4.5 COMPARISON OF STRESS IN THE EXPERIMENTAL GROUPS AND CONTROL GROUP

The data on scores of Stress were collected from the experimental groups and control group. The pre test, post test, and adjusted post test mean and standard deviation along with respective ANCOVA table are given in table IV.

TABLE IV

ANALYSIS OF CO VARIANCE OF EXPERIMENTAL GROUPS AND CONTROL GROUP ON STRESS

(Scores in Points)

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	33.85	33.75	33.00	Between	8.63	2	4.32	0.30
SD	4.29	2.95	3.77	Within	826.30	57	14.80	
Post Test								
Mean	30.95	28.25	32.90	Between	218.10	2	109.05	7.04*
SD	3.56	4.22	3.70	Within	882.50	57	15.48	
Adjusted Post Test								
Mean	30.67	28.25	33.38	Between	281.60	2	140.80	36.81*
				Within	214.22	56	3.83	

* 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).

4.5.1 Results on Stress

Pre - Test: The mean and standard deviation of the pretest Stress scores of G1, G2, and G3 are 33.85 ±4.29, 33.75 ± 2.95, 33.00 ± 3.77, respectively. The obtained pre test F value of 0.30 was less than the required table F value of 3.16. Hence, the pre test means value of Stress 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 Stress scores of G1, G2, and G3 are 30.95 ±3.56, 28.25 ± 4.22, 32.90 ± 3.70, respectively. The obtained post test F value of 7.04 was greater than the required table F value of 3.16. Hence, the post- test means value of Stress 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 Dancing and Yogic Practice on stress produced significantly different changes among the experimental groups.

Adjusted Post - Test: The mean of the adjusted post - test Stress scores of G1, G2, and G3 are 30.67, 28.25 and 33.38 respectively. The obtained post - test F value of 36.81 was greater than the required table F value of 3.16. Hence, the adjusted post - test means value of Stress 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 Dancing and Yogic Practice on stress produced significantly different 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 IV (A).

TABLE IV (A)

SCHEFFE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES ON STRESS

(Scores in Points)

G-1 (AD)	G-2 (YP)	G-3 (CG)	Mean Differences	Confidence Interval Value
30.67	28.25		2.42*	1.30
30.67		33.38	2.71*	1.30
	28.25	33.38	5.13*	1.30

* Significant at 0.05 level.

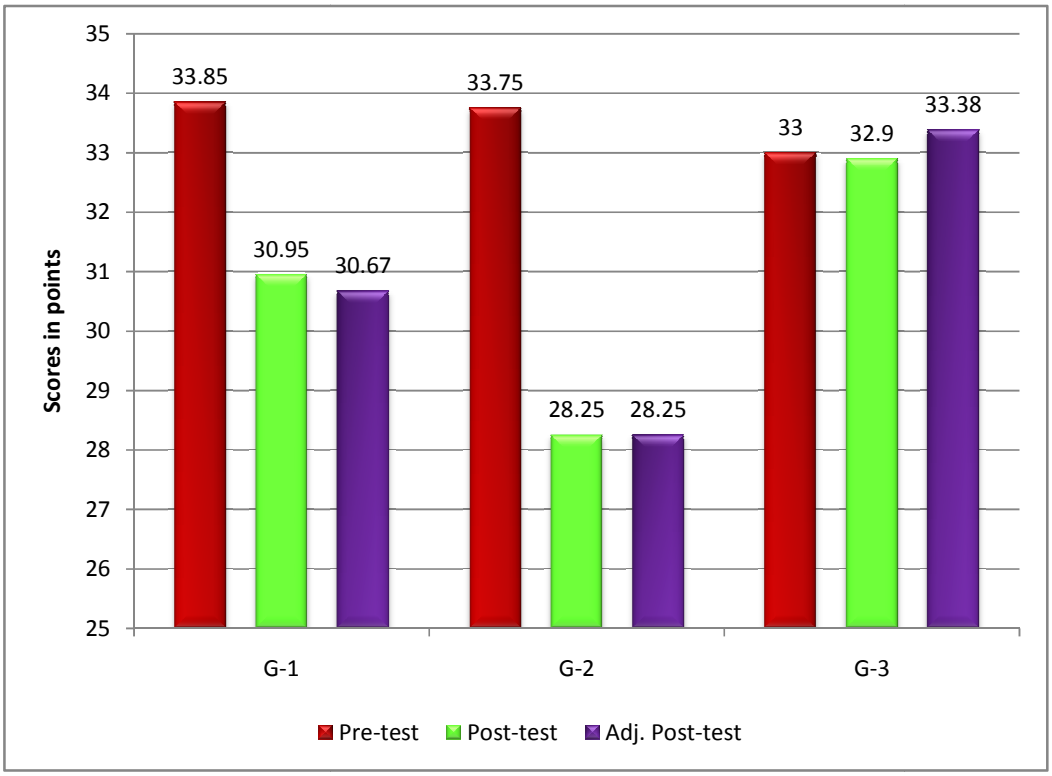
Table IV (A) shows the significant difference of paired adjusted post test means of Aerobic Dancing group, Yogic Practices group and Control group on Stress. The obtained mean differences between Aerobic Dancing group and Yogic Practice group, Aerobic Dancing and Control group, Yogic Practices group and Control group were 2.42, 2.71 and 5.13 respectively. The required confidence interval value was 1.30.

Since the obtained mean difference between experimental group and control group were greater than the confidential interval value on Stress, it was concluded that aerobic dancing group and yoga practice group decrease the level of stress better than the control group. Further, it was concluded that the yoga practice group decreased stress level better than aerobic dancing group.

FIGURE – 4

COMPARATIVE BAR CHART OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST OF DIFFERENT GROUPS ON STRESS

(Scores in points)



G1 - Aerobic Dancing

G2 - Yogic Practices

G 3 - Control Group

4.5.2 Discussion of Findings on Stress

'Stress is defined as a stimulus event of sufficient severity to produce disequilibrium in the homeostasis of physiological systems.' Stress enters when something causes the body to behave as if it were under attack. Sources of stress can be physical like injury or illness or they can be mental, like problems in marriage, job, health, or finances. Stress is the body's physical, mental and chemical reaction to the circumstance that frightens, excites, confuses, challenges, surprises or angers a person.

After analysing the results, the researcher found that there were significant differences among the experimental and control group and there was a significant improvement on the experimental groups on stress.

The selected training group has significantly decreased the stress level from the base line to post training. The aerobic dancing group pre (33.85 $\pm$ 4.29) to post (30.95 $\pm$ 3.56) and yogic practice group from pre (33.75 $\pm$ 2.95) to post (28.25 $\pm$ 4.22) have significantly decreased pre to post in the two experimental groups with no change in control group.

The present study demonstrates decrease in stress level of 0.02%, and 0.05% for aerobic dancing and yogic practice respectively. However, the yogic practice produced greater effect on decreasing the stress level than the other groups. The result of this study indicates that the level of stress decreased significantly over the twelve weeks training period for Aerobic dancing and yogic practice groups; However, the difference among the two experimental groups were significant.. The yogic practice group significantly decreased the level of stress than the aerobic dancing group and control group. The Aerobic dancing group produces less reduction on stress. The control group did not produce any significant improvement on stress.

Hafner-Holter's (2010) aim of the study was to describe and compare influences from a physical activity programme and a yoga programme on well-being, mood, stress coping, body-image and social competence among healthy people. Methods: 18 persons attending a gym and 21 taking part in a yoga programme answered the following questionnaires before entering the programme and after taking part in 20 units. Conclusion: Our findings support the evidence that physical activity in general improves psychological well-being, however, gym and yoga seem to have different psychological impacts. Future research should focus on comparing the psychological effects of physical activity interventions in prevention programmes as well as exercise prescriptions in patients with mental illness.

O. Preetha (2002) conducted a study on the effect of selected yogasanas and aerobic exercises on selected psychological variables among women students of Pondicherry University. Samples were selected randomly aged between 20 to 25 years and was divided into equally three control groups and two experimental groups. Experimental group I underwent aerobic exercises, experimental group II underwent yogasana practice; for both the groups the training sessions were held for five days a week for a period of twelve weeks. Prior to and at the end of training period, all subjects were tested for selected psychological variables. Aerobic exercises and yoga practice group showed significant improvement on selected variables.

The above mentioned studies lend support to the results of the present study.

4.6 COMPARISON OF ANXIETY IN THE EXPERIMENTAL GROUPS AND CONTROL GROUP

The data on scores of Anxiety were collected from the experimental groups and control group. The pre test, post test, and adjusted post test mean and standard deviation along with respective ANCOVA table are given in table V.

