

## **An Experimental Study on Efficacy of Yogic Exercise Program on Explosive Strength of Male Kho-Kho Players**

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### **Abstract**

The main objective of the present study is to assess the efficacy of yoga exercises program of short duration on explosive strength of male kho-kho players. For the present study, 100 inter collegiate/university male kho-kho players (Ave. age 21.21 years) were selected. The sample comprise of kho-kho players from Bundelkhand University. As per design of the study, two groups i.e. experiment and control group were formed. Equal number of subjects was than divided randomly in each group. Three months of Suryanamaskar and yoga training was imparted on male kho-kho players from experimental group. Explosive strength was measured by standing broad jump test. Results showing significant impact of three months Suryanamaskar and yoga training program on explosive strength of male kho-kho players. It was concluded that participation in three months Surya namaskar and yoga training program is beneficial in improving explosive strength of male kho-kho players.

**KEYWORDS :** Yoga, Explosive strength, kho-kho

#### **Introduction**

To put maximal amount of force in shortest possible time duration is known as explosive strength. Just like importance of explosive strength for a sprinter, it is equally useful for a kho-kho player. The reason is nature of kho-kho which requires a person to quickly move from stationary position. This requires explosive strength of lower limb. In other words power is resultant effect of explosive strength where power is dependent on force and velocity.

In a sport like kho-kho were short burst is required to cover small distance, explosive strength is essential. Quick/fast powerful movements are pre-requisite for kho-kho players because nature of this sport requires a player to cover the field in shortest possible time with sudden burst in acceleration. A weaker lower leg muscle is hindrance as far as generation of power is concerned. One can be powerful but without stronger lower limb muscles; he/she cannot be explosive.

Just like traditional Indian sport kho-kho, yoga has been known since ages for betterment of physical fitness components. In this context Bhavanani and Udupa (2003), Gabbett & Benton (2007), Singh et al. (2011), Arun (2017), Iftekher et al. (2017) have proved the utility of yoga in terms of psychological and physical enrichment of sportsman.

Kho-kho being a traditional Indian sports attracted many researchers to work on various factors associated with kho-kho performance. Researchers like Dhondge (2011), Singh and Singh (2013), Singh and Saini (2014), Jaiswal (2014), Paul and Das (2016) paid attention to factors responsible for excellence in kho-kho. But despite broad spectrum research, no study has yet been conducted in which impact of especially designed program of Suryanamaskar and yogic training of three months has been observed on explosive strength of male kho-kho players. Hence to fill the void this study has been conducted.

## Hypotheses

Three months of Surya Namaskar and yogic exercise program will have significant impact upon standing broad jump performance of male kho-kho players.

## Methodology :-

The following methodological steps were taken to conduct the study.

## Sample :

For the present study, 100 inter collegiate male kho-kho players (Ave. age 21.21 years) were selected. The sample comprise of kho-kho players from Bundelkhand University. As per design of the study, two groups i.e. experiment and control group were formed. Equal number of subjects was than divided randomly in each group.

## Tools

Standing broad jump distance was recorded by standard protocol. Two trials were given and the best jump was recorded.

## Procedure:

Standing broad jump test was performed by male kho-kho players of experimental and control group prior to commencement of study period. Male kho-kho players of experimental group took part in three months yogic exercise programe which includes 01 hour of yogic exercise comprising of OM chanting, Suryanamaskar, and specific asanas and kriyas for two to five minutes of duration. Subjects from control group were not subjected to any other program apart from their usual exercise routine. Standing broad jump test was again performed by selected male kho-kho players after the completion of study period. Distance in meters on standing broad jump protocol was recorded twice i.e. pre test and post test. Gain score (Post-pre test) was computed for experimental as well as control group to find out the changes in pre-post measures on standing broad jump test. Independent and paired sample 't' test was used as statistical formulae. The results are presented in table no. 1, 2 and 3 respectively.

## Analysis of Data:

In table 1, comparison of pre-post mean scores on standing broad jump performance of male kho-kho players for both the study groups are being presented.

**Table 1**

### Comparison of Pre Post Mean Scores on Standing Broad Jump in Experimental and Control Group

Study Groups	N	Standing Broad Jump				Mean Difference	't'
		Pre Test		Post Test			
		Mean	S.D.	Mean	S.D.		
Experimental Group	50	2.201	.232	2.401	.131	-.199	10.78**
Control Group	50	2.163	.204	2.153	.194	.010	1.48(NS)

\*\* Significant at .01 level;  $t(df=49)$  at 0.05 = 2.06,  $t(df=49)$  at 0.01 = 2.68

According to table 1 a significant change in terms of standing broad jump performance was observed in male kho-kho players from experimental group who took part in Surya namaskar and yogic exercises program during study period. It shows that mean standing broad jump scores of male kho-kho players from experimental group have enhanced significantly after study period (M=2.401) as compared to what it was before the commencement of study period (M=2.201) at .01 level of statistical significance. The calculated  $t=10.78$  also supports this findings because it is greater than the table value of 2.68 for  $df=49$ .

Statistical entries reported in table 1 reveals statistically non-significant changes in terms of standing broad jump performance of male kho-kho players from control group during study period. The mean score on standing broad jump before the start of study period was 2.163 while after the completion of study period it was 2.153. The calculated  $t=1.48$  also supports this findings because it is less than the table value of 2.06 for  $df=49$  at .05 level of statistical significance.

The pre-post mean difference on standing broad jump performance for both the groups were also compared with each other in the form of gain score. The same are presented in table 3.

**Table 3**

**Comparison of Gain Score (Final – Initial) on Standing Broad Jump Performance between Experimental and Control Group**

	Experimental Group (N=50)		Control Group (N=50)		‘t’	Sig.
	Mean	S.D.	Mean	S.D.		
Gain Score	.199	.130	-.010	.047	10.64	.01

$t(df=98)$  at 0.05 = 1.98,  $t(df=98)$  at 0.01 = 2.63

A perusal of table 3 indicate that mean gain/loss score on standing broad jump among male kho-kho players from experimental group (M = +.199) was significantly superior as compared male kho-kho players from control group (M = -.010) at .01 level of statistical significance. The calculated  $t=10.64$  also supports this findings because it is greater than the table value of 2.63 for  $df=98$ .

**Results**

On the basis of statistical analysis it was observed standing broad jump performance of male kho-kho players from experimental group after participating in three months Suryanamaskar and yogic exercise program while no significant change was observed in pre-post standing broad jump performance of male kho-kho players from control group.

**Discussion**

According to Butzer, et al., (2015) yoga is a holistic system which is based on mind-body exercise for better mental and physical health. Yoga has four basic components namely (a) physical postures, (b) exercises for strength and flexibility, (c) breathing

exercise for superior respiratory functioning and (d) deep relaxation method to release tension and stress respectively. Hence the results once again prove the effectiveness of yoga as far as explosive strength is concerned

### **Conclusion**

It was concluded that specifically designed Program of Suryanamaskar and yogic asanas for a specific duration improves explosive strength of male kho-kho players.

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