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# Indian Streams Research Journal



## EFFECT OF YOGA ON KINESTHETIC PERCEPTUAL MOTOR SKILL OF SENIOR CITIZENS



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### ABSTRACT

According to (Paley, 2014) Perceptual motor skills are movement related skills that are an essential aspect of human development and growth. These skills work in complement with cognitive and sensory-motor. Perceptual motor skill is related with movement or mobility such as the ability to perform a physical movement or gymnastic routine. It is develop in three stages the cognitive stage is one where one understands and then performs it, the practice stage and the autonomous stage which is about improvement of the skill. For the present investigation Urban Male Senior Citizen, Aged 60 to 70 years was the target population of the study. This study was delimited only for Navi Mumbai. Thirty (n=30) male senior citizens of aged 60 to 70 years from Juinagar Senior Citizen Club' Navi Mumbai were randomly selected for the experiment as sample. The present experiment was conducted by using

Double-Pretest Posttest Single-Group Design under the Quasi Experimental Design. Kinesthetic Perceptual Motor Skill was measured by Timed Up and Go test, the procedure of the study was, after the Pretest-1 all the selected subjects were controlled for 'not to do yogic practices anywhere' for ten weeks, then the Pretest-2 was conducted to measure the same test variable measured in Pretest-1.



After Pretest-2, all the selected subjects were enrolled in 'Yogic Training Intervention' for daily one hour in the morning for ten weeks excluding Sundays. After the training intervention of ten weeks, all the selected subjects then again tested in Post-test. The data was collected at three various time of the experiment therefore the researcher was used One way ANOVA with Polynomial Liner Degree for Trend Analysis followed by Scheffe's Post Hoc Test to analyze the data. The performance of Pre-test-1of Kinesthetic Perceptual Motor Skill was 8.51sec. (SD 1.07) and Pre-test-2 was 8.25sec. (SD 0.90). The performance of the above variable at Pre-test-1 and Pre-test-2 were found similar to each other. After yogic intervention the performance of Post-test of the selected variable was measured and found

improved as compare to the performance of Pre-test-1 and Pre-test-2 by mean score 7.14sec. The post test performance of Kinesthetic Perceptual Motor Skill was found significantly improved, therefore confidently, logically and with evident information it may state that 'Yoga' was effective in improving the performance of Kinesthetic Perceptual Motor Skill.

**KEYWORDS** :Yoga, Kinesthetic Perceptual Motor Skill, Senior Citizens, Mobility, Balance Improvement.

### INTRODUCTION

The word '**Kinaesthetic perceptual motor skill**' is the combine of two words (**Wikipedia, 2014**), **Kinaesthetic** relates to learning through feeling such as a sense of body position, muscle movement and weight, in short it is an experience of movement or a practice of movement by keeping balance of the body.

According to (**Paley, 2014**) **Perceptual motor skills** are movement related skills that are an essential aspect of human development and growth. These skills work in complement with cognitive and sensory-motor. Perceptual motor skill is related with movement or mobility such as the ability to perform a physical movement or gymnastic routine. It is develop in three stages the cognitive stage is one where one understands and then performs it, the practice stage and the autonomous stage which is about improvement of the skill.

Kinesthetic awareness is a sensory skill that our body uses to know where it is in space. Many Structures in our body have nerve receptors which send specific information to the brain. Structures such as our inner ear tell the brain information about the head's orientation to gravity, accelerations, decelerations, and direction of movement. Our eyes provide depth perception, and a visual surveillance of objects around us. Our muscles have a variety of receptors that tell the brain information like; how much tension is in the muscle, how long or stretched the muscle is, how fast the muscle is moving, and most importantly what position its associated joint is in. Our Brain receives this type of feedback information from our ears, eyes, muscles, ligaments, skin. Every split second Sounds like a lot eh! It is, but our brain requires this sensory information in order to guide our body to smooth movements, stay balanced, maintain posture, and react to the immediate environment (**Footjacks, 2014**).

The ability to perceive the position, effort, and movement of the part of the body or the entire body during muscular action is sometimes referred to as the sixth sense. In reality, we have more than just six senses; in fact kinesthetic sense is also used to refer to this sense. The sources of proprioceptive or kinesthetic perception are presumably located in the joints, muscle and tendon. Due to the increasing age joints, muscle, tendon, vision and co-ordination ability becomes weaker therefore reduced **Kinesthetic Perceptual Motor Skill** commonly found in older adults and it is an independent risk factor for static and dynamic balance for them. Hence the researcher was undertaken the present investigation to compare the mean scores of, Pre-test-1, Pre-test-2 and Post-test of Kinesthetic Perceptual Motor Skill as measured by Timed Up and Go test.