TABLE V

ANALYSIS OF CO VARIANCE OF EXPERIMENTAL GROUPS AND CONTROL GROUP ON ANXIETY

(Scores in Points)

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	85.70	86.59	56.49	Between	9.51	2	4.75	0.28
SD	4.25	3.92	3.85	Within	966.06	57	16.95	
Post Test								
Mean	82.85	81.80	86.36	Between	227.57	2	113.79	6.98*
SD	3.55	3.92	4.30	Within	928.92	57	16.30	
Adjusted Post Test								
Mean	83.24	81.80	86.20	Between	219.41	2	109.71	13.03*
				Within	471.53	56	8.42	

* 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).

4.6.1 Results on Anxiety

Pre - Test: The mean and standard deviation of the anxiety scores of G1, G2 and G3 are 85.70± 4.25, 86.59± 3.92, 86.49 ± 3.85 respectively. The obtained pre test F value of 0.28 was less than the required table F value of 3.16. Hence, the pre test means value of anxiety 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 anxiety scores of G1, G2, and G3 are 82.85± 3.55, 81.80± 3.92, and 86.36± 4.30 respectively. The obtained post test F value of 6.98 was greater than the required table F value of 3.16. Hence, the post- test means value of anxiety 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 Dancing and Yogic Practice on Anxiety produced significantly different changes among the experimental groups.

Adjusted Post - Test: The mean and standard deviation of the adjusted post - test anxiety scores of G1, G2, and G3 are 83.24, 81.80 and 86.20 respectively. The obtained post – test F value of 13.03 was greater than the required table F value of 3.16. Hence the adjusted post - test means value of Anxiety 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 Dancing and Yogic Practice on Anxiety produced significantly different 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 V (A).

TABLE V (A)

SCHEFFE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES ON ANXIETY

(Scores in Points)

G-1 (AD)	G-2 (YP)	G-3 (CG)	Mean Differences	Confidence Interval Value
83.24	81.80		1.44	2.69
83.24		86.20	2.96*	2.69
	81.80	86.20	4.40*	2.69

* Significant at 0.05 level.

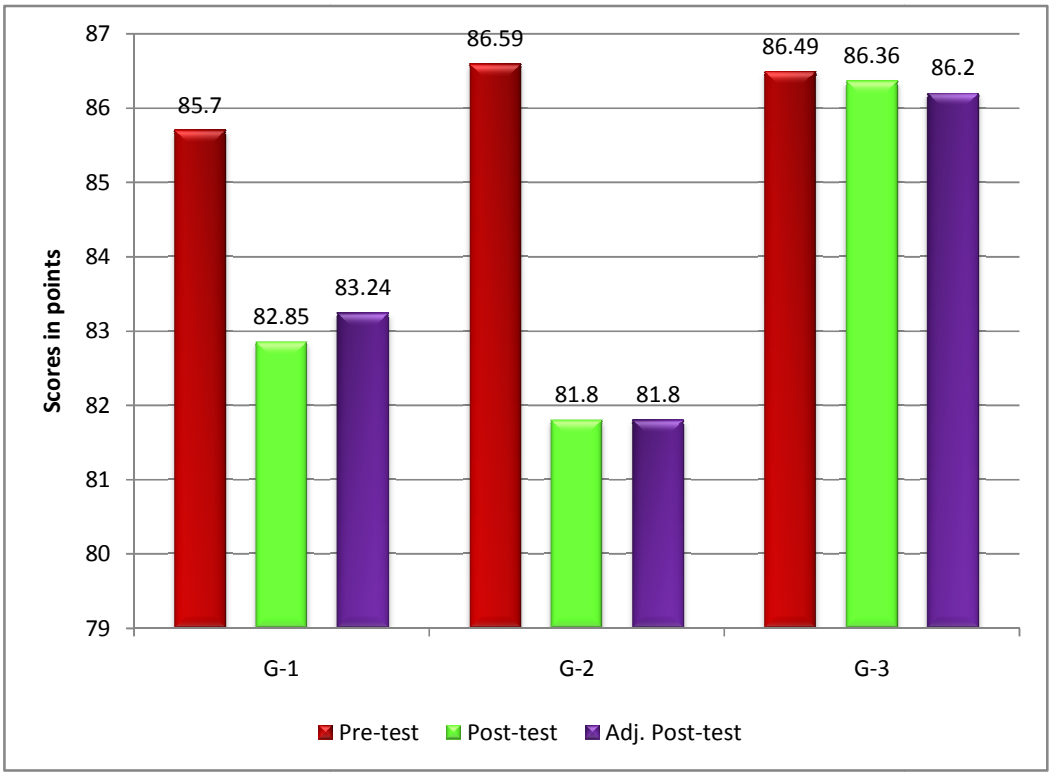
Table V (A) shows the significant difference of paired adjusted post test means of Aerobic Dancing group, Yogic Practices group and Control group on Anxiety. The obtained mean differences between Aerobic Dancing group and Yogic Practices Group, Aerobic Dancing group and Control group, Yogic Practices group and Control group were 1.44, 2.96 and 4.40 respectively. The required confidence interval value was 2.69.

Since the obtained mean difference between Aerobic Dancing group and Yogic Practice group 1.44 was less than the confidence interval value on anxiety, it was concluded that aerobic dancing group and yoga practice group decrease the level of Anxiety better than the control group. Further it was concluded that both the training produced similar effect on anxiety.

FIGURE -5

COMPARATIVE BAR CHART OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST OF DIFFERENT GROUPS ON ANXIETY

(scores in points)



G1 - Aerobic Dancing

G2 - Yogic Practices

G 3 - Control Group

4.6.2 Discussion of Findings on Anxiety

Nervousness is often used synonymously with anxiety. “Tension” is another term used to describe it which is still a higher level of anxiety. ‘Panic’ indicates the most serious level of anxiety. ‘Anxiety’ refers to a diffuse, confocused emotional status in which the person cannot accurately feel the sources of the treat. Anxiety may be relatively an enduring static as in the case of neurosis or it may be transient; however, showing a generalized and persistent insecurity is most likely to experience an intense agitation in stressful situations.

A coach or a teacher can recognize the influence of anxiety on learning and competition situation. The influence is usually negative and results in less efficient performance. A moderate level of anxiety sees best for the acquisition and performance of motor skills either too high or too low levels of anxiety in light learning and performances. Thus, the term anxiety is used to behavior and direction of an impact of emotion. Most of the people are susceptible to it. High level of anxiety is fear. Most serious level of anxiety is known as panic, which should never form a part of the athletic environment. This is a condition in which “the anxiety has become so great that the person loses complete control of himself and situation”, (Leary 1982).

After analysing the results, the researcher found that there were significant differences among the experimental and control group and there was a significant improvement on the experimental groups on anxiety.

The selected training group has significantly decreased the anxiety level from the base line to post training. The aerobic dancing group pre (85.70 $\pm$ 4.25) to post (82.85 $\pm$

3.55) and yogic practice group from pre (86.59 $\pm$ 3.92) to post (81.80 $\pm$ 3.92) have significantly decreased pre to post in the two experimental groups with no change in control group.

The present study demonstrates decrease in stress level of 0.02%, and 0.04% for aerobic dancing and yogic practice respectively. However, the yogic practice produced greater effect on decreasing the anxiety level than the other groups.

The result of this study indicates the level of anxiety which decreased significantly over the twelve weeks training period for Aerobic dancing and Yogic practice groups; However, the difference among the two experimental groups were significant. The Yogic practice group significantly decreased the level of anxiety than the aerobic dancing group and control group. The Aerobic dancing group produces less reduction on anxiety. The control group did not produce any significant improvement on Anxiety.

Chidambara Raja (2010) conducted a study on the effect of yogic practice and physical fitness on anxiety. Forty five subjects were selected. They were divided into three equal groups and each group consisted of fifteen subjects. The training period for this study was five days in a week for eight weeks. Finding of Anxiety shows there was a significant difference (decreasing the level of anxiety) due to the eight weeks training.

The above mentioned studies lend support to the results of the present study.

4.7 COMPARISON OF SELF CONFIDENCE IN THE EXPERIMENTAL GROUPS AND CONTROL GROUP

The data on scores of Self Confidence were collected from the experimental group and control group. The pre test, post test, and adjusted post test mean and standard deviation along with respective ANCOVA table are given in table VI.

