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Influence of Proprioceptive, Yoga and Combined Training Programme on Agility among Kho-Kho Players

*¹Manoj Kumar N and ²Dr. S Glady Kirubakar

¹Director of Physical Education, Government First Grade College, Tumkur, Karnataka, India.

²Assistant Professor, YMCA College of Physical Education, Chennai, Tamil Nadu, India.

Abstract

The purpose of the study was to find out the influence of proprioceptive training yoga training and combined training programme on neuromuscular variable agility among school level kho-kho players. To achieve the purpose of the study sixty (N=60) male kho-kho players were randomly selected. The age group of the subject was 14 to 17 years. Selected subjects were equally divided into four groups namely 1 control and 3 experimental group. Control group was not given any type of training. Experimental group was given proprioceptive training, yoga training and combined proprioceptive and yoga training for a period of ten weeks. The pre-test and post-test data on agility was collected on both the groups before and after the experimental training collected data was analysed by using ANCOVA to find significant difference among mean at 0.05 level of confidence. It was concluded that experimental group combined proprioceptive and yoga training group significantly ($p \leq 0.05$) improved the agility when compared to control group of the school level kho-kho players.

Keywords: Proprioceptive training, yoga training, combined training and kho-kho players

Introduction

Physical exercise has been an important part of Indian culture since ancient times. There are various indigenous games that were integral parts of Indian culture, such as Kabbadi and Kho-Kho, of which Kabaddi has been recognised at an international level, whereas Kho-Kho is an indigenous sport that originated in Indian villages and is appealing for its existence and exposure. To achieve peak performance, the game necessitates well-developed physical fitness components, energy, concentration, determination, hard work, and skills. Physical fitness components that lead to top performance in Kho-Kho include speed, agility, quickness, reaction time, strength, explosive strength, flexibility, and so on. Agility, as the term implies, is the ability of an individual to respond quickly and effectively to a stimulus. Because this game necessitates rigorous training, the researcher considered investigating the effectiveness of proprioceptor training, yoga training and combined training on agility for kho-kho players. Proprioception is a sensitivity mechanism found in mammals that communicates with the central nervous system via Mechanoreceptors found in joints, muscles, and tendons. As a result, it signals the body how to react and with how much tension to a specific message. Proprioception is initially unconscious, but it can be improved through training. The awareness of posture, movements, and changes in equilibrium, as well as knowledge of position, weight, and

resistance to objects in relation to the body, are all examples of proprioception.

A well-rounded yoga practise that focuses on strength, flexibility, and balance will improve your agility. Moving dynamically in and out of poses with your breath or between linked poses in flow sequences allows you to practise quick, precise movements. Physical variables have become one of the most important aspects of sports sciences that deal with the improvement of sports performance in the modern sports world. Yoga and Kho-Kho require a high level of physical balance, which completely controls the mental, physical, motor-coordination, and physiological work outputs under high-intensity conditions. It is a game of continuous action with mental pressure that requires the team and individual players to constantly adapt to changing situations.

Objectives

The main objective of the study is to find out the efficacy of a specific proprioceptive training, yoga training and combined proprioceptive and yoga training on selected neuromuscular variables agility among kho-kho players.

Method

To achieve the purpose of the study 60 kho-kho players were selected. Selected subjects were equally divided into four group namely experimental group I proprioceptive training group (PTG) ($n = 15$), experimental group II yoga training

group (YTG) ($n = 15$), experimental group III combined proprioceptive and yoga training group (PYTG) ($n = 15$) and a control group (CG) ($n = 15$). The control group performed only the kho-kho game practice during the study. Experimental group was given proprioceptive training, yoga training and combined proprioceptive and yoga training. The training programme included warm up (10 mins), work out (40 minutes) and cool down (10 mins) sessions for a duration of 40 min in three days of a week in the morning followed by warm up and end with proper warm down for ten weeks where muscles involved lower extremities. Other three days' experimental group practiced kho-kho. The data were analysed by ANCOVA to determine the difference between initial and final mean for experimental and control group at 0.05 level of significance. The formula was applied at 95% Confidence Interval and significant p values set at 0.05. The results were taken to be significant at $p \leq 0.05$.

Training Schedule

Table 1: Training Schedule

Experimental Training Group	Name of the Exercise	Week	1-3	4-6	7-10
		Sets	2	2	2
Proprioceptive Training (PTG)	1. Single leg stance while swinging the raised leg (flexed knee)	Reps.	12	15	18
	2. Forward & Backward leg swing with knee extended on single leg stance.				
	3. Cross leg swings				
	4. Single foot side to side ankle hop Side to Side ankle hop				
	5. Runners Pose				
	6. Partial Squats				
	7. High Bench Step ups				
	8. Split squat jump				
	9. Double leg Stance on wobble board (Eyes open)				
	Sets	4	4	2	
Yoga Training (YTG)	1. Vrikshasana	Pose duration	30	60	90
	2. Vajrasana				
	3. Tadasana				
	4. Paschimouthanasana				
	5. Halasana				
	6. Bhujangasana				
	7. Dhanurasana				
	8. Naukasana				
	9. Sarvangasana				
	10. Bhunaman Vajrasana				
Combined Proprioceptive & Yoga Training (PYCG)	(Monday, Wednesday & Friday) in a week for first five (05) weeks for proprioceptive training along with Group-I (PTG). (Tuesday, Thursday & Saturday) in a week for next five (05) weeks for yoga training along with Group-II (YTG).				

