabaddi.

1. Introduction:

Psychomotor abilities, particularly speed and agility, are essential for success in the traditional sports of Kho-Kho and Kabaddi. These sports require rapid movements, quick reflexes, and precise actions under pressure, making speed and agility crucial for both individual performance and team success.

Speed and Agility in Kho-Kho

Speed: Speed is vital for defenders (chasers) to quickly close distances and tag attackers. Quick acceleration allows defenders to cover more ground, making it difficult for attackers to evade tags.

Agility: Agility enables players to make sharp directional changes, dodge, and maneuver through tight spaces effectively. This is crucial for attackers avoiding tags and defenders outmaneuvering opponents.

Speed and Agility in Kabaddi

Speed: Speed is essential for raiders to tag defenders and return to their half within the raid time. Quick defenders can react promptly to raiders' movements, reducing their chances of escape.

Agility: Agility helps raiders dodge tackles, twist and turn out of defenders' grasps, and perform complex movements like the 'toe touch' and 'dubki.' Agile defenders can swiftly reposition and execute tackles from various angles.

In a natal, speed and agility are indispensable in Kho-Kho and Kabaddi, significantly enhancing individual and team performance. Prioritizing these abilities in training helps athletes gain a competitive edge, execute strategies effectively, and achieve greater success in these traditional sports.

2. Methods and Materials:

2.1 Subjects: To attain the purpose of the study, sixty (n-60) male subjects were selected for this study from D.D.U Gorakhpur University Gorakhpur who represented inters university tournaments. Thirty players (n-30) were selected from Kabaddi game and thirty players (n-30) were selected from Kho-Kho games. Students were selected on the basis of random sampling technique as subjects for this study.

2.2 Criterion measure: Criterion measure in the present study were speed and agility, Speed was measured by 50 m dash. The scores were recorded to the nearest 1/10th of a second, whereas Agility was measured by using 4X 10-yard Shuttle run. The scores were recorded in second.

2.3 Statistical procedure: Mean, standard deviation and standard error of mean was used for descriptive statistics whereas independent sample T test was used for Inferential Statistics.

3.Results and Discussion:

TABLE NO. 1

GROUP STATISTICS					
PSYCHOMOTOR ABILITY	GAME	N	MEAN	STD. DEVIATION	STD. ERROR MEAN
SPEED	KHO-KHO	30	7.563333	0.3253469	0.0593999
	KABADDI	30	8.423333	0.2967448	0.0541779
AGILITY	KHO-KHO	30	9.831000	0.1968082	0.0359321
	KABADDI	30	11.166667	0.4188106	0.0764640

Table 1 shows the comparison of the speed and agility ability of players in Kho-Kho and Kabaddi based on data from 30 observations for each sport. In terms of speed, Kho-Kho players have an average speed of 7.56 units with a standard deviation of 0.33 and a standard error of 0.06. In contrast, Kabaddi players have a higher average speed of 8.42 units, a standard deviation of 0.30, and a standard error of 0.05. This indicates that Kabaddi players, on average, are faster than Kho-Kho players, with Kabaddi players showing slightly less variability in their speed performance.

Regarding agility, Kho-Kho players have an average agility score of 9.83 units, with a standard deviation of 0.20 and a standard error of 0.04. Kabaddi players, however, exhibit a higher average agility score of 11.17 units, with a standard deviation of 0.42 and a standard error of 0.08. This suggests that Kabaddi players are generally more agile than Kho-Kho players, though there is greater variability in agility scores among Kabaddi players.