TABLE VI

ANALYSIS OF CO VARIANCE OF EXPERIMENTAL GROUPS AND CONTROL GROUP ON SELF CONFIDENCE

(Scores in Points)

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	64.15	64.48	64.89	Between	5.43	2	2.71	0.15
SD	5.79	3.53	2.63	Within	1057.63	57	18.55	
Post Test								
Mean	66.35	67.31	63.55	Between	152.78	2	76.39	4.02*
SD	5.97	3.09	3	Within	1083.95	57	19.02	
Adjusted Post Test								
Mean	66.61	67.31	63.27	Between	186.88	2	93.44	9.94*
				Within	526.66	56	9.40	

* 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).

4.7.1 Results on Self Confidence

Pre - Test: The mean and standard deviation of the pretest Self Confidence scores of G1, G2, and G3 are 64.15 ± 5.79, 64.48 ± 3.53, 64.89 ± 2.63 respectively. The obtained pre test F value of 0.15 was less than the required table F value of 3.16. Hence, the pre test means value of Self Confidence 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 Self Confidence scores of G1, G2, and G3 are 66.35 ± 5.97, 67.31 ± 3.09, 63.55 ± 3.00, respectively. The obtained post test F value of 4.02 was greater than the required table F value of 3.16. Hence, the post- test means value of Self Confidence 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 Dancing and Yogic Practice on Self Confidence produced significantly different improvements among the experimental groups.

Adjusted Post - Test: The mean of the adjusted post - test Self Confidence scores of G1, G2, and G3 are 66.61, 67.31 and 63.27 respectively. The obtained post - test F value of 9.94 was greater than the required Table F value of 3.16. Hence, the adjusted post - test means value of Self Confidence 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 Dancing and Yogic Practice on Self Confidence produced significantly different 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 VI (A).

TABLE VI (A)
SCHEFFE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES ON SELF CONFIDENCE
(Scores in Points)

G-1 (AD)	G-2 (YP)	G-3 (CG)	Mean Differences	Confidence Interval Value
66.61	67.31		0.70	2.84
66.61		63.27	3.34*	2.84
	67.31	63.27	4.04*	2.84

* Significant at 0.05 level.

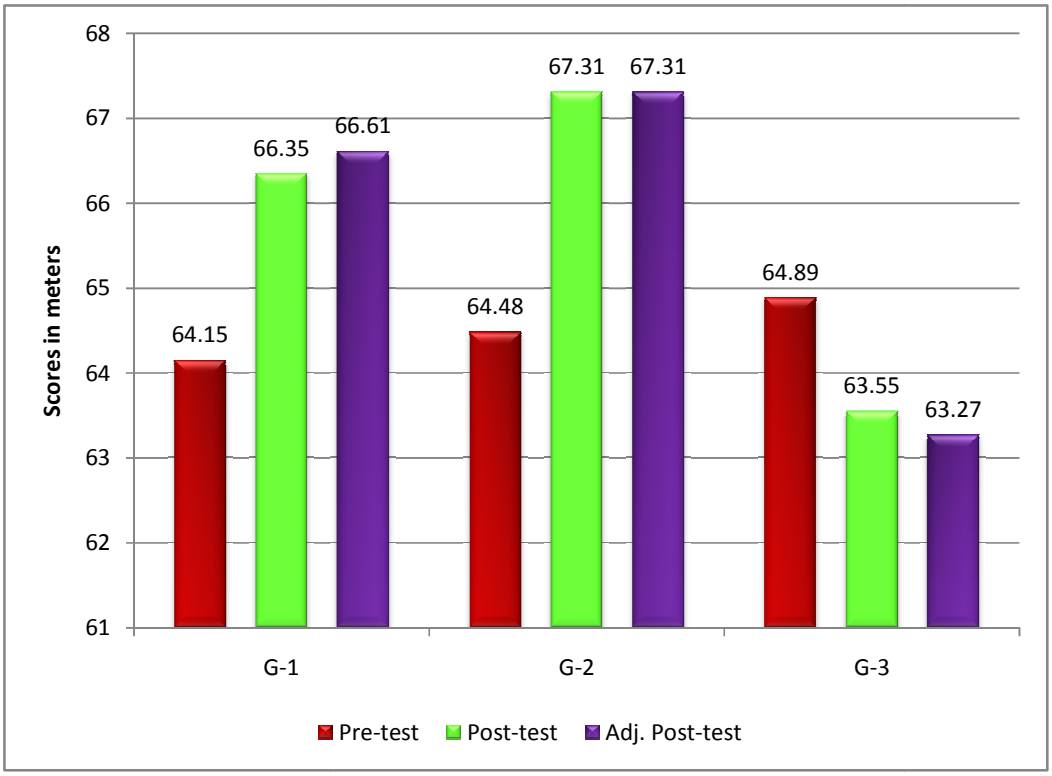
Table VI (A) shows the significant difference of paired adjusted post test means of Aerobic Dancing group, Yogic Practices group and Control group on self confidence. The obtained mean differences between Aerobic Dancing Group and Yogic Practices Group, Aerobic Dancing group and Control group, Yogic Practices group and Control group were 0.70, 3.34 and 4.04 respectively. The required confidence interval value was 2.84.

Since the obtained mean difference between Aerobic Dancing and Yogic group 0.70 was less than the confidence interval value on self confidence, it was concluded that aerobic dancing group and yoga practice group improved the Self Confidence level better than the control group. Further, it was concluded both the trainings produced similar effect on Self confidence.

FIGURE -6

COMPARATIVE BAR CHART OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST OF DIFFERENT GROUPS ON SELF CONFIDENCE

(Scores in points)



G-1 - Aerobic Dancing

G-2 - Yogic Practices

G-3 - Control Group

4.7.2 Discussion of Findings on Self Confidence

Self confidence is an attitude which allows individuals to have positive yet realistic views of themselves and their situations. Self confident people trust their own abilities, have a general sense of control in their lives, and believe that, within reason, they will be able to do what they wish, plan, and expect.

After analysing the results, the researcher found that there were significant differences among the experimental and control group and there was a significant improvement on the experimental groups on self confidence.

The selected training group has significantly increased the level of self confidence from the base line to post training. The aerobic dancing group pre (64.15 $\pm$ 5.79) to post (66.35 $\pm$ 5.97) and yogic practice group from pre (64.48 $\pm$ 3.53) to post (67.31 $\pm$ 3.09) have significantly increased pre to post in the two experimental groups with no change in control group.

The present study demonstrates increase in level of self confidence of 0.022%, and 0.028% for aerobic dancing and yogic practice respectively. However, the yogic practice produced greater effect on increasing the level of self confidence than the other groups.

The results of this study indicate that the level of self confidence increased significantly over the twelve weeks training period for Aerobic dancing and yogic practice groups; However, the difference among the two experimental groups were significant.

The Yogic practice group produces improvement than the aerobic dancing group and control group. The Aerobic dancing group shows less improvement on self

confidence. The control group did not produce any significant improvement on self confidence.

O. Preetha (2002) conducted a study on the effect of selected yogasanas and aerobic exercises on selected psychological variables among women students of Pondicherry University. Samples were selected randomly aged between 20 to 25 years and was divided into equally three groups Control and two experimental groups. Experimental group I underwent aerobic exercises, experimental group II underwent yogasana practice. For both the groups the training sessions were held for five days in a week for a period of twelve weeks. Prior to and at the end of training period all subjects were tested for selected psychological variables. Aerobic exercises and yoga practice groups showed a significant improvement on selected Psychological variables.

The above mentioned studies lend support to the results of the present study.

4.8 Comparison of Blood Sugar in the Experimental Groups and Control Group

The data on scores of Blood sugar were collected from the experimental group and control group. The pre test, post test, and adjusted post test mean and standard deviation along with respective ANCOVA table are given in table VII.

TABLE VII

ANALYSIS OF CO VARIANCE OF EXPERIMENTAL GROUPS AND CONTROL GROUP ON BLOOD SUGAR

(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	90.95	93.00	92.70	Between	49.03	2	24.52	0.36
SD	7.41	7.38	9.08	Within	3833.15	57	67.25	
Post Test								
Mean	85.65	90.40	92.70	Between	517.03	2	258.52	3.69*
SD	7.75	7.45	9.16	Within	3991.55	57	70.03	
Adjusted Post Test								
Mean	86.84	90.40	92.24	Between	289.31	2	144.65	13.95*
				Within	580.68	56	10.37	

* 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).

4.8.1 Results on blood sugar

Pre - Test: The mean and standard deviation of the pretest Blood sugar scores of G1, G2, and G3 are 90.95 ± 7.41, 93.00 ± 7.38, 92.70 ± 9.08, respectively. The obtained pre test F value of 0.36 was less than the required table F value of 3.16. Hence, the pre test means value of Blood sugar 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 Blood sugar scores of G1, G2, and G3 are 85.65 ± 7.75, 90.40 ± 7.45, 92.70 ± 9.16, respectively. The obtained post test F value of 3.69 was greater than the required table F value of 3.16. Hence, the post- test means value of Blood sugar 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 Dancing and Yogic Practice on Blood sugar produced significant changes (within the typical value) among the experimental groups.

