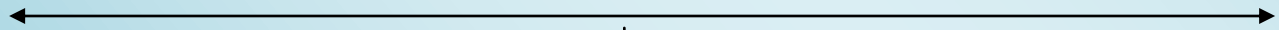


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## EFFECT OF PILATES EXERCISES AND YOGIC ASANA PRACTICE ON SELECTED PHYSICAL AND PSYCHOLOGICAL VARIABLES IN COLLEGE WOMEN

J. SABARINATHAN<sup>1</sup>, RAJAGURU<sup>2</sup> & DR. D. SAKTHIGNANA VEL<sup>3</sup>

### ABSTRACT

*The purpose of the study was to find out the effect of Pilates exercises and yogic asana practice on selected physical and psychological variables in college women. The study was conducted on 45 college women students. totally three groups, namely ,control & Experimental group I &II consisting or 15 college women students underwent eight weeks practice in selected Pilates exercises and yogic asana practice whereas the control group did not undergo any type of training. The physical and psychological variables in flexibility, muscular strength and self confidence before and after the experimentation using the standardized equipment .then data were analyzed by 't' test and analysis of covariance (ANCOVA) and it was concluded that the selected Pilates exercises (Pilates exercises –group -1) had significant (  $p < 0.05$ ) effect on the asana, self confidence.*

*Key words: Pilates Exercises, asana, self confidence.*

### INTRODUCTION

Pilates or Physical Mind method is a series of nonimpact exercises designed by Joseph Pilates to develop strength, flexibility, balance, and inner awareness. Pilates is a form of strength and flexibility training that can be done by someone at any level of fitness. The exercises can also be adapted for people who have limited movement or who use wheel chairs. It is an engaging exercise program that people want to do. Pilates promotes a feeling of physical and mental wellbeing and also develops inner physical awareness. Since this method strengthens and lengthens the muscles without creating bulk, it is particularly beneficial for dancers and actors. Pilates is also helpful in preventing and rehabilitating from injuries, improving posture, and increasing flexibility, circulation, and balance. Pregnant women who do these exercises can develop body alignment, improve concentration, and develop body shape and tone after pregnancy.

Many people associate asanas with gymnastic exercises or body building techniques. This is a totally wrong concept, for asanas are neither designed specifically to make a person 'throw his body about' or to develop huge, unnecessary muscles. Yoga means the experience of oneness or unity with your inner being. This unity comes after dissolving the duality of mind and matter into the supreme reality. Asana means a state of being in which you can remain steady, calm, quiet and comfortable, physically and mentally. In the ancient text on yoga by Patanjali, called the Yoga Sutras, there is a concise definition of yogasanas: Sthiram sukham asanam meaning 'that position which is comfortable and steady'. So we can see that yogasanas in this context are practiced to develop the person's ability to sit in one position without discomfort for extended lengths of time, as this is necessary during meditation. Asanas can also be performed for curative or health reasons. By gently stretching the muscles, massaging the internal organs and toning the nerves throughout the body, the health of the

practitioner can be wonderfully improved and many diseases, even the so-called 'incurable' ones can be eliminated or eased.

Having self-confidence does not mean that individuals will be able to do everything. Self-confident people may have expectations that are not realistic. However, even when some of their expectations are not met, they continue to be positive and to accept themselves. People who are not self-confident tend to depend excessively on the approval of others in order to feel good about themselves. As a result, they tend to avoid taking risks because they fear failure. They generally do not expect to be successful. They often put themselves down and tend to discount or ignore compliments paid to them. By contrast, self-confident people are willing to risk the disapproval of others because they generally trust their own abilities. They tend to accept themselves; they don't feel they have to conform in order to be accepted. Self-confidence is not necessarily a general characteristic which pervades all aspects of a person's life. Typically, individuals will have some areas of their lives where they feel quite confident, e.g., academics, athletics, while at the same time they do not feel at all confident in other areas, e.g., personal appearance, social relationships

