



INFLUENCE OF PROPRIOCEPTIVE, YOGA AND COMBINED TRAINING PROGRAMME ON SPEED AMONG KHO-KHO PLAYERS

Mr. Manoj Kumar. N¹ & Dr. S.Glady Kirubakar²

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

²Associate Professor, YMCA College of Physical Education, Chennai – 35, India.

Abstract

This study was designed to investigate the influence of proprioceptive training yoga training and combined training programme on neuromuscular variable speed 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 two groups namely control and experimental group. Control group was not given anytype 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 speed 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 yogatraining group significantly ($p \leq 0.05$) improved the speed when compared to control group of the school level kho-kho players.

Keywords: proprioceptive training, yoga training, combined training, speed and kho-kho players.

Introduction

The ancient game of Kho-Kho, played in divided India, is thought to have originated from the many strategies and tactics used by "Kurukshetra" in the Mahabharata. In the game of Kho- Kho, the construction of chain play, a defence skill, is indicated by the soldiers' fleeing paths and the chariot fifth throughout the conflict. Kho-Kho is a game that can be thoroughly learned by mastering the basic skills and strategies of pursuing, running from the pursuer, avoiding touch with the chaser, and not allowing the chaser to make contact with you or the sprinter's clothing. One efficient way to end the chase would be to leap at the sprinter and make contact with his back foot impact point as he ran. Without a question, this is the safest method for scoring a sprinter. Three core tactics that

supported running were identified. The traditional way is to run crisscross in the middle of the line in single, double or triple chain. Based on the natural principles of physical development, Kho-Kho encourages a positive, competitive atmosphere that promotes teamwork. It's intense and equips young people with a combative attitude towards health. It is more than just sprinting; it is a natural instinct to catch up and chase in order to make a kill. Without a doubt, the heart needs strength, and stamina to withstand the unrelenting chase of a minute at a stretch (turn). In turn, a young person in good physical shape appreciates it, and onlookers are satisfied with a thrilling sport. Various games are offered to perform the physical exercises in different ways. Players can gain these talents just as well from Kho-Kho players. Despite this, the hypothesis of physical abilities is quickly gaining acceptance in the sports community. Proprioception training involves awareness of joint position movement (kinesthesia) and force (**Martin and Jessell, 1991; Riemann and Lephart, 2002**) and can be considered the product of sensory information supplied by specialized nerve endings termed mechanoreceptors (**Yahia et al., 1992**).

Physical fitness is the result of an individual's assessment of their level of strength, speed, power, endurance, agility, and flexibility. It is important for a variety of games and sports. Physical fitness is the capacity to perform delayed, diligent work and recover to a similar state of health in a short period of time. Speed is the ability to move or travel at a high rate of speed. Similar to other bio-motor skills, there are various categories for speed. It could refer to the sprinter's entire body moving at maximum running pace. It could involve running at the ideal speed, like when competing in the approach run of the jumping events. It could also refer to a limb's speed, such as the take-off leg in the jumps or the throwing arm in the shot or discus. The goal of speed training is to improve a skill so that it can be applied more quickly. The ability must be regularly practised at its maximum or almost maximum rate of movement in order to gain speed. One way to acquire maximal running speed is to sprint short distances at maximum effort. Like any other talent, moving quickly should be practised before an athlete gets tired. Because of this, there should be enough recovery time in between sets and repetitions to allow for any weariness to subside.

Rapid control of our feet's pliability—as well as the tendons that connect them to our legs—allows us to absorb impact energy and precisely recover for the next stride when we have good proprioception. We are more effective when our proprioception is in balance, and efficiency in running translates into increased speed and stamina. Yoga is significantly more than just "stretching," despite the misconception held by many of us. Prominent sportsmen, including international players and ultramarathon runners, have found yoga to be a beneficial supplement to their training regimens. When done correctly, yoga can actually enhance all aspects of your performance, from endurance to power to speed, in addition to enhancing your general health and well-being.

According to Kaiser Permanente Washington, raising your heart rate through exercise strengthens your heart and makes it more effective at pumping blood throughout your body. Which in turn "keeps you from getting winded during high-intensity activities and allows your heart to work better under stress." Your long runs and speedwork will therefore become easier. Intense forms of yoga, like power or hot yoga, can raise your heart rate and help you gain muscle, which can help you become more fit overall, whether your goal is to run a longer distance or sprint

quicker.

