ANALYSIS OF THE CHANGES ON RANGE OF MOTION IN RESPONSE TO YOGA INTERVENTION AMONG GERIATRICS MEN

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ABSTRACT

The purpose of this study was to analyze the changes on range of motion in response to yogic practices among Geriatrics men. To achieve the aim of this study forty Geriatric men were selected, in which 20 subjects were, underwent yoga training and the remaining 20 subjects were control. The selected participants were the inhabitance of Pondicherry state, and their age ranged from 60-70 years. The participants were restricted to perform only selected yogasanas. The duration of experimental period was restricted to 12 weeks and frequency of training was five days in a week. Random group design was used, as it was most appropriate technique. The data was collected prior and after the completion of the yoga training. The application of dependent 't' test was computed separately. In order to nullify the initial mean differences the data collected from the two groups prior to and post experimentation on chosen dependent variables were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Due to the effect of 12 weeks yoga intervention, the range of motion of Geriatrics men was significantly changed.

Key words: *Yoga intervention, Range of motion*, *Geriatrics men*

INTRODUCTION

Age-related changes in skeletal muscle mass, strength, and function may be attributable to a variety of mechanisms, including disuse, impaired protein synthesis, and chronic inflammation. In regard to muscle disuse, individuals who are physically inactive have been found to have double the risk of future mobility limitation compared with those who meet the US Surgeon General's recommendations for physical activity.

Given the undesirable physical consequences of aging, strategies for both prevention and treatment are necessary for the health and well-being of older adults. Among the contributors to the aging process, muscle disuse is a preventable and reversible factor. More and more fitness experts are recommending resistance training for health reasons--for women as well as men, older adults as well as younger adults. Physical training is extremely important in combating the age-related declines in muscle mass, bone density and metabolism. It is an effective way to increase muscle strength and to shed unwanted inches. Physical training also helps to decrease back pain, reduce arthritic discomfort, and help prevent or manage some diabetic symptoms. It involves briefly working our muscles, on a regular basis, a little more than they are accustomed

to working. This causes our muscles to become stronger and more toned. Also, our tendons, ligaments and bones will be strengthened. This strengthening will make our joints more stable and less prone to injury. Everyday tasks will become easier.

Yoga is a delicate type of activity that decidedly affects physical, mental and enthusiastic prosperity in more seasoned grown-ups. Yoga is a regularly drilled, mind-body approach which has significant parts like contemplation, breathing, and action or stances. Expanded strong strength, adaptability, scope of movement, energy, unwinding, and feeling of prosperity, diminished torment, further developed rest quality, decrease of pressure, and command over physiological boundaries are the assumed advantages of yoga therapy. Yoga can address realized fall hazard factors (helpless equilibrium, disabled portability, decreased strength and adaptability) and further developed equilibrium in more established grown-ups in spite of the fact that yoga is authentic an otherworldly discipline, it has been utilized clinically for remedial intercession. Since recent many years, the quantity of distributions for clinical uses of yoga has significantly expanded. In writing there are many articles of utilization of yoga in assortment of condition like numerous sclerosis, rheumatoid joint inflammation, bosom disease, low back torment, headache, epilepsy.

Research study on the yoga exercises reveals its beneficial role on health of a person. But these studies have not focused on geriatrics. Research work on the development and maintenance of physiological and psychological profiles of human being is an important area which requires a lot of investigation. Consequently, the aim of the present study was to investigate the effectiveness of yogic practices in altering physiological and psychological parameters of geriatrics. It is expected from the observed problem that the yoga might be not only an acceptable additive to care, but an effective, feasible, and acceptable alternative of exercise in geriatrics and in other populations that have traditionally benefited from yoga. The purpose of this study is to find the effect of yoga intervention on range of motion among geriatrics men.

METHODOLOGY

Subjects and Variables

To achieve the aim of this study forty Geriatric men were selected, in which 20 subjects were, underwent yoga training and the remaining 20 subjects were control. The selected participants were the inhabitance of Pondicherry state, and their age ranged from 60-70 years.

The participants were restricted to perform only selected yogasanas. Random group design was used, as it was most appropriate technique. The range of motion was selected as dependent variable and was assessed by conducting sit and reach test.

Training Schedule

In this study, training was done under close supervision with frequent adjustments in training load to maintain the desired training stimulus. The training protocol was scheduled for one session a day, each session lasted between forty-five to one hour approximately including preparation and relaxation. During the training period, the experimental groups underwent for yoga training 5 days a week for 12 weeks. The yogasana exercise included in this training programme were Sugasana, Vajrasana, Viparitakarani, Sarvangasana, Bhujangasana, Matsyasana, Ardha matsyendrasana, Trikonasana, Vrksasana, and Savasana respectively. The training protocol was conducted in the morning sessions from 6`O`clock onwards.

Statistical Technique

The experimental design used for this study was pre and post test random group design. The data was collected prior and after the completion of the yoga training. The application of dependent 't' test was computed separately. In order to nullify the initial mean differences the data collected from the two groups prior to and post experimentation on chosen dependent variables were statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). In all cases the level of confidence was fixed at 0.05level for significance. Data where calculated with the help of SPSS package.

