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Research Article

BREAKING BARRIERS: WOMEN IN SPORTS AND THE FIGHT FOR IDENTITY

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Abstract

The purpose of the study is to find out the effect of yogic practices on motor fitness variables like agility and reaction time of State Level Kho-Kho players. To achieve the purpose of the present study, 4 4-week pilot study was conducted on 13 state-level Kho Kho players. They underwent a specific yogic exercise training program. For the pre-test and post-test, the Reaction time was measured with the help of the Ruler Drop Test. To measure Agility, the Illinois Agility Test was conducted. Using the paired t-test for statistical analysis, the study examined changes in these physiological parameters over the course of the 4-week intervention. The results demonstrated significant improvements in both reaction time and agility, indicating that sustained engagement in yogic practices can lead to substantial fitness benefits for the Kho Kho players.. These findings underscore the potential of yoga as a holistic approach to enhance athletic performance by optimising skill-related motor fitness.

INTRODUCTION:

One of the fastest traditional Indian tag games, Kho Kho has shed the skin and is appearing in a new format to attract the masses. The game initially was played on the soil and is now being played on the mat. A lot of changes in the rules, new introductions are brought into the game to make it more popular.The Indian origin game has become Asian and even has spread worldwide resulting in Ist World Cup Kho Kho Championship . Now it should become a part of the Olympic Games in the years to come.

Now when Kho Kho is stepping towards the horizons of the International platform, this is the time for the coaches to include various scientific ways of training and coaching along with the traditional ways.

Kho Kho is a game of run and chase and it needs physical, physiological and psychological preparation for execution of skills. Kho Kho needs motor abilities like endurance, strength, flexibility, speed and reaction time in abundance. The charged situation and battle for supremacy will spell bound the audience and the game injects a rare experience and sense of satisfaction among the spectators. (H.V.Nataraj, 2017)

Yoga

Yoga, an Indian traditional science, is becoming popular all over the world due to its scientific approach. Research studies in the field of yoga clearly show positive results of practicing yoga

exercises on physical, mental, emotional, social and spiritual levels.

Yogic exercises are psycho-physiological in nature. The nature of Asanas and Pranayamas is different from the physical exercises, and so also the response of the body.

Asanas are certain patterns of postures that stabilise the mind and the body.

Pranayamas are practices that control respiratory impulses.

Kho Kho

The game of kho-kho needs a high level of physical and mental fitness. Repeated sitting and getting up from the square by the chaser develops strength and endurance of the legs and the back (lower extremity), explosive power and reaction ability. Similarly, a defender has to repeatedly change the path of his defence by performing a zig-zag path of runs, curved movements which call for agility and balance. Defending against an attacker and surviving for a longer duration for 3-4 minutes by performing different difficult movements demands high-level short and medium-duration endurance combined with agility. The ability to push beyond his limit while defending in spite of fatigue develops willpower. Above all, suppleness of the body, quick judgment, intelligence, presence of mind, and anticipation is developed to the core. (H.V.Nataraj, 2017)

Hence the researcher plans to study the effect of yogic practices on motor fitness as well as Physiological Variables of state-level Kho-Kho players by conducting a study titled "A Study of the Effect of Yogic Practices on Selected Motor Fitness and Physiological Variables of State-Level Kho-Kho Players."

Objectives /Study purpose

The present study aims to collect the scientific evidence about the effects of selected yogic practices on motor fitness variables like agility and reaction time of state-level Kho Kho players. Hence, the objectives of the study are …..

To observe the effect of selected yogic practices on agility of state-level kho-kho players.

Objectives

To observe the effect of selected yogic practices on the reaction time of state-level kho-kho players.

To compare the scores of pre, pre-test and post-test after yogic training.

Hypothesis

Depending upon the reviews of literature, research findings and the researcher's understanding of the problem and personal experience, it is hypothesised that-

H01 There would be a significant difference in agility of Kho Kho players.

H02 There would be a significant improvement in the reaction time of Kho Kho players.

Design/ Method of the Study

The researcher chose an experimental method for conducting this Pilot study. This study consists of one control group and one experimental group of 13 players each. Only the experimental group received the specific Yoga training for a period of 4 weeks.

Pre-test and Post-test were organised before and after the experimental period of 4 weeks.