Adjusted Post - Test: The mean values of the adjusted post - test Blood sugar scores of G1, G2, and G3 are 86.84, 90.40 and 92.24 respectively. The obtained post - test F value of 13.95 was greater than the required table F value of 3.16. Hence, the adjusted post - test means value of Blood sugar 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 Dancing and Yogic Practice on Blood sugar produced significant changes (within the typical value) 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 VII (A).

TABLE VII (A)

SCHEFFE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES ON BLOOD SUGAR

(Scores in $mgdl^{-1}$)

G-1 (AD)	G-2 (YP)	G-3 (CG)	Mean Differences	Confidence Interval Value
86.84	90.40		3.56*	2.98
86.84		92.24	5.40*	2.98
	90.40	92.24	1.84*	2.98

* Significant at 0.05 level.

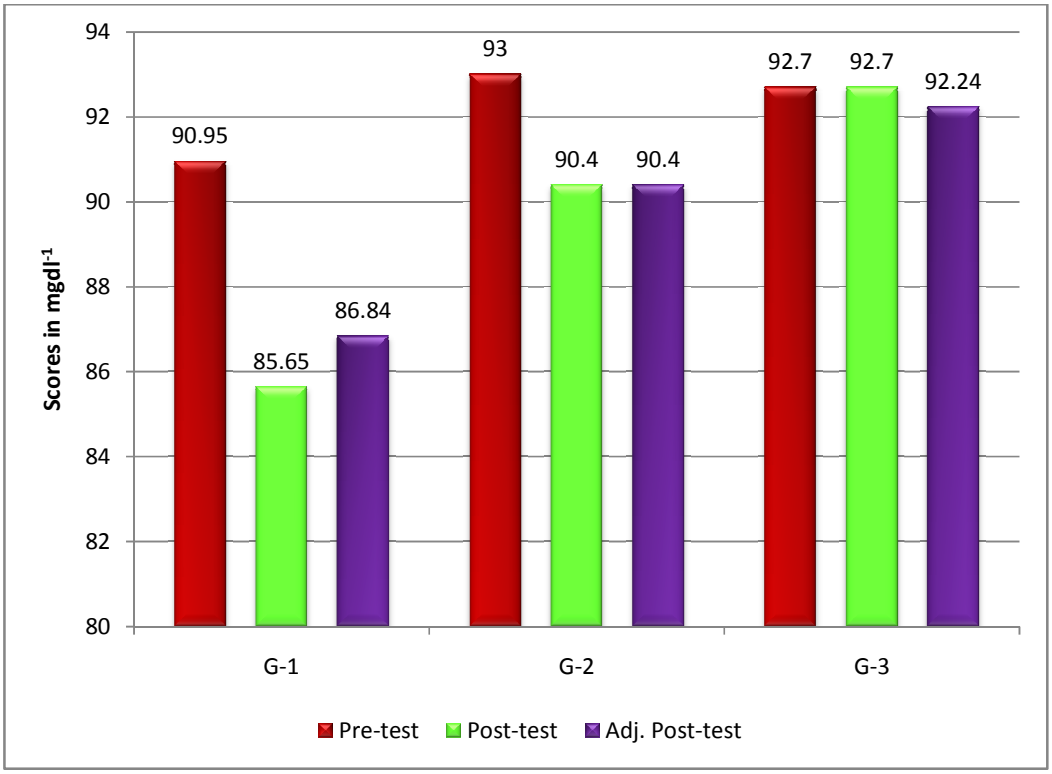
Table VI (A) shows the significant difference of paired adjusted post test means of Aerobic Dancing group, Yogic Practices group and Control group on Blood sugar. The obtained mean differences between Aerobic Dancing group and Yogic Practice group, Aerobic Dancing group and Control group, Yogic Practices group and Control group were 3.56, 5.40 and 1.84 respectively. The required confidence interval value was 2.98.

Since the obtained mean difference between experimental group and control group were greater than the confidential interval value on Blood sugar, it was concluded that aerobic dancing and yoga practice increased the Blood sugar level, but within the normal value better than the control group. Further, it was concluded that the aerobic dancing decreased blood sugar level (within the typical value) better than yogic practices.

FIGURE – 7

COMPARATIVE BAR CHART OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST OF DIFFERENT GROUPS ON BLOOD SUGAR

(Scores in $mgdl^{-1}$)



G-1 - Aerobic Dancing

G-2 - Yogic Practices

G-3 - Control Group

4.8.2 Discussion of Findings on Blood Sugar

The human body naturally tightly regulates blood sugar level as a part of metabolic homeostasis. Glucose is the primary source of energy for the body's cells and blood lipids (in the form of fats and oils) which are primarily a compact energy store. Glucose is transported from the intestines or liver to body cells via the blood stream, and is made available for cell absorption via the hormone insulin, produced by the body primarily in the pancreas. The blood glucose level is the amount of glucose (sugar) present in the blood of the human or animal. Normally in mammals, the body maintains the level at a reference range between about 3.6 and 5.8 mM (mill moles/liter) (64.8 and 104.4mg/dl). The human body naturally tightly regulates blood sugar level as a part of metabolic homeostasis.

After analysing the results the researcher found that there were significant differences among the experimental and control group and there was a significant improvement on the experimental groups on blood sugar.

The selected training group has significantly improved the blood sugar level from the base line to post training. The aerobic dancing group pre (90.95$\pm$ 7.41) to post (85.65 $\pm$ 7.75) and yogic practice group from pre (93.00 $\pm$ 7.38) to post (90.40 $\pm$ 7.45) have significantly improved pre to post in the two experimental groups with no change in control group. The present study demonstrates an improvement in blood sugar level of 0.05%, and 0.02% for aerobic dancing and yogic practice respectively. However, the aerobic dancing training produced greater improvement than the other groups.

The result of this study indicates that the level of blood sugar decreased significantly within the normal level of blood sugar over the twelve weeks of training period for Aerobic dancing and yogic practice groups; However, the difference among the

two experimental groups were significant. The aerobic dancing group showed a decreased level of blood sugar than the yogic practice group and control group. The Yogic practice group produces less reduction on Blood Sugar. The control group did not produce any significant changes on Blood Sugar.

Shenbagavalli A (2010) conducted a study on the effect of Gymnastics Exercises and Yoga Exercises on college students on selected Bio-chemical variables in this study.. The result shows both the trainings brought a significant improvement among the women college students on all variables.

Kasundra P M (2010) conducted a study on the impact of pranayama training on selected components of blood. Randomly 30 students were selected for the study and then the subjects were divided into two equal groups;each group consists of 15 subjects one experimental and one control group. Group A was exposed to pranayama and group B was control group. Experimental group participated in pranayama training for eight weeks. The study revealed significant difference in all components of blood, such as blood glucose etc. in pre-test and post test of experimental groups. The study shows that pranayama training has an impact on selected components of blood.

The above mentioned studies lend support to the results of the present study.

4.9 Comparison of High Density Lipoprotein in the Experimental Groups and Control Group

The data on scores of High Density Lipoprotein were collected from the experimental groups and control group. The pre test, post test, and adjusted post test mean and standard deviation along with respective ANCOVA table are given in table VIII.

TABLE VIII

ANALYSIS OF CO VARIANCE OF EXPERIMENTAL GROUPS AND CONTROL GROUP ON HIGH DENSITY LIPOPROTEIN

(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	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).

4.9.1 Results on high density lipoprotein

Pre - Test: The mean and standard deviation of the pretest 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 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 Dancing and Yogic Practice on High Density Lipoprotein produced significantly different improvements among the experimental groups.

Adjusted Post - Test: The mean of the adjusted post - test 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 Dancing and Yogic Practice on High Density Lipoprotein produced significantly different 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 VIII (A).

TABLE VIII (A)

SCHEFFE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES ON HIGH DENSITY LIPOPROTEIN

(Scores in $mg.dl^{-1}$)

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.