Many factors contribute to muscular endurance, including strength, fiber type, training and diet. A larger, stronger muscle can perform the same task under load more times than a weaker muscle. If you can bench press 300 pounds you will be able to perform more repetitions with 100 pounds than if you could only bench 200 pounds. A larger muscle also holds more glycogen, the sugar that you use for energy, so it will be able to sustain a series of contractions -- or perform work -- for a longer period. Several types of muscle fibers make up your muscles. Slow fibers do not generate as much force but are far more resistant to fatigue. Fast, fatigue-resistant fibers generate more force and can maintain this ability over time, but not as long as slow fibers. Fast fibers generate the most force but wear out the quickest. A muscle is composed of all types of fibers, but some muscles such as the soleus, one of the muscles in your calf, has a high percentage of slow fibers and is very resistant to fatigue. Some of the muscles responsible for focusing the eye have a very high percentage of fast fibers. Fortunately it takes less than a second to focus the pupil.

Muscular strength is defined as the ability of muscle force against a resistance. It is to develop maximal contractile force against a resistance in a single contraction. The force generated by a muscle or muscle group however is highly dependent on a velocity of movement. Maximal force is produced when the limb is not rotating or zero velocity. as the speed of the joint rotation increases the muscular force decreases, thus strength for dynamic movement is defined as a maximal force generated in a single contraction at a specified velocity

## METHODOLOGY

The purpose of the study was to find out effect of Pilates exercises and yogic asana practice on selected physical and psychological variables in college women. For the purpose of this study, 45 college women students were chosen on random basis from Pondicherry stat .their age group ranges from 20 to 25 years.

The subjects were divided into three group of 15. The experimental group I would undergo Pilates exercises and the experimental group II asana group program me and the group III consider as control group not attend any practices, and the pre test post tests would be conducted before and after the training. Training would be given for eight weeks. It would be found out finally the effect of Pilate's exercises and yogic asana practice on selected physical and psychological variables in college women in scientific method. The collected data were

statistically analyzed by using analysis of covariance (ANCOVA). The results revealed that Pilates exercises significantly improve the asana practice and self confidence of college women student.

**Training Program**

S.No.	Experimental group I Asana Pilates Exercises practices duration alternate days (except Sundays 6.30 to 7.30am)	Experimental group II asanas program duration alternate days (except Sundays 6.30 to 7.30 am)	Control group
1	Chest lift Exhale curl up Front support/plank Inhale: reach long One leg circle Open leg balance Press up into swan Release the arms to rock forward Rolling like a ball Set up The roll up The side kick series	Prayer Savasana Bhujangasana Chakrasana Dhanurasana Halasna Makarasana Mayurasana Padamasana Saravangasana Sputa Vajrasana Vajrasana savasana	No Training

**RESULT AND STATISTICAL ANALYSIS**

The data collected were statistically examined by applying analysis of covariance (ANCOVA) to find out the difference .whenever, the obtained ‘f’ ratio inter action effect was found to be significant

**Table I**  
**Analysis of Covariance for Pre Test and Post Test Data on Flexibility of Control Group and Experimental Groups**

	<b>Control Group</b>	<b>Exp. Group I Pilates Exercises</b>	<b>Exp group II Yogic practice</b>	<b>Source Of Variance</b>	<b>Sum of squares</b>	<b>d.f</b>	<b>Mean squares</b>	<b>F value</b>
<b>Pre Test mean</b>	30.13	31.60	31.73	Between	23.64	2	11.822	0.766
				Within	648.27	42	15.435	
<b>Post Test mean</b>	29.87	36.87	37.33	Between	524.84	2	262.422	23.411*
				Within	470.80	42	11.210	
<b>Adjusted Post test</b>	30.50	36.59	36.97	Between	380.21	2	190.107	<b>36.37*</b>
				Within	214.27	41	5.226	

It is observed from table-I that the pre test means on flexibility of the control and experimental groups are 30.13, 31.60 and 31.73 respectively. The obtained 'f' ratio value 0.766 for the pre test mean is lesser than the required table value 3.22 for 2 & 42 degrees of freedom at 0.05 level of significance. This reveals that there is no statistically significant difference between the control and the experimental groups on flexibility before the commencement of the experimental training. It is inferred that the selection of the subjects for the two groups are successful.