The Subjects / Sampling

A total of 13 state-level male Kho Kho players of the age group 15 to 19 years from Mumbai were selected for this study. After the selection of the samples, all the necessary instructions were given to them about the objective of the study and the test procedure in the presence of their coaches to elicit active cooperation from the players. The 13 state-level players will be pooled as a sample from the population of hundreds of state-level players by using a purposive sampling method.

Selection of Variables and Tests

After going through the related literature, the following dependent and independent variables are selected to collect the data at the pre-test and post-test and to render the training in between.

1 Dependent Variables

Variables	factors measured
Agility	Running agility
Reaction Time	Auditory Reaction Time

2 Independent Variables

A set of 15 yogic practices are chosen by the researcher for this study as independent variables on the basis of the fact that they are beneficial as they promote physical fitness required for sports.

1) Omkar	2) Yog mudra	3) Ushtrasan	4) Paschimottanasan
5) Bhujangasan	6) Shalabhasan	7) Sarvangasan	8) Utkatasan
9) Vrikshasan	10) Veerbhadrasan	11) Natarajasan	12)AnulomaViloma
13) Bhramari	14) Kapalbhati	15) Shavasan	----------

Criterion Measures

1. Agility - measured conducting the Illinois Agility Test and the time is recorded in seconds.

2. Reaction Time - Measured conducting the Ruler Drop test and then converting the average distance into time in seconds using the norms of the Ruler Drop test.

Statistical Procedure

The data of pre and post tests of all the selected subjects is analyzed by using the descriptive statistics with the help of SPSS.

Analysis & Interpretation of Results

Table no 1 Descriptive Statistics of Motor Fitness Variables of Experimental Group.

	Agility of Pre Test of Exp.Gr.	Agility Post_Exp.Gr.	ReactionTime Pre_Exp. Gr	ReactionTime Post__Exp.Gr
Mean	18.40	16.93	.13	.12
Median	18.43	16.73	.14	.13
Mode	17.19	15.79	.14	.13
Std. Deviation	.56	.68	.01	.01
Skewness	-.33	.56	-.09	-.60

The provided data compares multiple performance indicators before and after yogic training program. These indicators include Agility, and Reaction Time.

1. Agility:

Pre Yogic Training: The mean agility score is 18.40 (SD + 0.56), with the median at 18.43 (SD + 3.68). These values indicate the baseline agility level.

Post Yogic Training: There is a noticeable improvement in agility, with the mean dropping to 16.93 and the median to 16.73. A lower score suggests faster and more agile movements after the exercise.

2. Reaction Time:

Pre Yogic Training: The mean reaction time is 0.13 (SD + 0.01) seconds, with a mode of 0.14 (SD + 0.01), showing the baseline reaction time.

Post Yogic Training: There is a slight improvement in reaction time, with the mean decreasing to 0.12 and the mode remaining the same at 0.13. This indicates that exercise has a minor positive impact on reaction time.

The data clearly shows beneficial effects of exercise across various measures. Agility also improves, suggesting better coordination and movement efficiency. Though the changes in Reaction Time are modest, they still indicate favourable adaptations, such as improved cardiovascular efficiency and slightly faster response times. The data exhibits low

variability for most measures, indicating consistent responses to the yogic training program across participants. Overall, the yogic training program appears to have had a positive effect on physical fitness, as reflected in improved reaction time and agility.

Table no 2: Descriptive Statistics of the Agility Variable of the Experimental Group

	Mean	N	Std. Deviation	Std. Error Mean
Agility of Pre-test of Experimental Group	18.403077	13	.5602140	.1553754
Agility of Post-test of Experimental Group	16.936923	13	.6820971	.1891797

There is a noticeable increase in the mean Agility from the pre-test 18.40) to the post-test (16.94), which suggests an improvement in the fitness level of the experimental group.

The standard deviation is slightly higher for the post-test (0.68) compared to the pre-test (0.56), indicating that there is more variability in the post-test data.

The standard error is also higher in the post-test (0.19) compared to the pre-test (0.16), which suggests that the estimates of the mean for the post-test have slightly more variability or uncertainty.