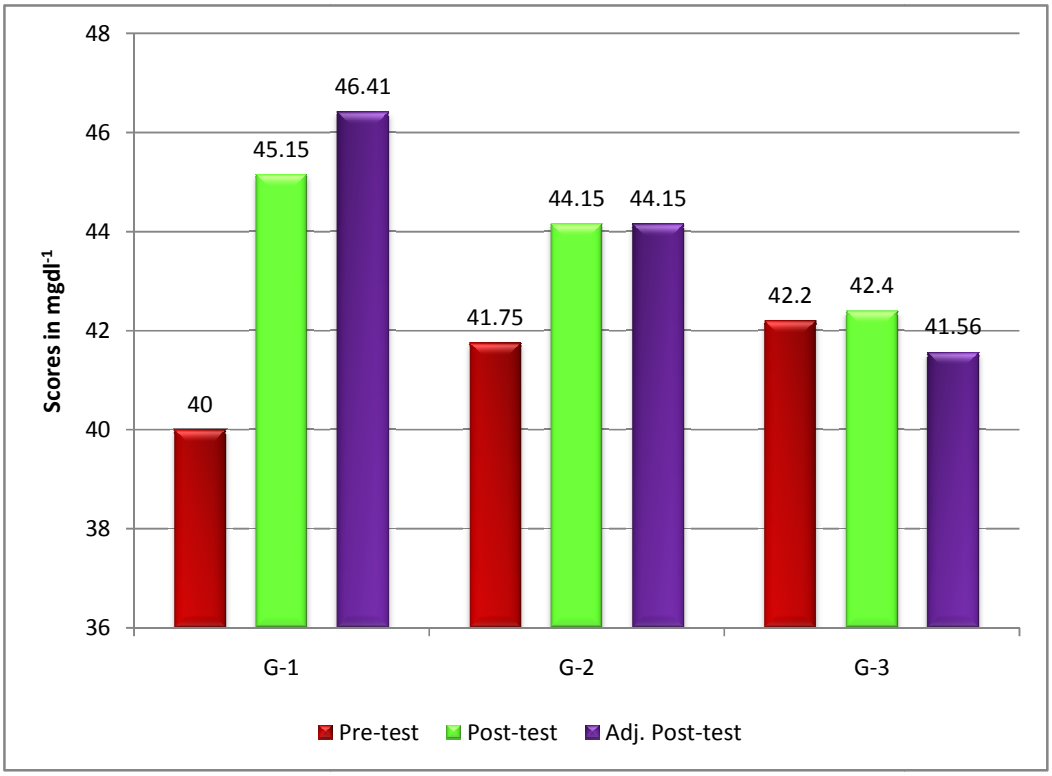
Table VIII (A) shows the significant difference of paired adjusted post test means of Aerobic Dancing group, Yogic Practices group and Control group on High Density Lipoprotein. The obtained mean differences between Aerobic Dancing group and Yogic Practice group, Aerobic Dancing group and Control group, 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 dancing group and yoga practice group improve the High Density Lipoprotein level better than the control group. Further, it was concluded that the aerobic dancing group improved High Density Lipoprotein level better than yoga practice group.

FIGURE -8

COMPARATIVE BAR CHART OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST OF DIFFERENT GROUPS ON HIGH DENSITY LIPOPROTEIN

(Scores in $mgdl^{-1}$)



G1 - Aerobic Dancing

G2 - Yogic Practices

G 3 - Control Group

4.9.2 Discussion of Findings on High Density Lipoprotein

Regular physical activity, especially habitual aerobic exercise, positively affects lipid metabolism and lipid profiles (Durstine et al. 2002). Cross-sectional comparisons of lipid profiles in physically active and sedentary women and men suggest that physical fitness is inversely related to TC and the TC/HDL-C ratio (Despres and Lamarche 1994; shoenhair and Wells 1995).

After analysing the results the researcher found that there were significant differences among the experimental and control group and there was a significant improvement on the experimental groups on high density lipoprotein. The selected training group has significantly improved the high density lipoprotein from the base line to post training. The aerobic dancing group pre (40 $\pm$ 2.59) to post (45.15 $\pm$ 2.82) and yogic practice group from pre (41.75 $\pm$ 3.43) to post (44.15 $\pm$ 3.42) have significantly improved pre to post in the two experimental groups with no change in control group.

The present study demonstrates an increase in high density lipoprotein of 0.05%, and 0.02% for aerobic dancing and yogic practice respectively. However, the aerobic dancing training showed greater improvement than the other groups.

The result of this study indicates that the level of high density lipoprotein increased significantly over the twelve weeks training period for Aerobic dancing and Yogic practice groups; However, the difference among the two experimental groups were significant. The aerobic dancing 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.

In a meta-analysis that examined the effects of aerobic exercise on lipids and lipoproteins in adult men, data from 49 randomized controlled trials 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 and older (Keller and Kelley 2006). A 1% reduction in TC has been shown to reduce risk for CHD by 2%; likewise, a 1% reduction in HDL-C increases CHD risk by 2% to 3% (Gordon et al. 1989). However, for individuals with hyperlipidemia, lifestyle (e.g., healthy diet) or pharmagologic (e.g.statins) interventions, in addition to aerobic exercises, may be necessary for optimizing lipid and lipoprotein profiles (Durstine et al. 2002: Kelley and Kelley 2006).

Increases in HDL-C in response to aerobic exercise appear to be related to the training dose (interaction of the intensity, frequency, and duration of each exercise session and the length of the training period) are less dramatic in women than in men. In an analysis of longitudinal and cross-sectional exercise studies, researchers concluded that 15 to 20 mi.wk-1 (24 to 32 km.wk-1) of brisk walking or jogging (equivalent to1200-2200 kcal of energy expenditure) decreases blood triglyceride levels, and TC and LDL-C are lowered only when the training increases lean body mass and decreases relative body fat (Durstine et al.2002). Also, resistance training has little or no effect on the HDL-C levels of men at risk for CHD.

The above mentioned studies lend support to the results of the present study.

4.10 COMPARISON OF LOW DENSITY LIPOPROTEIN IN THE EXPERIMENTAL GROUPS AND CONTROL GROUP

The data on scores of Low Density Lipoprotein were collected from the experimental group and control group. The pre test, post test, and adjusted post test mean and standard deviation along with respective ANCOVA table are given in table IX.

TABLE IX

ANALYSIS OF CO VARIANCE OF EXPERIMENTAL GROUPS AND CONTROL GROUP ON LOW DENSITY LIPOPROTEIN

(Scores in $mg.dl^{-1}$)

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).

4.10.1 Results on low density lipoprotein

Pre - Test: The mean and standard deviation of the pretest 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 less than the required table F value of 3.16. Henc,e 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 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 Dancing and Yogic Practice on Low Density Lipoprotein produced significantly different changes among the experimental groups.

Adjusted Post - Test: The mean of the adjusted post - test 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 Dancing and Yogic Practice on Low Density Lipoprotein produced significantly different 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 IX (A).

TABLE IX (A)

SCHEFFE'S POST HOC VALUES OF PAIRED MEAN DIFFERENCES ON LOW DENSITY LIPOPROTEIN

(Scores in $mg.dl^{-1}$)

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.

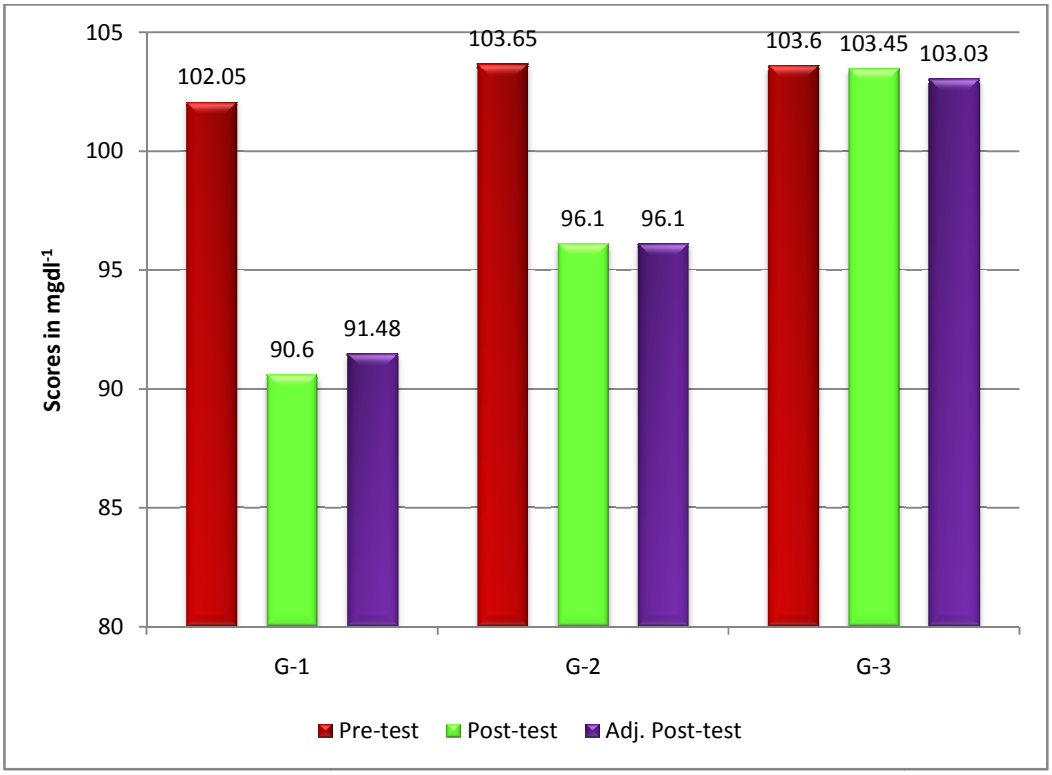
Table VI (A) shows the significant difference of paired adjusted post test means of Aerobic Dancing group, Yogic Practices group and Control group on Low Density Lipoprotein. The obtained mean differences between Aerobic Dancing group and Yogic Practice group, Aerobic Dancing group and Control group, 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 dancing and yoga practice decrease the level of Low Density Lipoprotein better than the control group. Further, it was concluded that the Aerobic Dancing decreased the level of Low Density Lipoprotein better than Yoga Practice.