### METHOD

#### Population & Sampling

Urban Male Senior Citizen, Aged 60 to 70 years was the target population of the study. This study was delimited only for Navi Mumbai. **Thirty (n=30)** male senior citizens of aged 60 to 70 years from Juinagar Senior Citizen Club' Navi Mumbai were randomly selected for the experiment as sample with the help of random table.

### Design of the Study

The present experiment was based on the cause and effect theory, which was undertaken with a view to evaluate the effect of 'Yoga' on Kinesthetic Perceptual Motor Skill. The present experiment was conducted by using *Double-Pretest Posttest Single-Group Design* under the Quasi Experimental Design.

### Procedure of the Study

As per the design of the experiment Pretest-1 of Kinesthetic Perceptual Motor Skill as measured by Timed Up and Go test (*Top End Sports, 2014*) was conducted, after the Pretest-1 all the selected subjects were controlled for '*not to do yogic practices anywhere*' for ten weeks, then the Pretest-2 was conducted to measure the same test variable measured in Pretest-1. After Pretest-2, all the selected subjects were enrolled in 'Yogic Training Intervention' for daily one hour in the morning for ten weeks excluding Sundays. After the training intervention of ten weeks, all the selected subjects then again tested in Post-test to measure the same test variables.

### STATISTICAL PROCEDURE

Present experiment was consist *Two Pre-tests* and *One Post-test*, accordingly the data was collected at three various time of the experiment therefore the researcher was used *One way ANOVA* with *Polynomial Liner Degree for Trend Analysis* followed by Scheffe's Post Hoc Test to analyze the data.

### RESULTS

The objective of this study was 'to compare the mean scores of Pre-test-1, Pre-test-2 and Post-test of Kinesthetic Perceptual Motor Skill as measured by Timed Up and Go test' thus the data worth analyzed with the help of One Way ANOVA and the results are presented in **Table – 1**.

**Table - 1: Summary of One Way ANOVA of Kinesthetic Perceptual Motor Skill.**

Source of Variable	SS	df	MS	F	Remark
Yoga Treatment	32.35	2	16.16	16.94	.000**
Liner Relationship	28.10	1	28.10	29.43	.000**
Error	83.06	87	0.96		
Total	115.41	89			

**\*\* Significant at 0.01 level**

**Table - 1** is evident that *F-value of Yoga Treatment* is **16.94** which is significant ( $p < 0.01$ ) with **df 2/87**, it reflect that the mean score of Kinesthetic Perceptual Motor Skill of yoga treatment differ significant thus the null hypothesis 'there is no significant deference in mean scores of Pre-test-1, Pre-test-2 and Post-test of Kinesthetic Perceptual Motor Skill as measured by Timed Up and Go test is rejected.

For the *linear trend relationship* the '**F**' value is **29.43** and this value is also found significant ( $p < 0.01$ ), therefore further investigation was needed to confidently interpret that the increased performance of Kinesthetic Perceptual Motor Skill was due the 'Yogic' training program. In order to know how much differences are in the mean scores of the entire three sets of the performance and of which score is significantly higher, the data further analyzed with the help of '*Scheffe's Post Hoc Test*' and obtained results are presented below in **Table- 2**.

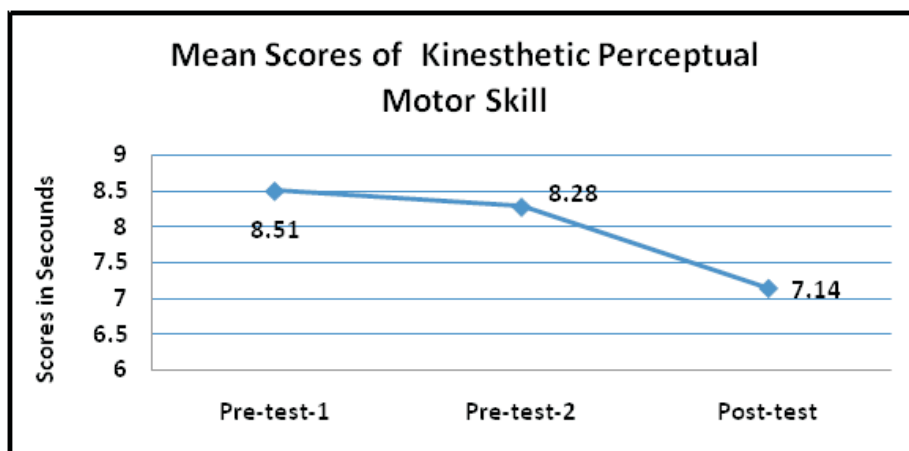
**Table- 2: Multiple Comparisons of Kinesthetic Perceptual Motor Skill**

Comparison Between		Mean Difference (I-J)	Std. Error	Sig.
(I) Pre-test-1	(J) Pre-test-2	0.22	.25	6.68
(I) Pre-test-2	(J) Post-test	1.15	.25	0.00**
(J) Pre-test-1	(I)Post-test	1.38	.25	0.00**

**\*\* Significant at 0.01 level**

**Table-2** shows the mean difference between Pre-test-1 and Pre-test-2 is **0.22**, which is do not differ significant, mean difference between Pre-test-2 and Post-test is 1.15 which is statistically significant at 0.01 levels. Mean difference between Pre-test-1 and Post-test is 1.38 which is differ statistically significant.

