



## EFFECT OF AEROBIC DANCE AND PILATES TRAINING ON VITAL CAPACITY OF COLLEGE WOMEN

Dr. K.murugavel

Professor &amp; Head, Department of Physical Education, Bharathiar University, Coimbatore.

Mrs. K.vanitha Devi,

Ph.D Part Time Research Scholar, Department of Physical Education, Bharathiar University, Coimbatore.

**ABSTRACT**

The purpose of the study was to find the effect of aerobic dance and pilates training on vital capacity of college women. Forty five students were randomly selected from Kamalam College of Arts & Science College, Anthiyur, Coimbatore and their age ranged between 18 and 25 years. The selected players were divided into three equal groups consists of 15 students each namely experimental group-I experimental group-II and control group. The experimental group-I underwent a aerobic dance programme and experimental group-II underwent pilates training for eight weeks. The control group was not taking any part of training during the course of the study. Vital capacity was assessed by spirometer. Pre-test was taken before the training period and post- test was measured immediately after the eight weeks training period. Analysis of Co-Variance (ANCOVA) technique and the level of significance was set at 0.05. Scheffé's test was used as a post hoc test to determine which of the paired mean differ significantly. The results revealed that there was a significant difference found on vital capacity.

**KEYWORDS :** Aerobic dance, Pilates training and Vital capacity.**INTRODUCTION**

Sport as an activity offers an opportunity for self-knowledge, self-expression and fulfillment, personal achievement, skill acquisition and demonstration of ability, social interaction, enjoyment, good health and well-being. It promotes involvement, integration and responsibility in society and contributes to the development of society, especially when sports activities have been accepted as an integral part of the culture of every society in every nation.

Influence of aging on health and quality of life exceeds any effects of known disease thus old age is considered to be the main risk factor for many diseases. Ageing induces different involutive processes that occur in most physiological systems, even in the absence of serious diseases.

Regular exercise provides multiple benefits in older adults, including improvements in muscle strength and in the capacity of the muscles to use oxygen. In addition, physical training contributes to the decreased risk for coronary diseases and to improvements in lipids and glucose metabolism (Nied R.J. et al., 2002). Aerobic training has significant effects on stroke volume, maximal cardiac output and on maximal arterio venous oxygen difference (Ogawa T. et al., 1992). Trained older persons are capable to maintain a submaximal effort with less cardiovascular involvement and muscular fatigue than sedentary subjects (Coggan A.R. et al., 1993; Soto P.F. et al., 2008).

Today, researchers continue in their efforts to understand how new exercise techniques might impact BC in humans. Although control or modification of the BC was not the primary motivation for Joseph Pilates in the early 30's; recently, his exercises and methods have become popular. Pilates created a body conditioning method first called 'Contrology'. (Pilates and Miller, 1945).

Pilates introduced this method in the United States between 1930 and 1940 (Anderson and Spector, 2000), attracting choreographers and dance instructors who used his exercises for rehabilitation. After Pilates' death in 1967, the method became more widely spread and was introduced to other areas, under the name 'Pilates' (Latey, 2001). Today, dancers, athletes, and other population use Pilates for rehabilitation and to increase their physical activity and fitness (Latey, 2001; von Sperling and Brum, 2006). Pilates designed a comprehensive method of muscle stretching and strengthening with the goal of building a strong body under the philosophy of mind-over-body control.

**OBJECTIVE OF THE STUDY**

The objective of this study was to find out the effect of aerobic dance and pilates training on vital capacity for 8 weeks of college women.

**METHODOLOGY**

For the present study the subjects were 45 women students from Kamalam College of Arts & Science College, Anthiyur, Coimbatore selected randomly and their age ranged from 18 to 25 years. For the present study pre test – post test randomized group design which consists of control group and experimental group-I and II was used. The subjects were randomly assigned to three equal groups of 15 students each and named as Group 'A', Group 'B' and Group 'C'. The experimental group-I underwent a aerobic dance and experimental group-II underwent pilates training and control group-III no training. Vital capacity was assessed by spirometer. The data was collected before and after eight weeks of training period. Analysis of Co-Variance (ANCOVA) technique and the level of significance was set at 0.05. Scheffé's test was used as a post hoc test to determine which of the paired mean differ significantly.