Objectives:

The main objective of the study is to find out the influence of a specific proprioceptive training, yoga training and combined proprioceptive and yoga training on selected neuromuscular variable speed 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 groups 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 I

Experimental Training Group	Name of the Exercise	Week	1-3	4-6	7-10
		Set	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.				
Proprioceptive Training (PTG)	3. Cross leg swings	Reps	12	15	18
	4. Single foot side to side ankle hop				
Proprioceptive Training (PTG)	5. Side to Side ankle hop	Reps	12	15	18
	6. Runners Pose				
Proprioceptive Training (PTG)	7. Partial Squats	Reps	12	15	18
	8. High Bench Step				
Proprioceptive Training (PTG)	9. Split squat jump	Reps	12	15	18
	10. Double leg Stance on wobble board (Eye open)				
		Set	4	4	2
Yoga Training (YTG)	1. Vrikshasana	Pose duration	30	60	90
	2. Vajrasana				
Yoga Training (YTG)	3. Tadasana	Pose duration	30	60	90
	4. Paschimouthanasana				
Yoga Training (YTG)	5. Halasana	Pose duration	30	60	90
	6. Bhujangasana				
Yoga Training (YTG)	7. Dhanurasana	Pose duration	30	60	90
	8. Naukasana				
Yoga Training (YTG)	9. Sarvangasana	Pose duration	30	60	90
	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,

Speed - 50 Mts. dash test - Mackenzie, B. (2015).

Table II showing the analysis of covariance on speed,

Table II
Analysis of covariance on speed of control and experimental group

Group		PTG	YTG	PYTG	CG	SoV	SS	D	MS	F ratio
Pre Test	Mean	7.66	7.59	7.58	7.57	BG	0.106	3	0.035	0.218
	SD	.419	.435	.363	.387	WG	12.313	76	0.163	
Post Test	Mean	7.32	7.26	7.12	7.55	BG	1.915	3	0.638	4.605*
	SD	.436	.441	.286	.294	WG	10.536	76	0.139	
Adjusted Post Test Mean		7.27	7.27	7.14	7.58	BG	2.097	3	0.699	38.29*
						WG	13.69	75	0.181	
Mean Gains		0.34	0.33	0.46	0.02					

*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 38.29 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 speed.

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 III
The Scheffe's Test for The Differences Between the Adjusted Post-Test Means on Speed.

Proprioceptive Training	Adjusted Post-test Means			Mean Difference	Required CI
	Yoga Training	Combined Training	Control Group		
7.27	7.27	---	---	0.001	0.08*
7.27	---	7.14	---	0.13*	
7.27	---	---	7.58	0.31*	
---	7.27	7.14	---	0.14*	
---	7.27	---	7.58	0.31*	
---	---	7.14	7.58	0.44*	

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 0.31,

0.31 and 0.44 respectively. They were greater than the confidence interval value 0.02 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 speed. There was no significant difference between proprioceptive training group and yoga training group (0.001) at 0.05 level of confidence with the confidence interval value of 0.08.

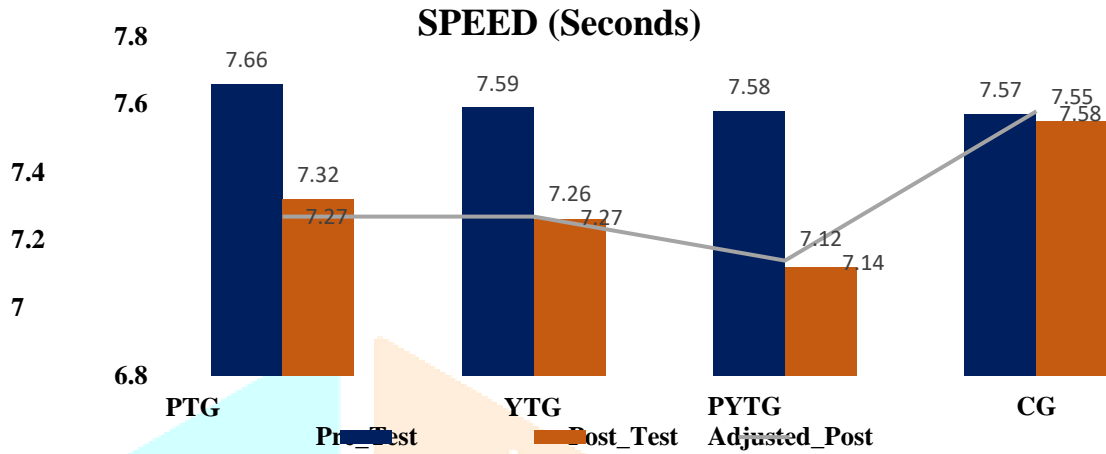
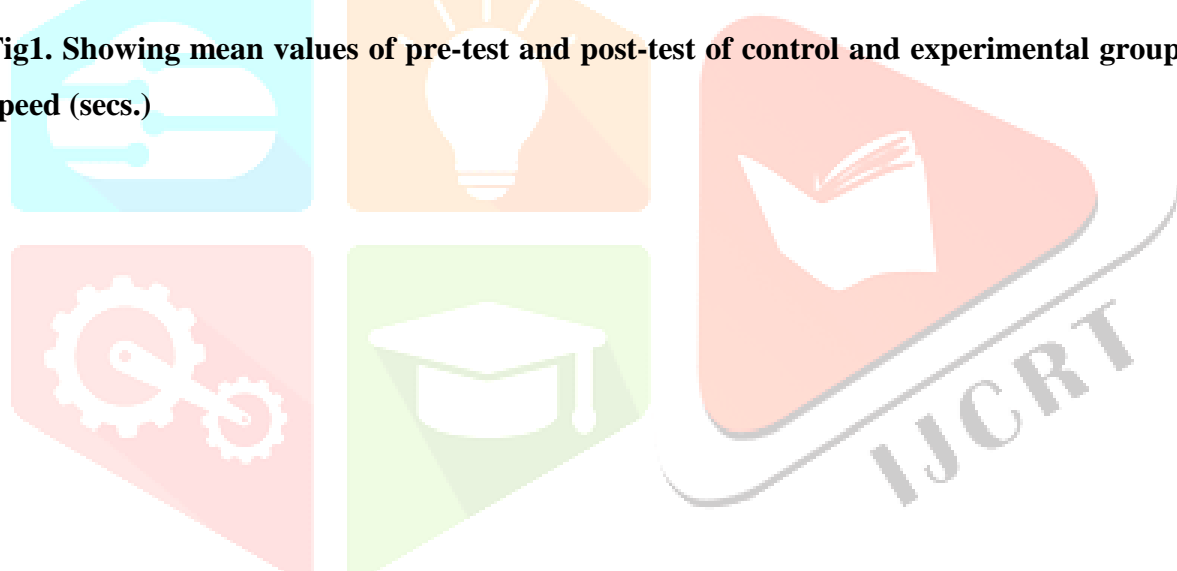