Table no 3 Correlation of Pre and Post-test Agility Variable of the Experimental Group

	N	Correlation	Sig.
Agility of Pre-test and test of Experimental Group	13	.777	.002

The positive correlation (0.777) and the statistically significant p-value (0.002) indicate that there is a significant relationship between the pre-test and post-test results. Since the p-value is less than the typical significance level of 0.05, this relationship is statistically significant.

Table No. 4: Analysis of Paired Sample T-test of Pre and Post-test Agility Variable of Experimental Group.

	Paired Differences			t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean			
Agility of Pre-test and Post test of Experimental Group	1.46615 38	.4301267	.11929571	12.290	12	.000

The mean difference of 1.47 indicates that the Agility scores in the post-test are significantly higher than in the pre-test, suggesting an improvement in running agility.

Given the large t-value(12.29)and the low p-value(0.000), we can confidently conclude that the experimental intervention had a significant positive impact on the experimental group's Agility. The paired samples t-test shows a statistically significant improvement in the Agility scores of the experimental group from pre-test to post-test, with an average improvement.

Table no 5: Descriptive Statistics of Reaction Time Variable of Experimental Group.

	Mean	N	Std. Deviation	Std. Error Mean
Reaction Time of Pre test of Experimental Group	.1331	13	.01494	.00414
Reaction Time of Post test of Experimental Group	.1238	13	.01387	.00385

The mean Reaction Time ofPre test of the Experimental Group (0.1331sec.) is higher than the mean of Reaction Time of Post test of Experimental Group (0.1238sec), suggesting that, on average, the scores increased from Pre- to Post Yogic Training. Both Reaction Time of Pre test of Experimental Group and Reaction Time of Post test of Experimental Group have not much different standard deviations (around + .01494 for pre and + .01387 for post). This indicates that the spread of values around the mean is relatively consistent or less spread out. between the two conditions.

The descriptive statistics show that the Post Yogic Training scores tend to be lower than the Pre Yogic Training scores, with a moderate degree of variability in both cases. This shows a decrease in the reaction time (faster reaction), which indicates a potential improvement in reaction time after the experimental intervention.

The slightly lower standard error for the Post Yogic Training scores, suggests that the estimate of the mean reaction time is more precise in the post-test.

Table no 6 Correlation of Pre and Post test Reaction Time Variable of Experimental Group.

	N	Correlation	Sig.
Reaction Time of Pre-test of Experimental Group & Reaction Time of Post-test of Experimental Group	13	.743	.004

A correlation of .743 indicates a moderate positive relationship between the Reaction Time of Pre-Pre-test of the Experimental Group and the Reaction Time of Post-test of the Experimental Group. This means that as the Reaction Time of Pre-Pre-test of the Experimental Group values increases, the Reaction Time of the Post-test of the Experimental Group values tend to also increase, though the relationship is not extremely strong.

The p-value of 0.004 is less than the commonly used significance threshold of 0.05. This indicates that the correlation is statistically significant. The correlation between pre-test and post-test scores indicates a consistent relationship, and the improvement in reaction time can be considered a meaningful and significant outcome.

There is a moderate positive correlation between the Reaction Time of Pre test of the Experimental Group and the Reaction Time of the Post-test of the Experimental Group, and this correlation is statistically significant.

Table no 7: Analysis of Paired Sample T-test of Pre and Post-test Reaction Time Variable of Experimental Group.

222222 Paired Differences	Mean	Std. Deviation	Std .Error Mean	t	df	Sig. (2-tailed)
Reaction Time of Pre-test and Post testof Exp Group	.00923	.01038	.00288	3.207	12	.008

There is a positive difference in the Reaction Time before and after yogic training program (mean difference of 0.0923 sec), the result is statistically significant based on the t-test (p-value = 0.008).

The paired t-test results show that the observed change is statistically significant, supporting the conclusion that the intervention had a positive effect on reaction time.

CONCLUSION

In summary, the data show a significant improvement in reaction time for the experimental group, with a clear reduction in reaction time agility after the intervention, suggesting that the intervention had a positive effect on participants' ability to react and change direction more quickly. This preliminary study of Yogic practices incorporating Omkar, Asanas, Pranayam and Kapalbhati has been significantly effective in enhancing the motor fitness variables like agility and reaction time of the state level khokho players. This study suggests that the regular practice of yoga as part of or alongwith the traditional training/coaching methods enhances the components of fitness that are the essential components of sports performance.

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