The post test means on flexibility of the control and the experimental groups are 29.87 & 36.87 and 37.33 respectively. The obtained 'f' ratio value 23.411 for the post test data is greater than the required table value 3.22 for 2 & 42 degrees of freedom at 0.05 levels of significance. It discloses that there is a statistically significant difference between the control and the experimental groups on flexibility after the experimental training.

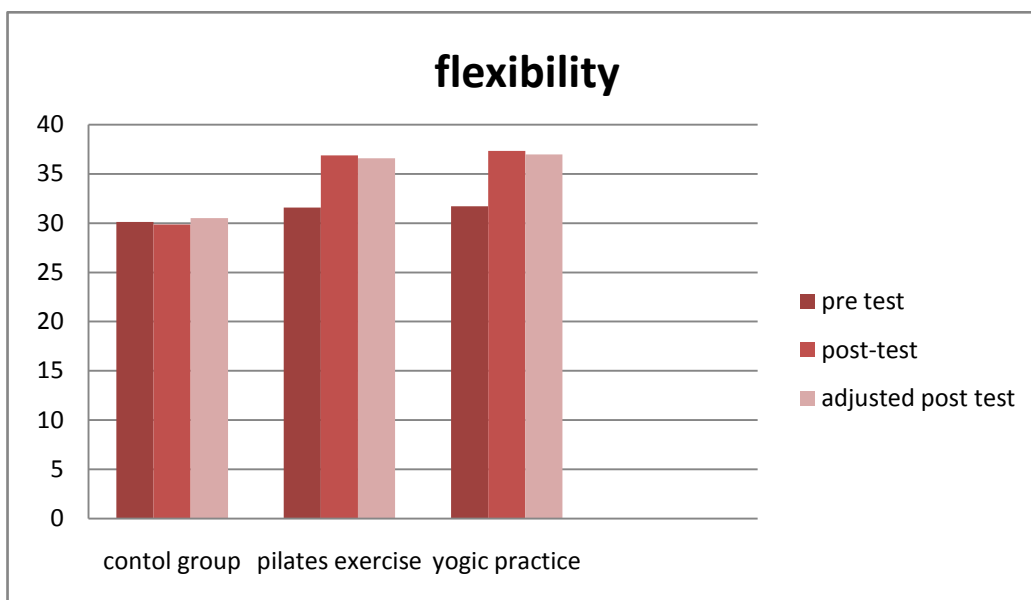
The adjusted post test means on flexibility of the control and the experimental groups are 30.50 & 36.59 and 36.97 respectively. The obtained 'f' ratio value of 36.377 for the adjusted post test data is greater than the required table value 3.22 for 2 & 42 degrees of freedom at 0.05 level of significance. It reveals that there is a significant change on flexibility as a result of the experimental training. Since the result has revealed that there is a significant difference, the hypothesis is accepted.

**Table I A**  
**Ordered adjusted flexibility means**

Experimental Group I Pilates Exercises	Experimental Group II Yogic practice	Control Group	Mean differences
36.59	36.97	-	0.38
36.59	-	30.50	6.47*
-	36.97	30.50	6.09*

**Fig – I**

**Bar diagram showing pre-test, post-test and adjusted post- test mean of control group pilates exercises and yogic asana practice on flexibility**



**Table II**  
**Analysis of covariance for pre test and post test data on muscular strength of control group and experimental groups**

	<b>Control Group</b>	<b>Exp. Group I Pilates Exercises</b>	<b>Exp. group II Yogic practice</b>	<b>Source Of Variance</b>	<b>Sum of squares</b>	<b>d.f</b>	<b>Mean squares</b>	<b>F value</b>
<b>Pre Test mean</b>	4.4667	4.6667	4.5333	Between	1.891	2	0.946	0.83
				Within	190.760	42	4.542	
<b>Post Test mean</b>	4.6667	7.0667	7.5333	Between	70.9978	2	35.489	22.584*
				Within	66.000	42	1.571	
<b>Adjusted Post test</b>	4.806	7.471	7.706	Between	335.897	2	5.919	21.417*
				Within	329.352	41	7.842	