FIGURE – 9

COMPARATIVE BAR CHART OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST OF DIFFERENT GROUPS ON LOW DENSITY LIPOPROTEIN

(Scores in $mgdl^{-1}$)



G1 - Aerobic Dancing

G2 - Yogic Practices

G 3 - Control Group

4.10.2 Discussion of Findings on Low Density Lipoprotein

Regular physical activity, especially habitual aerobic exercise, positively affects lipid metabolism and lipid profiles (Durstine et al. 2002). Cross-sectional comparisons of lipid profiles in physically active and sedentary women and men suggest that physical fitness is inversely related to TC and the TC/HDL-C ratio (Despres and Lamarche 1994;shoenhair and Wells 1995).

After analyzing the results, the researcher found that there were significant differences among the experimental and control group and there was a significant improvement on the experimental groups on high density lipoprotein. The selected training group has significantly decreased the low density lipoprotein from the base line to post training. The aerobic dancing group pre (102.05 $\pm$ 12.27) to post (90.60 $\pm$ 8.80) and yogic practice group from pre (103.65 $\pm$ 8.03) to post (96.10 $\pm$ 5.87) have significantly decreased pre to post in the two experimental groups with no change in control group. The present study demonstrates decrease in low density lipoprotein of 0.11%, and 0.28% for aerobic dancing and yogic practice respectively. However the aerobic dancing 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 dancing and Yogic practice groups; However, the difference among the two experimental groups were significant. The Aerobic dancing 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 a meta-analysis that examined the effects of aerobic exercise on lipids and lipoproteins in adult men, data from 49 randomized controlled trials 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 years and older (Keller and Kelley 2006). A 1% reduction in TC has been shown to reduce risk for CHD by 2%; likewise, a 1% reduction in HDL-C increases CHD risk by 2% to 3% (Gordon et al. 1989). However, for individuals with hyperlipidemia, lifestyle (e.g., healthy diet) or pharmagologic (e.g.statins) interventions, in addition to aerobic exercise, may be necessary for optimizing lipid and lipoprotein profiles (Durstine et al. 2002: Kelley and Kelley 2006).

Increases in HDL-C in response to aerobic exercises appear to be related to the training dose (interaction of the intensity, frequency, and duration of each exercise session and the length of the training period) and are less dramatic in women than in men. In an analysis of longitudinal and cross-sectional exercise studies, researchers concluded that 15 to 20 mi.wk-1 (24 to 32 km.wk-1) of brisk walking or jogging (equivalent to1200-2200 kcal of energy expenditure) decreases blood triglyceride levels, and TC and LDL-C are lowered only when the training increases lean body mass and decreases relative body fat (Durstine et al.2002). Also, resistance training has little or no effect on the HDL-C levels of men at risk for CHD.

The above mentioned studies lend support to the results of the present study.

4.11 DISCUSSION ON HYPOTHESES

The first hypothesis stated that aerobic dancing and yogic practices may produce significant improvement on selected criterion variables namely flexibility, cardio respiratory endurance, muscular strength endurance, stress, anxiety, self

confidence, blood sugar, high density lipoprotein and low density lipoprotein than the control group.

The results of the study showed that aerobic dancing and yogic practices produced significant improvement on the selected criterion variables namely flexibility, cardio respiratory endurance, muscular strength endurance, stress, anxiety, self confidence, blood sugar, high density lipoprotein and low density lipoprotein of women college students when compared with control group. Hence, the researcher's first hypothesis was accepted based on the results of the study.

The second hypothesis stated that aerobic dancing may produce significant improvement on selected criterion variables namely flexibility, cardio respiratory endurance, muscular strength endurance, stress, anxiety, self confidence, blood sugar, high density lipoprotein and low density lipoprotein better than yogic practice .

The results of the study showed that aerobic dancing has not produced significant improvement than yogic practice on the selected criterion variables namely flexibility, muscular strength endurance, stress, anxiety and self confidence. Hence, the researcher's second hypothesis was rejected on the above said variables and accepted in the case of cardio respiratory endurance, blood sugar, high density lipoprotein and low density lipoprotein.

The third hypothesis stated that yogic practice may produce significant improvement on selected criterion variables namely flexibility, cardio respiratory endurance, muscular strength endurance, stress, anxiety, self confidence, blood sugar, high density lipoprotein and low density lipoprotein which is better than aerobic dancing.

The results of the study showed that yogic practice produced significant improvement which is greater than aerobic dance on selected criterion variables namely flexibility, muscular strength endurance, stress, anxiety and self confidence aerobic dancing. Hence, the researcher's third hypothesis was accepted on the above said variables and rejected in the case of cardio respiratory endurance, blood sugar, high density lipoprotein and low density lipoprotein.

CHAPTER-V
SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

Aerobic dance provides benefits to the cardio respiratory system, particularly to its engine, the heart. Aerobic means work in the presence of oxygen. The systems involved in oxygen transport for us to make any activity such as the respiratory and circulatory systems. With aerobic activity, our heart gets stronger and increases its size. This reduces the number of beats per minute and our heart becomes strong enough to supply the entire body with precious oxygen with only a few beats. In addition, the heart vessels increase their ability to carry blood and oxygen to small blood vessels and this improves the entire network of blood circulation inside our body. The lungs also improve their ability to attract and retain air outside a larger volume of oxygen, which is a good starting point to reach all the organs and tissues that need it. People who exercise on a regular basis and make aerobic dance exercises a part of their routine are people who tend to have more success with its long-term program. Generally regarded as physical exercise, yogasanas are more accurately “poses comfortably held”. Each asana involves the contraction of some muscle groups and the relaxation of their opposing muscles. Consequently, muscles that tend to atrophy through lack of regular exercise are now conditioned and receive an improved blood supply, while joints move freely as they lose their stiffness. In many of the asanas, the vertebral column is subjected to gentle traction, thus releasing pressure on spinal disc and nerves. Increased spinal flexibility can lead to reduction of pain and other discomforts, and posture is also improved. The synchronized breathing is required in the execution of all the exercises ensures good oxygen delivery to the working muscles. The full focusing of attention on the performance of the exercises has a tranquillizing effect on

the nervous system, leading to a sense of calm and control. These combined benefits, through regular practice over time, result in strengthening of mind and body and maintaining of wellness. Exercises in voluntary breath control are collectively referred to as “pranayam ”. They take advantage of the fact that the respiratory (breathing) system is the only body system that is both involuntary and voluntary. The primary function of the respiratory system is to provide oxygen for the body’s metabolic needs and to remove carbon dioxide from the tissues. Respiration works very closely with circulation so that tissues receive oxygen and nutrients, and the body is protected from agents of disease.

The purpose of the study was to find out the effects of aerobic dancing and yogic practice on health related fitness, psychological and bio-chemical variables among women college students. To achieve this purpose of the study, sixty women college students of Arulmigu Palani Andavar Arts College for Women, Palani,Tamilnadu were selected, and their age was between eighteen to twenty five years. The study was formulated as pre and post - test random group design, in which sixty students were divided into three equal groups. The experimental group – 1 (n = 20 AD group) underwent aerobic dancing, the experimental group – 2 (n = 20 YP group) underwent yogic practices and group - 3 (n= 20, CG) served as control group, who did not undergo any specific training. In the study, two different training approaches were adopted as independent variables i.e., Aerobic Dancing (AD) and Yogic Practices (YP). The training intervention for this study was 12 weeks of five days in a week.

