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Research article

EFFECTS OF AEROBIC DANCE AND YOGIC PRACTICE ON BLOOD LIPID PROFILES AMONG COLLEGE WOMEN STUDENTS

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Abstract

The purpose of the study is to find out the effects of aerobic dance and yogic practice on blood lipid profiles among college women students. To achieve this purpose of the study, sixty college women students of Arulmigu Palani Andavar Arts College for Women, Palani, Tamil Nadu, were selected as subjects, and their age was between eighteen to twenty five years. The selected sixty students were divided into three equal groups, the experimental group – 1 (n = 20 AD) underwent Aerobic dance, the experimental group – 2 (n = 20 YP) underwent Yogic Practice and group - 3 (n= 20, CP) served as control participants. In the study, two different training approaches were adopted as independent variables, i.e., Aerobic Dance (AD) and Yogic Practices (YP). The blood lipid profiles i.e., high density lipoprotein and low density lipoprotein were chosen as a dependent variables. It was measured by blood sample; the unit of measurement was in milligrams/decilitres. The pre and post test random group design was used. ANCOVA was used to find out significant adjusted post test mean difference of three groups with respect to blood lipid profiles and Scheffe's post hoc test was used to find out pair-wise comparisons between groups with respect to blood lipid profiles. It was concluded that the level of High Density Lipoprotein increased significantly over the twelve weeks training period for aerobic dance and yogic practices groups were significant. The aerobic dance group shows more improvement than the yogic practices group and control group. The yogic practices group produces less improvement on High Density Lipoprotein. The control group did not show any significant changes on High Density Lipoprotein. The level of Low Density Lipoprotein decreased significantly over twelve weeks training period for aerobic dance and yogic practices groups were significant. The aerobic dance group shows more improvement than the yogic practices group and control group.

***Keywords**: Aerobic dance, Yogic Practice, High density lipoprotein, Low density lipoprotein, Analysis*

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INTRODUCTION

Aerobic dance is a popular mode of exercise for improving and maintaining cardio respiratory fitness. A typical aerobic dance workout consists of 8 to 10 minutes of stretching, calisthenics and low intensity exercise. This is followed by 15 to 45 minutes of either high or low impact aerobic dance at the target training intensity, (Vivian H. Hayward, 1989). Aerobic dance is vigorous, oxygenated large muscle exercise which stimulates heart and lungs activity for a specific period of time to bring about beneficial changes in the cardiovascular system. The main objective of aerobic dance, like any other form of aerobics is to increase the maximum amount of oxygen that the body can process in a given amount of time. The aerobic effect depends on the body's ability to rapidly breathe large amounts of air, forcefully deliver large volumes of blood and effectively deliver oxygen to all parts of the body, (Sharonkay Stoll and Jennifer Marie Beller, 1999). Yogic exercises play an important role in the maintenance of the above systems. The practice of yoga not only develops the body but also produces the mental faculties. Moreover, the yogi acquires mastery over the involuntary muscles of his organism, (A.M. Moorthy and J. David Manual Raju, 1983). In this study an attempt is made to find out the Effects of Aerobic dance and Yogic Practice on Blood Lipid Profiles among college women students.

METHODOLOGY

The study involved a single dimensional design with three groups assigned. To facilitate the study, sixty college women students from APA Arts College for Women, Palani, Tamilnadu, were selected as subjects at random and their age was between eighteen to twenty five years. They were divided into three equal groups namely experimental Group 1, Aerobic Dance, Experimental Group 2, Yogic Practices and Group 3 Control participants did not involve in any training. The pre test was taken from the subjects before administering the training. The subjects were involved with their respective training for a period of twelve weeks. At the end of the training, the post test was taken. High density lipoprotein and low density lipoprotein was chosen as a criterion variables. It was measured by blood sampling method the unit of measurement was in $mgdl^{-1.}$

RESULTS

TABLE I
ANALYSIS OF CO VARIANCE OF PRE TEST POST TEST AND ADJUSTED POST TEST ON HIGH DENSITY LIPOPROTEIN OF DIFFERENT GROUPS
(Scores in $mgdl^{-1}$)

Test	G-1 (AD)	G-2 (YP)	G-3 (CG)	Source of Variance	Sum of Square	Df	Mean Square	Obtained 'F" Ratio
Pre Test								
Mean	40.00	41.75	42.20	Between	54.03	2	27.02	2.32
SD	2.59	3.43	3.84	Within	664.95	57	11.67	
Post Test								
Mean	45.15	44.15	42.40	Between	77.50	2	38.75	3.33*
SD	2.82	3.42	3.68	Within	663.90	57	11.65	
Adjusted Post Test								
Mean	46.41	44.15	41.56	Between	219.38	2	109.69	103.90*
				Within	59.12	56	1.06	

* Significant at 0.05 level. (The table values required for significance at 0.05 level of confidence for 2 and 57 and 2 and 56 are 3.16).