It is observed from table-iv that the pre test means on muscular strength of the control and experimental groups are 4.47, 4.67 and 4.54 respectively. The obtained ‘f’ ratio value 0.83 for the pre test mean is lesser than the required table value 3.22 for 2&42 degrees of freedom at 0.05 level of significance .this reveals that there is on statistically significant difference between the control and the experimental groups on on muscular strength before the commencement of the experimental training .it is inferred that the selection of the subjects for the two groups are successful.

The post test means on on muscular strength of the control and the experimental groups are 4.667, 7.066 & and 7.533 respectively. The obtained ‘f’ ratio value 22.584 for the post test data is greater than the required table value 3.22 for 2 &42 degrees of freedom at 0.05 levels of significance. It discloses that there a statistically significant difference between the control and the experimental groups on muscular strength after the experimental training.

The adjusted post test means on muscular strength of the control and the experimental groups are 4.866&7.471 and 7.706 respectively. The obtained ‘f’ ratio value of 21.417 for the adjusted post test data is greater than the required table value 3.22 for 2 & 42 degrees of freedom at 0.05 level of significance. It reveals that there is significant change on muscular strength as a result of the experimental training. Since the result has revealed that there is a significance difference, the hypothesis is accepted.

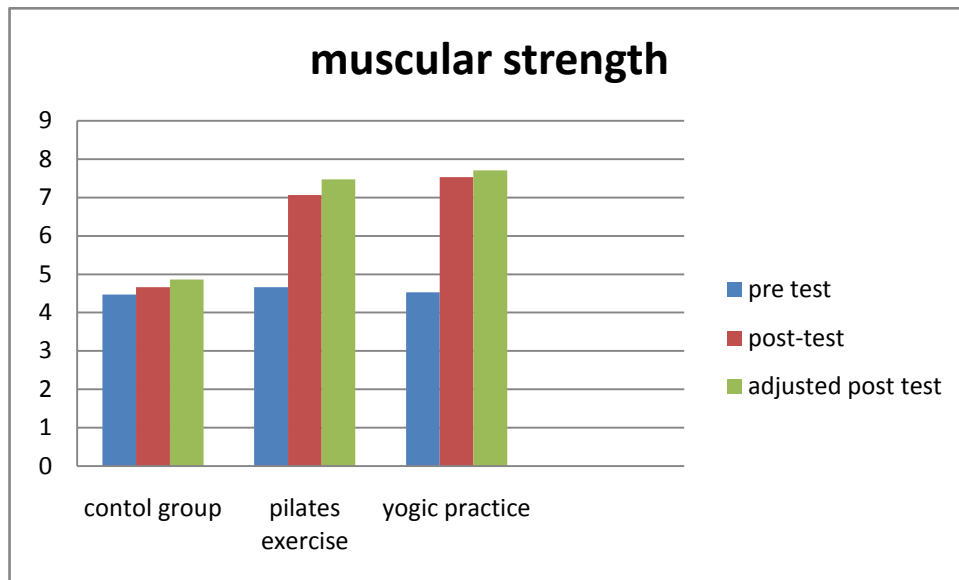


**Table II A**  
**Ordered adjusted muscular strength means**

Experimental Group I Pilates Exercises	Experimental Group II Yogic practice	Control Group	Mean differences
7.47	7.71	-	0.24
-	7.71	4.87	2.84*
7.47	-	4.87	2.60*

**Figure – II**

**Bar diagram showing pre-test, post-test and adjusted post- test mean of control group pilates exercises and yogic asana practice on self confidence**



**Table III**  
**Analysis of covariance for pre test and post test data on self – confidence of control group and experimental groups**