Results

The result of 't' test and also changes in percentage on range of motion of the chosen 2 groups (YPG & CT) are mentioned in table-I

Table-I: Dependent 'T' Test Output on Range of Motion

Group	Test	N	Mean(M)	SD	MD	'T' test	Percentage (%)
Yogic Practices Group(YPG)	Pre	20	15.2000	3.07525	5.467	5.235	35.97%
	Post		20.6667	3.35233			
Control(CG)	Pre	20	14.4000	3.26890	0.133	1.380	0.92%
	Post		14.5333	3.15926			

Table t-ratio at 0.05 level of confidence for 19 (df) =1.73
**Significant*

Table-I shows that the yoga group's pre and post test mean scores on range of motion (YPG=15.200±3.07525 & 20.6667±3.35233) vary noticeably because the dependent't' test results of yogic practices (5.235) group was better than the needed table value *[df 19=1.73(0.05 level)]*. Subsequent to 12 weeks of yoga (YPG) 35.97% of increase in range of motion was observed.

The analysis of covariance result on range of motion of geriatrics men is in table-II.

Table – II: Analysis of Covariance on Range of Motion of Yoga and Control Groups

Test	Yogic Practices Group(YPG)	Control Group	SoV	Sum of squares	Df	Mean Squares	F Ratio
Adjusted Post- test mean	20.548	15.652	Between	722.131	1	722.131	98.17*
			Within	272.164	37	7.356	

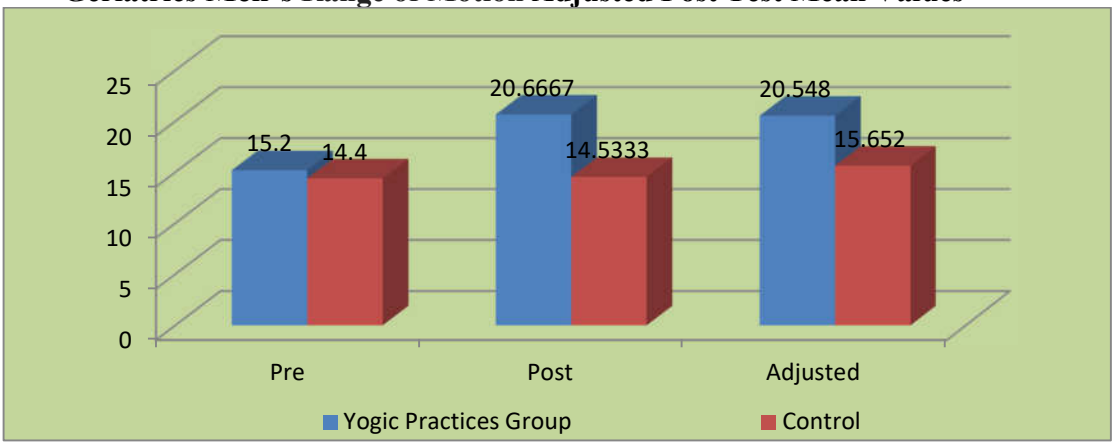
**Significant at 0.05 level.*
(Table value for df 1 & 37 is 4.12)

The adjusted post test means of experimental group and control group are 20.548 and 15.652 respectively on range of motion. The obtained F ratio of 98.17 for adjusted post- test mean is more them the table value of 4.12 (df 1&37) required for significance at 0.05 level of confidence on range of motion.

The results indicated significant difference between the adjusted post- test means of experimental (YPG) and control (CG) groups on range of motion. It proved that due to 12 weeks of yogic practices the range of motion of geriatrics men was considerably improved.

The means values on range of motion of experimental (YPG) and control (CG) groups are presented in figure- I.

Figure-I: Graph Showing the Yoga Intervention Group (YIG) and Control Group (CG) Geriatrics Men's Range of Motion Adjusted Post Test Mean Values



Discussion

The notable improvement in range of motion (ROM) among geriatric men following 12 weeks of regular yoga practice highlights yoga's effectiveness in enhancing musculoskeletal flexibility and joint mobility in older adults. Aging is often associated with reduced flexibility and joint stiffness due to the loss of elasticity in muscles, tendons, and ligaments, which can limit functional movement and increase the risk of falls and injury. Yoga incorporates a variety of postures (asanas) that gently stretch and lengthen muscles, promoting joint lubrication and improved connective tissue pliability (Garfinkel & Schumacher, 2000). These repeated movements help increase flexibility and ROM, particularly in the spine, hips, shoulders, and lower limbs—areas commonly affected by age-related decline.

Research supports these findings. For instance, a study by Tiedemann et al. (2013) demonstrated that older adults who participated in a 12-week yoga program experienced significant improvements in lower body flexibility and balance. Similarly, Oken et al. (2006) reported increased flexibility and physical function in seniors after a structured yoga intervention. These improvements in ROM not only contribute to better posture and reduced musculoskeletal discomfort but also enhance the ability to perform daily activities independently, thereby improving quality of life in elderly populations.

Conclusion

The Geriatrics men’s range of motion was increased greatly due to regular practices (12 weeks) of yoga intervention (YIG). In response to yoga intervention (YIG) 35.97% increase in range of motion was found among Geriatrics.

References

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