The following **figure-1** of the **Liner Trend** of the performance of Kinesthetic Perceptual Motor Skill measured at Pre-teat-1, Pre-test-2 and Post-test shows that, the performance of Post-test is jumped in progressive manner in ‘Y’ axis with mean difference 1.15, whereas the scores of Pre-test-1 and Pre-test-2 is almost statistically parallel to the ‘X’ axis with mean difference only **0.22**. Therefore with the evident information and more confidently it can be interpreted that the treatment of ‘Yoga’ was found significantly effective in improving Kinesthetic Perceptual Motor Skill of the Senior Citizen.



**Figure 1: Mean scores of Pre-test-1, Pre-test-2 and Post-test of Kinesthetic Perceptual Motor Skill**

**DISCUSSION**

The present investigation is very much helpful to maintain and develop the Kinesthetic Perceptual Motor Skill. The obtained results are presented bellow which is effective in improving Kinesthetic Perceptual Motor Skill and provide better and healthy mobility to Senior Citizens.

Performance of Kinesthetic Perceptual Motor Skill of Pre-test-1 was **8.51sec. (SD 1.07)** and at Pre-test-2 it was **8.25sec. (SD 0.90)**. The performance of the above variable at Pre-test-1 and Pre-test-2 were found similar to each other. After yogic intervention the performance of Post-test was found improved by mean score **7.14sec** as compare to the performance of Pre-test-1 and Pre-test-2. Between the Pre-test-1 and Pre-test-2 the subjects were free to do their daily routine activity, however the

performance of the both test was found similar. Hence it is interpreted that daily routine activity could not help to improve Kinesthetic Perceptual Motor Skill. In case of Pre-test-2 and Post-test 'Yoga treatment' was provided significant improvement in the performance of Post-test. Therefore confidently, logically and with evident information it may state that 'Yoga' was effective in improving the performance of Kinesthetic Perceptual Motor Skill.

Various experimental research studies were conducted in relation to study the effect of yoga; many of them reported that, 'Yoga' was effective in improving fitness components. The summary of the conducted studies on yoga and Kinesthetic Perceptual Motor Skill are discussed here logically for support to the present experiment.

**Saravanakumar, Higgins, Riet, Marquez, & Sibbrit, (2014)** were Conducted a randomized controlled trial research on the influence of tai chi and yoga on balance and falls in a residential care setting. The finding of the study shows positive changes in balance, pain and quality of life. **Kelley, Aaron, Hynds, Machado, & Wolff, (2014)** were stated that, effect of a therapeutic Yoga Program on Postural Control, Mobility and Gait Speed was beneficial for community-dwelling older adults. **Mooney, et al., (2014)**, were evaluated the comparative impacts of Tai Chi, Balance Training, and a Specially-Designed Yoga Program on Balance in Older Fallers, in this study after training, yoga group was found significant improvements in overall score of eyes open balance and eyes close balance it means Yoga is effective for improving postural stability and balance. In one of the study on, the effect of Sit 'n' Fit Chair Yoga conducted by McCaffrey, Park, **Newman, & Hagen, (2014)**, grater improvements were found in the yoga group than the control group. **Salem, et al., (2013)** were find out Hatha yoga postures engendered a range of appreciable joint angles, Joint Motion of Force, and muscle activities about the ankle, knee, and hip which help to maintain the balance. Tiedemann, **Rourke, Sesto, & Sherrington, (2013)** were conducted a blinded pilot randomized controlled trial study, the conclusion focused on the trial demonstrates the balance and mobility-related benefits and feasibility of Iyengar yoga for older people. After the critical review of the current literature of studies conducted on yoga and balance, Roland, **Jakobi, & Jones, (2011)** were evaluated that Yoga may engender improvements in some components of fitness in older adults. The researchers Schmid, **Van Puymbroeck, & Koceja, (2010)** were conducted a pilot study, entitled 'Effect of a 12-week yoga intervention on fear of falling and balance in older adults, it was found that through yogic practices 6% balance was increased. In different studies McCaffrey, Park, **Newman, & Hagen, (2014)**, **Manjunath & Telles, (1999)** and **Telles, Hanumanthaiah, Nagarathna, & Nagendra, (1994)** were examined the effect of yoga and observed that positive effect.

### CONCLUSION

The post test performance of Kinesthetic Perceptual Motor Skill was found significantly improved, therefore confidently, logically and with evident information it may state that 'Yoga' was effective in improving the performance of Kinesthetic Perceptual Motor Skill.

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