Pre - Test: The mean and standard deviation of the pre-test of High Density Lipoprotein scores of G1, G2, and G3 are 40.00 ± 2.59, 41.75 ± 3.43, 42.20 ± 3.84 respectively. The obtained pre test F value of 2.32 was less than the required table F value of 3.16. Hence, the pre test means value of High Density Lipoprotein show insignificant at 0.05 level of confidence for the degrees of freedom 2 and 57.

Post - Test: The mean and standard deviation of the post- test of High Density Lipoprotein scores of G1, G2, and G3 are 45.15 ± 2.82, 44.15 ± 3.42, 42.40 ± 3.68, respectively. The obtained post test F value of 3.33 was greater than the required Table F value of 3.16. Hence, the post- test means value of High Density Lipoprotein show significant at 0.05 level of confidence for the degrees of freedom 2 and 57. Thus, the results obtained proved that the interventions namely Aerobic Dance and Yogic Practice on High Density Lipoprotein produced significant improvements among the experimental groups.

Adjusted Post - Test: The mean of the adjusted post - test of High Density Lipoprotein scores of G1, G2, and G3 are 46.41, 44.15 and 41.56 respectively. The obtained post - test F value of 103.90 was greater than the required table F value of 3.16. Hence, the adjusted post - test means value of High Density Lipoprotein show significant at 0.05 level of confidence for the degrees of freedom 2 and 56. Thus, the results obtained proved that the interventions namely Aerobic dance and Yogic Practice on High Density Lipoprotein produced significant improvements among the experimental groups.

The observed F value on adjusted post test mean among the groups such as Aerobic Dance and Yogic Practice produced significant improvements among the experimental groups.

In order to find out which training programme used in the present study was the source for the significance of adjusted means was tested by Scheffe's post hoc test. The results of the same are presented in the table I (a)

TABLE I (a)
SCHEFFE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES ON HIGH DENSITY LIPOPROTEIN
(Scores in $mgdl^{-1}$)

G-1 (AD)	G-2 (YP)	G-3 (CG)	Mean Differences	Confidence Interval Value
46.41	44.15		2.26*	0.95
46.41		41.56	4.85*	0.95
	44.15	41.56	2.59*	0.95

* Significant at 0.05 level.

Table I (a) shows the significant difference of paired adjusted post test means of Aerobic Dance group, Yogic Practices group and Control group on High Density Lipoprotein. The obtained mean differences between Aerobic dance group and Yogic Practice group, Aerobic dance group and Control group, Yogic Practices group and Control group were 2.26, 4.85 and 2.59 respectively. The required confidence interval value was 0.95.

Since the obtained mean difference between experimental groups and control group were greater than the confidential interval value on High Density Lipoprotein, it was concluded that aerobic dance group and yoga practice group improve the High Density Lipoprotein level better than the control group. Further, it was concluded that the aerobic dance group improved High Density Lipoprotein level better than yoga practice group.

TABLE II
ANALYSIS OF CO VARIANCE OF PRE TEST POST TEST AND ADJUSTED POST TEST ON LOW DENSITY LIPOPROTEIN OF DIFFERENT GROUPS
(Scores in $mgdl^{-1}$)

Test	G-1 (AD)	G-2 (YP)	G-3 (CG)	Source of Variance	Sum of Square	Df	Mean Square	Obtained 'F" Ratio
Pre Test								
Mean	102.05	103.65	103.60	Between	33.10	2	16.55	0.21
SD	12.27	8.03	15.27	Within	8962.30	57	157.23	
Post Test								
Mean	90.60	96.10	103.45	Between	1662.63	2	831.32	6.95*
SD	8.80	5.87	15.13	Within	6817.55	57	119.61	
Adjusted Post Test								
Mean	91.48	96.10	103.03	Between	1365.64	2	682.82	77.02*
				Within	496.49	56	8.87	

* Significant at 0.05 level. (The table values required for significance at 0.05 level of confidence for 2 and 57 and 2 and 56 are 3.16.

Pre - Test: The mean and standard deviation of the pre test of Low Density Lipoprotein scores of G1, G2, and G3 are 102.05 ± 12.27, 103.65 ± 8.03, 103.60 ± 15.27, respectively. The obtained pre test F value of 0.21 was lesser than the required table F value of 3.16. Hence the pre test means value of Low Density Lipoprotein show insignificant at 0.05 level of confidence for the degrees of freedom 2 and 57.

