# Effects of Varied Packages of Yogic Practices on Selected Physical Variables among Arthritic Men

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#### Abstract

The present study was designed to find out the effects of varied packages of yogic practices on selected physical variables among arthritic men. It was hypothesized that there would be significant differences in physical variables such as Muscle Power and Range of Motion (ROM) among arthritic men due to the influences of varied packages of yogic practices. To achieve the purpose of the study, 60 arthritic men from Trichy city aged between 35 to 50 years were selected randomly into two experimental and one control groups of 20 each. Experimental group (A & B) underwent yogic practices for the period of 6 weeks, six days per week for the maximum of an hour in evening. The control group was not exposed to any specific training. The pre and post-test were conducted before and after the training for above three groups. The Muscle Power was measured by Manual Muscle Testing - (Oxford classification) and Range of Motion (ROM) measured by instrument Goniometer. The data pertaining to the variables collected from the three groups before and after the training period were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance. The results of the study showed that Muscle Power and Range of Motion (ROM) improved significantly as a result of yogic practices of package B. Hence, the hypothesis was accepted at 0.05 level of confidence. The conclusion is that the yogic practices of package B helped to improve Muscle Power and Range of Motion (ROM) among arthritic men.

Key words: Yoga, Arthritis- Osteoarthritis.

## Introduction

Osteoarthritis is an extremely common condition after 40 years of age, although it may not always be symptomatic when present. It is widespread in adults over 60, and affects men more than women. *"Life is Movement, and Movement is Life"* 

Osteoarthritis is a disease which affects the joints in the body. The surface of the joint is damaged and the surrounding bone grows thicker. 'Osteo' means bone and 'arthritis' means joint damage and swelling (inflammation). When joints are swollen and damaged they can be painful. They can also be difficult to move. Osteoarthritis of the knee is a very common form of osteoarthritis. "*Degeneration is LIFE, Regeneration is YOGA*"Yoga can be a meaningful and enjoyable alternative to traditional forms of exercise such as aerobics or aquatic exercise with important health benefits. Yoga can play an important role in reducing stress and frustration that results from pain and disability, and increasing positive feelings and wellbeing.

# Purpose of the Study

The present study was designed to find out the effects of varied packages of yogic practices on selected physical variables among arthritic men.

#### Hypothesis

- It was hypothesized that there would be significant differences in Experimental groups (group A and group B) than control group (group C) on selected Physical variables among arthritic men.
- 2. It was hypothesized that there would be significant differences in yogic practices of group A as well as group B on selected Physical variables among arthritic men.

#### **Review of Related Literature**

Garfinkel MS\_Schumacher HR Jr (2003) conducted the study on Evaluation of a yoga based regimen for treatment of osteoarthritis of the hands at Division of Rheumatology, University of Pennsylvania School of Medicine, Philadelphia. In this study Patients with OA of the hands were randomly assigned to receive either the yoga program or no therapy. Yoga techniques were supervised by one instructor once/week for 8 weeks. Variables assessed were pain, strength, motion, joint circumference, tenderness, and hand function using the Stanford Hand Assessment questionnaire. As a result the yoga treated group improved significantly more than the control group in pain during activity, tenderness and finger range of motion.

Kolasinski SL, Garfinkel M (2005), conducted the study on Iyengar yoga for treating symptoms of osteoarthritis of the knees at Division of Rheumatology, University of Pennsylvania School of Medicine, USA. They selected the participants were instructed in modified Iyengar yoga postures during 90-minute classes once weekly for 8 weeks. Eleven (11) subjects enrolled, nine completed at least one session and seven (six of whom were obese) had data from pre- and postcourse time points available for analysis. Statistically significant reductions in Pain, improved Physical Function were observed when participants' status was compared to their pre-course status. As a result this study suggests that yoga may provide a feasible treatment option for reductions in pain and disability caused by knee OA.

#### Methodology

To achieve the purpose of the study, 60 arthritic men from Sri Renga Physiotherapy Clinic and Manimalathy Physiotherapy Clinic at Trichy were selected as subjects and their aged between 35 to 50 years. All the subjects were assigned to two experimental groups (Group A and Group B) and one control group (C), each consisting 20 subjects.

In this study yogic practices were given to experimental group (A & B) for the period of six weeks, six days per week for the maximum of an hour in the evening. The control group was not given any specific training but they participated in the regular activities.

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The yogic practices given to the experimental group A include Suryanamaskar, Asanas like Shashankasana, Marjari-asana, Shashank bhujangasana, Akarna dhanurasana, Vajrasana and Pranayama like Nadi shodhana, Bhastrika. Experimental group-B includes Dandasana, Supta Padangusthasana, Urdhvamukha Janu Sirsasana, Paschimottanasana, Janu Sirsasana, Paripurna Navasana, Virasana, Upavista Konasana, Baddhakonasana, Bharadvajasana, Tadasana Samasthithi, Sethubandhasana, Adhomukha svanasana, Ardhachandrasana, Supta Baddhakonasana, Viparita Dandasana, Halasana, Salamba Sarvangasana, Setubandha Sarvangasana, Viparita Karani and Savasana.

The selected physical variables, Muscle Power measured by Manual Muscle Testing - (Oxford classification). Range of Motion (ROM) measured by instrument Goniometer.

#### Results and Discussions

The data pertaining to the variables collected from the three groups before and after the training period were statistically analyzed by using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at 0.05 level of significance.