Error Bars: 95% CI
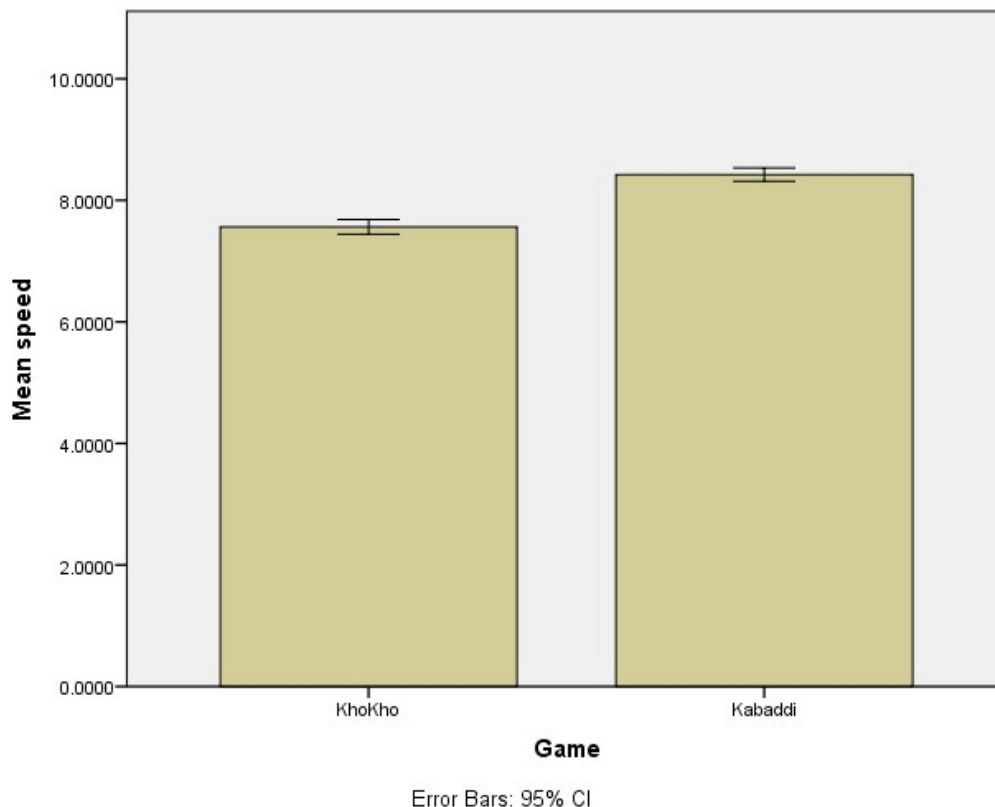
Graphical representation of Mean Speed of Kho-Kho and Kabaddi Players.
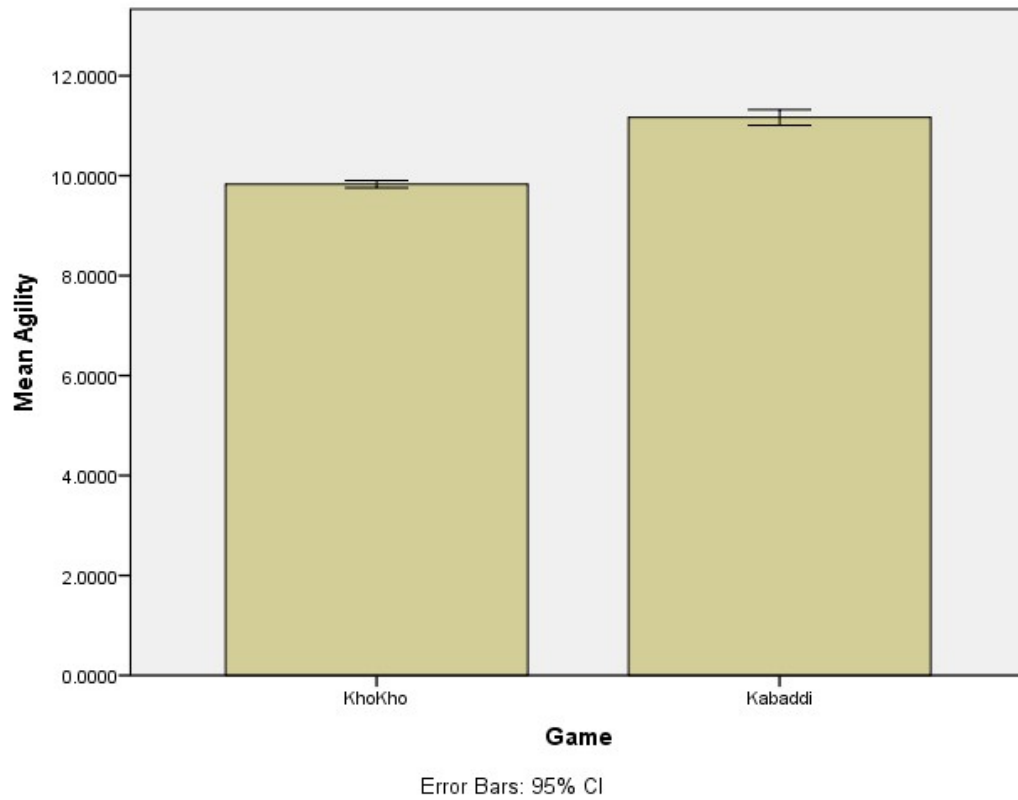
Graphical representation of Mean Agility of Kho-Kho and Kabaddi Players.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Speed	Equal variances assumed	.112	.740	-10.697	58	.000	-.8600000	.0803965	-1.0209311	-.6990689
	Equal variances not assumed			-10.697	57.516	.000	-.8600000	.0803965	-1.0209600	-.6990400

Table 2

Table 2 presents the results of statistical tests comparing two independent samples, specifically Kho-Kho and Kabaddi players, in terms of their speed performance.