The following health related fitness, psychology, biochemical variables were selected as dependent variables. They were listed as follows flexibility, cardio respiratory endurance, muscular strength endurance, stress, anxiety, self confidence, blood sugar,

high density lipoprotein and low density lipoprotein. As far as the health related fitness variables were concerned the flexibility, cardio respiratory endurance and muscular strength endurance were tested and measured by sit and reach test (in centimeters), 12 minutes run/walk (in meters) and modified sit-ups (in numbers) respectively. As far as psychological variables were concerned stress were tested and measured by questionnaire standardized by Shailendra Singh, anxiety were tested and measured by questionnaire standardized by Spielberger R.L. Gorsuch and R.E. Lushers and self confidence were tested and measured by Agnilotry Self-Confidence Inventory(ASCI) respectively. As far as the Bio Chemical variables were concerned the blood sugar, high density lipoprotein and low density lipoprotein were tested and measured by blood sampling analysis. The pre and post-test random group design was used as an experimental design in which sixty women college students were selected as subjects; the selected subjects were divided into three groups of twenty subjects each. Ancova was used to find out significant adjusted post - test mean difference of three groups with respect to each parameter and Scheffe's post hoc test was used to find out pair-wise comparisons between groups with respect to each parameter.

5.2 CONCLUSION

1. The nature of flexibility increased responses goes to yogic practices than the Aerobic Dancing.
2. The improvement of cardio respiratory endurance responses go to Aerobic dancing than the Yogic Practices.
3. The muscular strength endurance was highly favourable to yogic practice than the Aerobic Dancing.

4. The reduction of stress level is favourable to the Yogic Practices than Aerobic Dancing.
5. The reduction of anxiety level is favourable to the Yogic Practices than Aerobic Dancing.
6. The development of self confidence level is favourable to the Yogic Practices than Aerobic Dancing.
7. Aerobic Dancing maintains blood sugar level better than Yogic practices.
8. Aerobic Dancing maintains level of High Density Lipo protein than Yogic practices.
9. The reduction of Low Density Lipoprotein level is favourable to the Aerobic Dancing than Yogic Practices.
10. No Difference was found in the control group.

5.3 RECOMMENDATIONS

Based on the results of the study, the following recommendations were drawn.

Aerobic dance and yogic practice training have improved the selected health related fitness psychological and biochemical variables among the 60 women college students. Hence, the two methods of training are recommended to the coaches, physical educators and fitness instructors who required developing the general health fitness as well as holistic well-being.

1) The aerobic dancing programmes recommended for those students interested in developing the basic aerobic fitness qualities.

2) The aerobic dancing programmes recommended for junior athletes who are aiming to develop their basic and specific endurance qualities.

3) The aerobic training programmes are recommended for grassroots level sports practitioners, who need good cardio respiratory types of activities.

4) The increasing intensity and volume of the selected aerobic dance steps is favoured the elite level sports participants to enhance their high level of cardio vascular and cardio respiratory efficiency.

5) These yogic approaches are recommended for young children to maintain their physical and mental qualities.

6) The same yogic intervention can be to adopted by the pubertal population for maintaining their hormonal secretions.

7) The increasing intensity and volume of the selected asanas,pranayama and mudra are recommended to the elite level sports participants to enhance their mental toughness in the competitions.

8) The results of the study are recommended to the Government of Tamilnadu to incorporate these programmes in the curriculums by various Colleges and Universities

9) The results of the present investigations are recommended to the Sports Authority of India to add these two training programmes, in their curriculums.

BIBLIOGRAPHY

BOOKS

Berry Johnson and Donald Stolberg, Conditioning, (New Jersey: Prentice hall), p. 10. 1971.

Bouchard, C.2001.Physical activity and health : introduction to the dose-response symposium. Medicine and science in sorts and exercise 33(suppl) : S 347-S350

Cavil ,N.Kahlmeter,S. And racioppi ,F.,eds.2006 physical activity and health in eurpe:Evidence for action.World health organization.www.who.in/move for health.

Charles A. Bucher and Deborah A.Wuest Foundations of Physical Education and Sports, (Saint Louis: Times Mirror & Mosby College publishing, 1987), p.188.

Chauncey A. Morehouse and G.Alan Stull, Statistical principles procedures with applications for physical education (Philadelphia: Lea and Febiger), p.185.1975.

Christina Berth, Body Work Look Good-Keep Fit-Feel Great (NewYorkFund Sham & Company Limited, 1984),p.10.

Edward L Fox and Donald K. Mathews, The physiological Basis of Physical Education and Athletics (Philadelphia: Mosby Publishing company, 1981), p.634.

Edward L. Fox, Richard W. Bowers and Marle L. Foss, The Physiological Basis of Physical Education and Athletics (U.S.A: W.B. Saunders 1988), p.692.

Fox, E.L. Sports Physiology, Philadelphia: Saunders, 1979.

Harold M. Barrow, Man and Movement: Principles of Physical Education (Philadelphia: Lea & RebigeJ. F. Williams, The principles of Physical Education p 47.

Heyward, V., Advanced Fitness Assessment and Exercise Prescription (4th ed.). Champaign, IL: Human Kinetics. 2002.

Johnson and Donald Stobber (1971), Aerobic Dance, Englewood Cliffs, New Jersey Prentice Hall Inc., P.45.

Kirkwood, G., Rampes, H., Tuffrey, V., Richardson, J., and Pilkington, K., (2005) British Journal of Sports Medicine. 39 (12): 884-891, December 2005.

Mc Ardle, William D., Frank I. Katch, Victor L. Katch, (1991), Exercise Physiology, Energy, Nutrition & Human Performance, Philadelphia: Lea and Febiger.

Morehouse, C. A. & Stull, G. A. Statistical principles and procedures with applications for physical education.Philadelphia: Lea & Febiger. 1975.

Nelson,M.E., Rejeski,W.J., Blair,S.N.,Duncan,P.W.,Judge,J.O., King., A.C.,Macrea,C.A., and Castaneda-Sceppa,C.(2007) Physical activity and public health in older adults: Recommendations from American College of Sports Medicine and the American Heart Association. Medicine& Science in Sports & Exercise 39(8):1435-1445.

Pre-Olof Astrand and kaare Rodhal, Text book of work physiology (New york: McGraw Hill Book Company), P.259. 2003.

Sharon Kay Stoll and Jennifer Marie Beller, The Professional's Guide to Teaching Aerobics (Englewood Cliffs, New Jersey: Prentice-Hall, Inc, 1989), p.5.

Spiel berger. C.S. Theory and Research on Anxiety, In C.S. Spielberger (Rd). Anxiety & Behaviour, (New York: Academic Press, 1966),3-20.r, 1977).

Stella Weller, (2007), "Healing Yoga", P 8-11.

Sukhdev Singh, Vishaw Gaurav and Ved Parkash (2011) Journal of Physical Education and Sports Management Vol.2 (4), pp.44-47.

Vivian H. Hayward, Designs for Fitness: A Guide to Physical Fitness Appraisal and Exercise Prescription (New York: Macmillan Publishing Company, 1989), pp,84-85.

JOURNALS

Balodi & Leena (2000) "Effect of Aerobic Dance Workout on the Physical Fitness of Female Player", Unpublished M.Phil Thesis University of Delhi,p.25.

Bharatha Priya and R. Gopinath (2011), "Effect of Yogic Practice on Flexibility among School Boys", Recent Trends in Yoga and Physical Education, Vol. I, p.24.

Blair ,S.N. 2009.physical inactivity: the biggest public health problem of the 21 st century .british journal of the sports medicine 43:1-2

Brooks ,G.A.,Butte,N.F., Rand.,W.M.Flatt,J.P.,and caballero.B.2004 .Chroncle of the institute of medicine physical activity recommendation: how a physical activity recommendation ame to be among dietary recommendations American journal of clinical nutrition 79 (suppl) :921S-930S.

C.T. Toy, (2008) "Effect of Aerobic Dance Training on Vo2 Max and Body Composition in Early Middle Aged Women," Journal of Physical Education and Exercises Sciences, Vol. I, p. 69.

Canadian Society For exercise physiology.2003 .the Canadian physical activity ,fitness and lifestyle approach: CSEP- health and fitness program's health related appraisal and counseling strategy. 3rd ed .ottawa,

Chia-Lin Li, Hsu-Min Tseng, Rou-Fang Tseng, Shwn-Jen Lee (2006) The effects of aerobic exercise intervention with goals of improving health-related physical fitness among selected adults. Chang Gung Med J, 29:100-6.