The Analysis of Covariance (ANCOVA) on Muscle Power of Yogic practices (Group-A and Group-B) and control group (Group-C) was analyzed and are presented in table – I:

	Group- A	Group- B	Group- C	Source of	Sum of squares	Df	Mean squares	Obtained F-ratio
				variance				
Pre test	2.15	2.25	2 50	Between	1.3	2	0.65	1.04
mean	2.15	2.25	2.50	Within	35.3	57	0.61	1.04
Post test	2 00	1.60	1.60	Between	90.13	2	45.06	121 06 *
mean	3.00	4.00	1.00	Within	19.60	57	0.34	131.00
Adjusted				Between	96.12	2	48.06	
post test mean	3.08	4.63	1.50	Within	10.42	56	0.18	258.26 *
Mean difference	0.85	2.35	0.90					

Table–I Analysis of Co-variance of the Means of Two Experimental Groups and the Control Group in Muscle Power (Scores in Numbers)

Table F ratio at 0.05 level of confidence for 2 and 57 (df) = 3.18, 2 and 56 (df) = 3.18

The obtained F value on pre test scores 1.04 was lesser than the required F value of 3.18 to be significant at 0.05 level. This proved that there was not significant difference between the groups a pre test and post test and the randomization at the pre test was equal. The post test scores analysis proved that there was significant difference between the groups, as the obtained F

value 131.06 was greater than the required F value of 3.18. This proved that the differences between the post test means of the subjects were significant. Taking into consideration the pre and post test scores among the groups adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value of 258.26 was greater than the required F value of 3.18. This proved that there was a significant difference among the means due to six weeks of Yogic practices on Physical variables, Muscle Power.

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in table – I (A)

Scheffe's Post-Hoc Test for Muscle Power								
(Scores in Numbers)								
Means			Mean	Required				
Group-A	A Group-B Contro		difference	C.I				
3.08	4.63		1.54 *	0.39				
3.08		1.50	1.57 *	0.39				
	4.63	1.50	3.12 *	0.39				

Table-IA							
Scheffe's Post-Hoc Test for Muscle Power							
(Scores in Numbers)							

The multiple mean comparisons shown in table I (A) proved that there existed significant differences between the adjusted means of Yogic practices of Group A and control group C, Yogic practices of Group-B and control group C. There was significant difference between Yogic practices of Group A and Group-B.

The Analysis of Covariance (ANCOVA) on Range of Motion (ROM) of Yogic practices (Group-A and Group-B) and control group (Group-C) was analyzed and are presented in table – II:

Table-II Analysis of Co-Variance of the Means of Two Experimental Groups and the Control Group in Range of Motion (Scores in Numbers)

	Grou p-A	Grou p- B	Grou p-C	Source of	Sum of square	D f	Mean squar	Obtain ed F-			
				varian	S		es	ratio			
				се							
Pre test				Betwee	4201.7	C	2100.				
mean	01 20	01 50	102.1 0	n	3	2	86	070*			
	04.20	04.30		Within	12240	5	214.7	9.70			
					12240	7	3				
Post				Betwee	12320.	2	6160.				
test	103.9	121.3	86.25	n	23	2	11	17 37 *			
mean	0	5 00.25	5	5	5	5 00.25	Within	7412.1	5	130.0	47.37
					0	7	3				
Adjuste				Betwee	18230.	C	9115.				
d post	108.2	125.5	א ד ד ד	n	84	2	41	469.34			
test	6	0	//./4	Within	1087.6	5	10.42	*			
mean					0	6	19.42				
Mean											
differen	19.70	36.85	15.85								
се											

Table F ratio at 0.05 level of confidence for 2 and 57 (df) = 3.18, 2 and 56 (df) = 3.18 \*Significant

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The obtained F value on pre test scores 9.78 was greater than the required F value of 3.18 to be significant at 0.05 level. This proved that there was significant difference between the groups a pre test and post test and the randomization at the pre test was equal. The post test scores analysis proved that there was significant difference between the groups, as the obtained F value 47.37 was greater than the required F value of 3.18. This proved that the differences between the post test means of the subjects were significant. Taking into consideration the pre and post test scores among the groups adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value of 469.34 was greater than the required F value of 3.18. This proved that there was a significant difference among the means due to six weeks of Yogic practices on Physical variables, Range of Motion.

Since significant improvements were recorded, the results were subjected to post hoc analysis using Scheffe's Confidence Interval test. The results were presented in table – II (A).

Means			Mean	Required C.I	
Group-A	Group-B	Control	difference		
108.26	125.50		17.23 *	4.04	
108.26		77.74	30.51 *	4.04	
	125.50	77.74	47.75 *	4.04	

Table–IIA Scheffe's Post-hoc Test for Range of Motion (Scores in Numbers)

\* Significant

The multiple mean comparisons shown in table II (A) proved that there existed significant differences between the adjusted means of Yogic practices of Group A and control group C, Yogic practices of Group-B and control group C. There was significant difference between Yogic practices of Group A and Group-B.

## Conclusion

Based on the results obtained, the following conclusions were drawn:

- 1. It was concluded that Muscle Power and Range of Motion (ROM) were significantly improved due to the influences of six week training Yogic pack ages of Group -A and Group-B than the control group-C on Arthritic men.
- 2. It was concluded that yoga packages of Group-B was slightly effective than yoga packages of Group A in improving Muscle Power and Range of Motion (ROM) on Arthritic men.

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