Fig1. Showing mean values of pre-test and post-test of control and experimental groups of speed (secs.)



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 speed 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 speed of the kho-kho players.

The result of the study showed that there was a significant improvement in speed due to 10 weeks of training programme. Further the study clearly reveals that the combination of training is better than the isolated training alone for improving speed of rural Kho-Kho players.

This finding was in line with the findings of **Souglis, A. G. (2022)** in his study the effect of proprioceptive training on technical soccer skills in female soccer. The results found in the present study support the idea that the 16-week proprioceptive training is effective for improving agility, speed, and accuracy in female soccer players.

The findings of **Sarbjit kaur (2019)** showed that the effect of yoga on speed performance of schoolboys. Result indicated that the six weeks Yoga practice were effective in improving Speed of the school children. There are papers suggesting that the chronic effect of the training is positive on the speed performance (**Federici (2020), Romero-Franco (2012 & 2013)**).

Based on the above literature and from the results of the present study that systematically designed combined proprioceptive and yoga training develops the performance related fitness variables standard, as the selected dependent variables are very essential for better performance in all sports & games especially in the game of Kho-Kho. Hence, it is concluded from the analysis of the study that systematically scientifically designed combined proprioceptive and yoga training would be given due recognition and implemented properly in the training programs of all the disciplines in order to achieve maximum performance.

Conclusions:

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

1. There is a significant difference on speed between all the groups.
2. There is a significance improvement on speed 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.

References

1. Barry L. Johnson, Jack K. Nelson (1986). Practical Measurements for Evaluation in Physical Education: 4 th Edition. Burgess Pub., ISBN 080871094X.
2. Best, J.W. (1965) Research in education. Prentice-Hall series in educational measurement, research, and statistics, 9780139739781, P 399.
3. David R. Lamb. (1970). Statistics and Research in Physical Education.
4. George B. Dintiman (1997) Sportspeed. Human Kinetics Publishers; 2nd edition. ISBN:978-0880116077.
5. Romero-Franco, Natalia & Martínez-Amat, Antonio & Martínez-López, Emilio J. (2013). Effect of proprioceptive training on sprinters. Revista Internacional de Medicina y Ciencias de la Actividad Fisica y del Deporte. 13. 437-451.
6. Romero-Franco, Natalia¹; Martínez-López, Emilio²; Lomas-Vega, Rafael¹; Hita-Contreras, Fidel¹; Martínez-Amat, Antonio¹ (2012) Effects of Proprioceptive Training Program on Core Stability and Center of Gravity Control in Sprinters, Journal of Strength and Conditioning Research: Volume 26 - Issue 8 - p 2071-2077.
7. Sarbjit kaur (2019) Effect of Yoga on Speed Performance of School Boys. Journal of Emerging Technologies and Innovative Research. JETIR, (ISSN-2349-5162) Volume 6, Issue 4.
8. Souglis, A. G., Travlos, A. K., & Andronikos, G. (2022). The effect of proprioceptive training on technical soccer skills in female soccer. International Journal of Sports Science & Coaching, 0(0).
9. Martin J and Jessell T., (1991). Modality coding in the somatic sensory system. In: Kandel E, Schwartz J,
10. Jessell T, editors. Principles of neural science. London: Prentice-Hall International Inc.; 1991. p. 341-52.
11. Riemann B. and Lephart S., (2002). The sensorimotor system, part I: the physiologic basis of functional joint stability. J Athl Train 2002; 37:71-9.
12. Yahia I., Rhalmi S., Newman N. and Isler M., (1992). Sensory innervation of human thoracolumbar fascia. An immunohistochemical study. Acta Orthop Scand 1992;63(2):195-7.