Chidambara Raja, (2010) "Effect of Yogic Practice and Physical Fitness on Flexibility, Anxiety and Blood pressure", Indian Journal for Research in Physical Education and Sports Sciences, Vol.V, p.1

D.Sultana(2011) , "Effects of Yoga Practice on Dominate Hand Grip Strength of Female Students Recent Trends in Yoga and Physical Education, Vol. I, p.360.

Hafner-Holter S. Effects of fitness training and yoga on well-being The Journal of Alternative and Complementary Medicine: January 2010, 10(1): 3-12.

Haskell,W.L., Lee, I.M.,Pate,RR., Powell.K.E.,,blair,S.N.franklin,B.A.,macera, C.A..,Health,G.W.,Thompson P.D., And bauman ,A 2007physical activity and public health : updated recommendation for adults from the American college of sports medicine and the American heart association. Medicine and science in sports and exercise 39(8):1423-1434.

Howley,E.2008 Physical Activity Guidelines for americans persident's council on physical fitness and sports research digest series 9(4), december.

James Zahariah, Effect of selected asanas on serum cholesterol and functions of adrenal gland in college women, Journal of vyayam-vidanan (Amaravati: Amravati publication (vol.43.No.3),2010,p.1

Javnbakht M, et.al. Effects of yoga on depression and anxiety of women, Psychiatry Department of Islamic Azad University, Mashhad Dranch-22 Bahman Hospital, Mashhad, 2009 May:15(2):102-4, Epub:2009 Mar 20.

K.M. Manimakali and S.Chitra, (2011) "Effect of Yogasanas Practice on Flexibility among University Women"; Recent Trends in Yoga and Physical Education, Vol. I, p.53.

Kasundra P.M Impact of pranayama on selected components of blood: An analytical study, Indian journal of yoga, exercise & sports sciences and physical education, vol-IV No.1&2,2010.

Komathi and Kalimuthu (2011) "Effect of Yogic Practices on Abdominal Strength among School Boys", Recent Treads in Yoga and Physical Education, Vol. I, p.51.

Mctiernan ,A.Kooperberg,C., White ,E.,Wilcox ,s.,Coates,R., adams-campbell,L.L., Woods,N and okene,J2003.recreation physical activity and the risk of breast cancer in postmenopausal women: the women's health imitative cohrt study.J. of the medical association 290(10) :1331-1336.

Neethi and Chidambara Raja, (2011) "Effect of Yogic Practices and Physical Exercises on Muscular Strength and Blood Pressure", Recent Trends in Yoga and Physical Education, Vol. I, p.60.

Nobuo Takeshima, Michael E Rogers, Mohammod M.Islam, Tomoko Yamauchi, Eijiwatanabe, Akiyoshi okada(2004) The effect of concurrent aerobic and resistance circuit exercise training on fitness in older adults, European Journal of Applied Physiology, Volume 93, Issue 1-2, pp 173-182.

Pate ,RR .,pratt,M., Blair ,S.N.,Haskell,WL., macera, CA .,boachard ,C.,Buchner ,D.,Ettinger ,W., Health,G.W., and king A.C 1995 .physical activity and public health.A recommendation from the centers for disease control and prevention and the American college of sports medicine. Journal of the American medical association 273:402-407.

Ravikumar.H (2009), "Effect of select yogic practices and aerobic exercises on somatotype components and its relationship with health related physical fitness and biochemical variables" International Journal of Health, Physical Education and Computer Science in Sports Volume No.7, No.1,pp174-178.

Remesh Reddy, P and Ravikumar, P. (2001), "A Comparative Study of Yogasanas and Aerobic Dance and Their Effects on Selected Motor Fitness Components in Girls Students." Bi-annual for Movement 18: PP. 34-36.

Saroja M. Effect of yogic practice and walking on selected physical, physiological and biochemical variables among aged people, Journal of vyayam-vidanant (Amaravati publication (vol.43.No.2),2010,p.24.

Sekar Babu.K and P.Kulothugan, (2011) "Effect of Yogic Practices on Selected Physiological Variables of Men Hockey Players", Recent Trends in Yoga and Physical Education, Vol. I, p.321.

Shenbavalli A, Influence of Gymnastic Exercise and Yogic Practices on selected physiological, bio-chemical and performance variables of college women students, Journal of Yoga, exercise and sports science and physical education (vol-IV, No-1&2),2010.p.23.

Sultana. D(2011), Effects of twelve weeks of yoga on selected physiological variables on female students of Pondicherry University, Journal of Yoga mimmamsa, karvlyadhama . publishers:Lonvala, Pune, Vol, XLIII No.1.p

Tiken, L., Kosana, K., Joy, A.K. and Inaobi. T. (2002). "Influence of Specific Yoga and Aerobic Exercise on Physical Fitness of SAI (NERC IMPHAL) STC Athletes" Journal of Sports and Sports Sciences, 25 (3):PP. 47 –51.

Tracy BL, Hart CE. (2013) Bikram yoga training and physical fitness in healthy young adults. J Strength Cond Res. 27(3):822-30.

Vaz.W.L. Effect of nostril dominance yogic exercise programme on different cardio respiratory parameters, Journal of vyayam-vidanam (Amaravati Amravati publication (vol.43.No.2)2010.p.55.

VidhyaSree (2012) Effect Of Aerobic Dance And Pranayama On Selected Physiological Variables Among College Girls, International Journal of Health, Physical Education and Computer Science in Sports Volume No.7, No.1,pp164-168.

Viskić-Štalec N., Štalec, J., Katić, R., Podvorac, Đ., & Katović, D. (2007). The impact of dance-aerobics training on the morpho-motor status in female high-schoolers. Coll. Antropol, 31(1), 259-266.

Yiannis Koutedakis, Harmel Hukam, George Metsios, Alan Nevill, Giannis Giakas, Athanasios Jamurtas, Lynn Myszkewycz (2007)conducted study to assess effects of three months of aerobic and strength training on selected performance- and fitness-related parameters in modern dance students. The Journal of Strength & Conditioning Research 21 (3), 808-812.

Yogaraj (2011), Effects of varied packages of yogic practice on selected biochemical variables of college men students Journal of physical education and sports management and yogic sciences. Vol.1. no.1.p.35.

Zaletel P, Gabrilo G, Perić M. (2013) The training effects of dance aerobics: A review with an emphasis on the perspectives of investigations. 37 Suppl 2:125-30.

UNPUBLISHED THESIS

Punithavathi (2010), "Effects of Aerobic Exercises and Yogic Practices on Selected Physical, Physiological and Biochemical Variables Among School Girls." (Unpublished Doctoral Thesis, Pondicherry University, Pondicherry).

Gaje Singh (20) "The assessment and comparison of Aerobic fitness test of Graduate level Female student through Foresty Step Test" Unpublished Doctoral Thesis, University of Delhi, p.37.

K.G. Promoth,(2010) "Effect of Step Aerobics Training on Selected Physical and Physiological Variables of Physical Education Students," (Unpublished M.phil Thesis, Pondicherry University, Pondicherry).

P.Mahendran, (2011) "Effect of 12 Weeks Aerobic Exercises on Selected Health Related Physical Fitness and Physiological Variables of Adolescents." (Unpublished M.Phil Thesis, Pondicherry University, Pondicherry.)

WEB SOURCES

http://onlinelibrary.wiley.com(Last Updated on: 17/04/2012)

http://www.academicjournals.org/JPESM/abstracts/abstracts/abstract2011/August

http://www.ijhpecss.org/International%20Journal-7.pdf(Last Updated on: 16/04/2012)

http://www.indianetzone.com/42/impact_yoga_asanas_on_human_body_system_yoga_postures. htm (Last Updated on: 20/01/2011)

http://www.kahperd.com(Last Updated on: 10/08/2011)

http://www.ncbi.nlm.nih.gov/pubmed/23914499(Last Updated on: 26/3/2013)

http://www.researchgate.net/publication/228761689_Effects_of_a_6-week_nadi-shodhana_pranayama_training_on_cardio-pulmonary_parameters (Last Updated on: 15/01/2011)

http://www.setantacollege.com/wp- (Last Updated on: 20/03/2011)

http://www.sposci.com/actakin.com (Last Updated on: 25/05/2011)

http://www.tandfonline.com/doi/abs/10.1080/10671188.1966.1061 (Last Updated on: 2/05/2013)

www.gac.edu/trauss/online(Last Updated on: 12/06/2013)

www.indiawomenhealth.com(Last Updated on: 09/11/2012)

www.sportsyogafitness.com(Last Updated on: 14/06/2011)