Levene's Test for Equality of Variances

Levene's test examines whether the variances of the speed measurements between Kho-Kho and Kabaddi players are equal. The test yielded an F-statistic of 0.112 with a p-value of 0.740. This high p-value suggests that there is no significant difference in variances between the two groups, indicating that assumptions of equal variances for subsequent tests are valid.

t-test for Equality of Means (Equal Variances Assumed)

The t-test assesses whether there is a significant difference in the mean speed between Kho-Kho and Kabaddi players, assuming equal variances. The t-statistic obtained was -10.697 with 58 degrees of freedom and a p-value of 0.000. This low p-value indicates a significant difference in means between the two groups. Specifically, Kho-Kho players had a mean speed of 7.56 units (SD = 0.33), while Kabaddi players had a mean speed of 8.42 units (SD = 0.30).

The estimated mean difference in speed between Kho-Kho and Kabaddi players was -0.860 units, with a standard error of 0.080. The 95% confidence interval for the mean difference ranged from -1.021 to -0.699 units.

t-test for Equality of Means (Unequal Variances Assumed)

Even when assuming unequal variances between the groups, the results remained consistent. The t-statistic was -10.697, with degrees of freedom adjusted to 57.516, and a p-value of 0.000. The estimated mean difference and the confidence interval for the mean difference also remained unchanged.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Agility	Equal variances assumed	15.179	.000	-15.809	58	.000	-1.3356667	.0844858	-1.5047835	-1.1665499
	Equal variances not assumed			-15.809	41.212	.000	-1.3356667	.0844858	-1.5062626	-1.1650707

Table 3

The analysis presented in **Table 3** indicates a significant difference in agility scores between Kho-Kho and Kabaddi players. Here's a breakdown of the key findings:

Levene's Test for Equality of Variances:

The test indicates a significant difference in variances between the two groups (Kho-Kho and Kabaddi players), with an F-statistic of 15.179 and a very low p-value of 0.000. This suggests that the assumption of equal variances for the t-test is violated.

t-test for Equality of Means (Equal Variances Assumed):

Despite the unequal variances, the t-statistic for the test assuming equal variances is -15.809, with 58 degrees of freedom and a p-value of 0.000. This indicates a highly significant difference in mean agility scores between the two groups.

t-test for Equality of Means (Unequal Variances Assumed):

When assuming unequal variances, the t-statistic remains the same at -15.809, but the degrees of freedom are adjusted to 41.212. The p-value remains very low at 0.000. This adjustment is based on Welch's correction for unequal variances.

Mean Difference and Confidence Interval:

The mean difference in agility scores between Kho-Kho and Kabaddi players is -1.336, with a standard error of 0.084.

The 95% confidence interval for the mean difference ranges from -1.505 to -1.167. This interval does not include zero, further confirming the significant difference between the groups.

4. Conclusion:

Based on these results, it can be concluded that there is a significant difference in speed performance between Kho-Kho and Kabaddi players. Kho-Kho players exhibit a significantly lower mean speed compared to Kabaddi players, as evidenced by both the t-test results assuming equal variances and those assuming unequal variances. The findings are robust, as they consistently show a substantial and statistically significant difference in speed between the two groups across different assumptions regarding variances.

In the term of agility, it is concluded that Kho-Kho players demonstrate significantly higher agility performance compared to Kabaddi players. This conclusion is robust across both assumptions of equal and unequal variances, as the t-test yields consistent and highly significant results in both cases.

Therefore, summarizing both aspects:

- **Speed Performance:** Kho-Kho players have higher speed performance compared to Kabaddi players, with a clear and significant difference observed between the groups.
- **Agility Performance:** Kho-Kho players exhibit superior agility performance on average compared to Kabaddi players, as evidenced by significant differences in agility scores.

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