Post - Test: The mean and standard deviation of the post- test of Low Density Lipoprotein scores of G1, G2, and G3 are 90.60 ± 8.80, 96.10 ± 5.87, 103.45 ± 15.13, respectively. The obtained post test F value of 6.95 was greater than the required table F value of 3.16. Hence the post- test means value of Low Density Lipoprotein show significant at 0.05 level of confidence for the degrees of freedom 2 and 57. Thus the results obtained proved that the interventions namely Aerobic dance and Yogic Practice on Low Density Lipoprotein produced significant changes among the experimental groups.

Adjusted Post - Test: The mean of the adjusted post - test of Low Density Lipoprotein scores of G1, G2, and G3 are 91.48, 96.10 and 103.03 respectively. The obtained post – test F value of 77.02 was greater than the required table F value of 3.16. Hence the adjusted post - test means value of Low Density Lipoprotein show significant at 0.05 level of confidence for the degrees of freedom 2 and 56. Thus the results obtained proved that the interventions namely Aerobic Dance and Yogic Practice on Low Density Lipoprotein produced significant changes among the experimental groups.

In order to find out which training programme used in the present study was the source for the significance of adjusted means was tested by Scheffe's post hoc test. The results of the same are presented in the table II (a).

TABLE II (a)
SCHEFFE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES ON LOW DENSITY LIPOPROTEIN
(Scores in $mgdl^{-1}$)

G-1 (AD)	G-2 (YP)	G-3 (CG)	Mean Differences	Confidence Interval Value
91.48	96.10		4.86*	2.76
91.48		103.03	11.55*	2.76
	96.10	103.03	6.93*	2.76

* Significant at 0.05 level.

From Table II (a) shows the significant difference of paired adjusted post test means of Aerobic dance group, Yogic Practices group and Control group on Low Density Lipoprotein. The obtained mean differences between Aerobic dance group and Yogic Practice group, Aerobic dance group and Control group, Yogic Practices group and Control group were 4.86, 11.55 and 6.93 respectively. The required confidence interval value was 2.76.

Since the obtained mean difference between experimental group and control group were greater than the confidential interval value on Low Density Lipoprotein, it was concluded that aerobic dance group and yoga practice group decrease the level of Low Density Lipoprotein better than the control group. Further it was concluded that the Aerobic dance group decreased the level of Low Density Lipoprotein better than Yoga Practice group.

DISCUSSION ON FINDINGS

The present study demonstrates an increase in high density lipoprotein of 0.05%, and 0.02% for aerobic dance and yogic practice respectively. However, the aerobic dance training showed greater improvement than the other groups. The results of this study indicates that the level of high density lipoprotein increased significantly over the twelve weeks training period for aerobic dance and yogic practice groups; However, the difference among the two experimental groups were significant. The aerobic dance group shows more improvement than the Yogic practice group and control group. The yogic practice group produces less improvement on high density lipoprotein. The control group did not show any significant changes on high density lipoprotein.

The present study demonstrates decrease in low density lipoprotein of 0.11%, and 0.28% for aerobic dance and yogic practice respectively. However the aerobic dance training produced greater effect to decrease the level of low density lipoprotein than the other groups. The result of this study indicates that the level of low density lipoprotein decreased significantly over the twelve weeks training period for aerobic dance and yogic practice groups; However, the difference among the two experimental groups were significant. The aerobic dance group produces significantly decreased level of low density lipoprotein than the yogic practice group and control group. The yogic practice group produces less reduction on low density lipoprotein. The control group did not produce any significant changes on low density lipoprotein.

In meta-analysis that examined the effects of aerobic exercise on lipids and lipoproteins in adult men, data from 49 randomized controlled trails were pooled for analysis. Results showed that aerobic exercise reduces TC (-2%), LDL-C (-3%) and TG (-9%) and increases HDL-C (2%) in men 18 year older (Keller and Kelley 2006).

CONCLUSION

The result of this study indicates that the level blood lipid profiles altered significantly over the twelve weeks training period for Aerobic dance and Yogic practice groups;

Further it was concluded that the level of High Density Lipoprotein increased significantly over the twelve weeks training period for aerobic dance and yogic practices groups were significant. The aerobic dance group shows more improvement than the yogic practices group and control group. The yogic practices group produces less improvement on High Density Lipoprotein. The control group did not show any significant changes on High

Density Lipoprotein. The level of Low Density Lipoprotein decreased significantly over twelve weeks training period for aerobic dance and yogic practices groups were significant. The aerobic dance group shows more improvement than the yogic practices group and control group. The yogic practices group produces less reduction on Lop density lipoprotein. The control group did not show any significant changes on Low density lipoprotein.

However, the differences among the two experimental groups were significant. The Aerobic dance group produces significantly altered the level of blood lipid profiles than the yogic practice group and control group. Control group did not produce any significant alteration.

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