Pre-test and post test data was collected on control group and experimental group before and after the ten weeks of experimental training by using following authenticated tests, Agility-4 X 10 Mts. Shuttle run (Kolimechkov, S. 2019)

Analysis

Table II showing the analysis of covariance on agility,

Table 2: Analysis of covariance on agility of control and experimental group

Group		PTG	YTG	PYTG	CG	SoV	SS	Df	MS	F ratio
Pre Test	Mean	11.52	11.82	11.58	11.86	BG	1.76	3	.59	0.23
	SD	.540	1.160	.347	2.875	WG	190.47	76	2.51	
Post Test	Mean	11.07	11.25	11.03	11.68	BG	5.33	3	1.78	3.88*
	SD	.596	.995	.353	.602	WG	34.83	76	.46	
Adjusted Post Test Mean		11.10	11.23	11.05	11.65	BG	4.45	3	1.48	3.84*
						WG	28.93	75	.39	
Mean Gains		.45	0.57	0.55	0.18					

*Significant at 0.05 level 3 and 76 (df) =2.73, 3 and 75 (df) =2.73

The attained F-ratio for the adjusted post-test means of 3.84 was greater than the table F-ratio value of 2.73. Hence, the adjusted post-test means F-ratio was significant at 0.05 level of confidence for the degrees of freedom 3 and 75. This evidenced that there was a significant difference among the means due to the experimental trainings on agility. There were significant differences recorded in the test results. Hence, the data was exposed Scheffe's post hoc test for post hoc analysis. The results are given in the Table III.

Table 3: The Scheffe's Test For the differences between the adjusted post-test means on agility

Adjusted Post-test Means				Mean Difference	Required CI
Proprioceptive Training	Yoga Training	Combined Training	Control Group		
11.10	11.23	---	---	0.13	0.38*
11.10	---	11.05	---	0.05	
11.10	---	---	11.65	0.55*	
---	11.23	11.05	---	0.18	
---	11.23	---	11.65	0.42*	
---	---	11.05	11.65	0.60*	

Table III shows that adjusted post-test mean difference of proprioceptive training and control group, yoga training and control group, combined training and control group were 0.55, 0.42 and 0.60 respectively. They were greater than the confidence interval value 0.38 at 0.05 level which indicates that there were significant differences among proprioceptive training and control group, yoga training and control group, combined training and control group on agility.

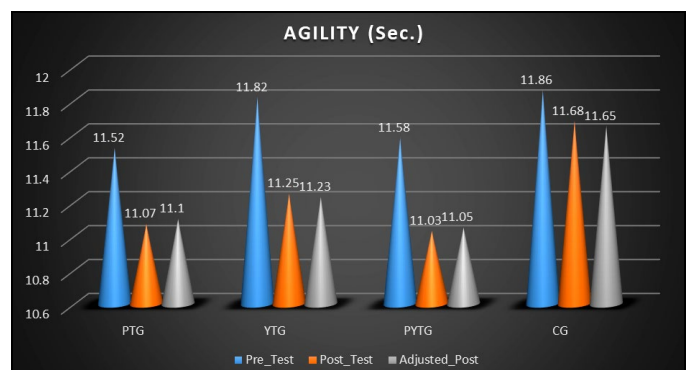


Fig 1: Showing mean values of pre-test and post-test of control and experimental groups of agility (secs.)

Discussion on Findings

The post hoc test analysis through Scheffe's Confidence test proved that due to proprioceptive training, yoga training, combined proprioceptive and yoga training groups improved agility than the control group and the differences were significant at 0.05 level. Further, the post hoc test analysis shows that there was significant difference between the experimental groups, clearly indicating that combined proprioceptive and yoga training group was better than the proprioceptive training and yoga training in improving the agility of the kho-kho players.

The result of the study showed that there was a significant improvement in agility due to 10 weeks of training programme. Further the study clearly revealing that the combination of training is better than the isolated training alone for improving agility of rural Kho-Kho players. This result was in par with the studies undertaken by Pandey, A (2018), which is effect of eight weeks proprioceptors training on agility of male Kho-Kho players found that proprioceptive training improves performance of Illinois agility test of male Kho-Kho players. The observation of this study is very similar to the findings of Bal, B.S (2009) who observed the effects of selected asanas in hatha yoga on agility and flexibility level and found the treatment of six-week yogasanas training programme also shown significant improvement in case of agility. Combination training is an effective form of training both from a time efficiency and a functional perspective. The biggest benefit of combined training is an efficient use of time. The combination of proprioceptive training and yoga resulted well-rounded balance of physical variable agility that is highly beneficial for the Kho-Kho players.

Conclusion

From the results of the study and discussion the following conclusions were drawn.

1. There is a significant difference on agility between all the groups.
2. There is a significance improvement on agility due to combined proprioceptive and yoga training.

Recommendations

1. Similar study may be conducted for various age groups.
2. The same study may be extended to further time period.
3. The present study is mainly focused on male school level kho-kho players only. The same study may be done on elite kho-kho players.

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