	<b>Control Group</b>	<b>Exp. Group I Pilates Exercises</b>	<b>Exp. group II Yogic practice</b>	<b>Source Of Variance</b>	<b>Sum of squares</b>	<b>d.f</b>	<b>Mean squares</b>	<b>F value</b>
<b>Pre Test mean</b>	33.000	31.9333	32.2667	Between	8.933	2	4.467	0.334
				Within	561.867	42	13.378	
<b>Post Test mean</b>	33.4667	36.6667	38.8000	Between	216.178	2	108.089	5.962*
				Within	761.467	42	18.130	
<b>Adjusted Post test</b>	33.066	36.979	38.889	Between	261.691	2	130.845	10.507*
				Within	510.562	41	12.453	

It is observed from table-v that the pre test means on self confidence of the control and experimental groups are 33.000, 31.933 and 32.266 respectively. The obtained ‘f’ ratio value 0.334 for the pre test mean is lesser than the required table value 3.22 for 2&42 degrees of freedom at 0.05 level of significance .this reveals that there is on statistically significant difference between the control and the experimental groups on on self confidence before the commencement of the experimental training .it is inferred that the selection of the subjects for the two groups are successful.

The post test means on on muscular strength of the control and the experimental groups are 33.466, 36.666 & and 38.800 respectively. The obtained ‘f’ ratio value 5.962 for the post test data is greater than the required table value 3.22 for 2 &42 degrees of freedom at 0.05 levels of significance. It discloses that there a statistically significant difference between the control and the experimental groups on self confidence after the experimental training.

The adjusted post test means on muscular strength of the control and the experimental groups are 33.066, 36.979 and 38.889 respectively. The obtained ‘f’ ratio value of 10.503 for the adjusted post test data is greater than the required table value 3.22 for 2 & 41 degrees of freedom at 0.05 level of significance. It reveals that there is significant change on muscular strength as a result of the experimental training. Since the result has revealed that there is a significance difference, the hypothesis is accepted.

**Table III A**  
**Scheffe’s post hoc test for self confidence**

Experimental Group I Pilates Exercises	Experimental Group II Yogic practice	Control Group	Mean differences
36.98	38.89	-	1.91
-	38.89	33.07	6.82*
36.98	-	33.07	3.91*

**Figure – III**

**Bar diagram showing pre-test, post-test and adjusted post- test mean of control group brisk walking group asana group on self confidence**



***Discussion on findings of self anxiety***

Finding of the study show that there was a significant improvement in diabetic women patients. it may be due to influence of differences experimental group I (asana practices), experimental group II (brisk walking) and group III(control).

## RESULTS

Statistical analysis of data on psychological variables collected on 45 diabetic women belonging to a experimental groups and a control group each have been presented in tables I to ii a . men random group design was employed in this study and ;subjects of the experimental groups and the control group were selected at random and were not equated with reference to the factors examined the analysis of covariance (ANCOVA) was applied to examine the data with regard to the experimental groups and control group. The 't' ratio was calculated to find out the significance of difference between pre –experimental mean and –control mean, pre –experimental mean and post experimental mean pre control mean and post control mean, post experimental mean and post control mean.

### *Discussion on the findings of self confidence and anxiety*

The analysis of co-variance of self confidence and anxiety indicated that experimental group I (asana practices) experimental group ii(brisk walking),we significantly improved the self confidence and decrease the anxiety than the control group. It may be due; to the effect of asana practices and brisk walking program me. the findings of the study showed that the experimental group I (asana practices) had improved the self confidence and decrease the anxiety more than the experimental group II( brisk walking ) and control group .nearly everything in life requires balance. Asana practices and brisk walking on its own is a good step toward a healthy life style. However, as individual, it is important to malaise we need to work on our body as well as our mind. We can use asana practices and brisk walking not only as part of a program to improve the blood pressure, but also as a way to assist in attaining other goals. We can use meditation to help motivate us to exercise, maintain a proper diet and sleep better, holy Sumner.

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