**RESULTS****TABLE I**

**ANALYSIS OF CO-VARIANCE FOR THE PRE, POST AND ADJUSTED POST-TEST MEAN VALUES FOR EXPERIMENTAL GROUPS AND CONTROL GROUP ON VITALCAPACITY**  
(Scores in ml/kg/min)

Test	Group-I (Aerobic Dance)	Group-II (Pilates Training)	Group-III (Control Group)	Source of Variance	Sum of Square	df	Mean Square	'F' ratio
Pre	2499.47	2482.80	2475.87	Between	4414.04	2	2207.02	0.08
				With in	123530.987	42	29412.14	
Post	2692.27	2670.80	2471.60	Between	444176.18	2	222088.09	6.96*
				With in	134109.4.93	42	31930.83	
Adjusted Post	2692.27	2670.80	2471.60	Between	434173.49	2	217086.75	6.74*
				With in	131971.7.74	41	32188.24	

\*Significant at 0.05 level of confidence.  
 (The table values required for significance at 0.05 level of confidence for 2 & 42 and 2 & 41 are 3.20 and 3.21 respectively).

The table - 1 shows that the pre-test mean values on vital capacity of aerobic dance, pilates training and control group are 2499.47, 2482.80 and 2475.87 respectively. The obtained 'F' ratio 0.08 for pre-test scores was less than the table value 3.20 for df 2 and 42 required for significance at 0.05 level of confidence on vital capacity.

The post-test mean values on vital capacity of aerobic dance, pilates training and control group are 2692.27, 2670.80 and 2471.60 respectively. The obtained 'F' ratio 6.96 for post-test scores was greater than the table value 3.20 for df 2 and 42 required for significance at 0.05 level of confidence on vital capacity.

The adjusted post-test mean values of aerobic dance, pilates training and control group are 2692.27, 2670.80 and 2471.60 respectively. The obtained 'F' ratio of 6.74 for adjusted post-test means was greater than the table value of 3.21 for df 2 and 41 required for significance at 0.05 level of confidence on vital capacity.

The results of the study indicated that there was a significant difference among the adjusted post-test means of aerobic dance, pilates training and control group on vital capacity.

Since the obtained 'F' ratio value was significant further to find out the paired mean difference, the Scheffe's test was employed and presented in table- II

**TABLE-II**  
**THE SCHEFFE'S TEST FOR THE DIFFERENCE BETWEEN PAIRED MEANS ON VITAL CAPACITY**  
 (Scores in ml/kg/min)

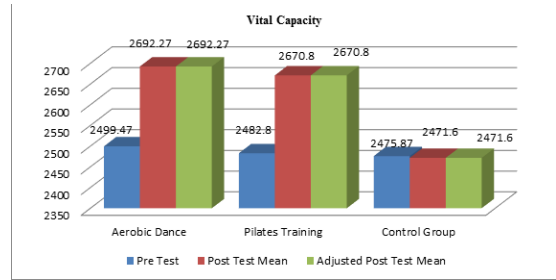
Group-I (Aerobic Dance)	Group-II (Pilates Training)	Group-III (Control Group)	MD	CI
2692.27	2670.80	-	19.27	164.41
2692.27	-	2471.60	217.56	164.41
-	2670.80	2471.60	198.29	164.41

\*Significance of .05 level of confidence, Scheffe's C.I value of Vital capacity was 164.41.

The table-2 shows that the adjusted post-test mean difference in vital capacity between aerobic dance and pilates training is 19.27 it was significant at 0.05 level of confidence and there was a insignificant. Aerobic dance and control group is 217.56 it was significant at 0.05 level of confidence. Pilates training and control group mean difference was 198.29 which was significant at 0.05 level of confidence. It may be concluded from the results that there was no significant difference between adjusted post means of aerobic dance and pilates training. Statistically significant difference existed between the aerobic dance and control group. The result of the study showed that there was a significant difference between pilates training and control group on vital capacity.

The pre test, post test and adjusted post mean values of aerobic dance and pilates training and control group on vital capacity are graphically represented in the Figure-1.

**FIGURE I**  
**BAR DIAGRAM FOR SHOWING THE PRE, POST AND ADJUSTED MEAN VALUE OF EXPERIMENTAL GROUPS AND CONTROL GROUP ON VITAL CAPACITY**  
 (Scores in ml/kg/min)



**Discussion on Findings**

The goal of the investigation is to find whether there is any effect on those selected variables in the effect of aerobic dance and pilates training and further to find improvement on training group. The obtained 'f' ratio showed that there was significant difference between experimental group-I, experimental group-II and control group in performance of vital capacity. The aerobic dance and pilates training had shown a significant improvement on vital capacity among college women.

**Conclusions**

1. The aerobic dance and pilates training had shown significant improvement on vital capacity of college women.
2. The aerobic dance was better than the pilates training group on vital capacity of college women. However the significant difference was observed only on vital capacity.

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