CHAPTER IV

RESULTS AND DISCUSSIONS

4.1 OVERVIEW

In this chapter, the test of significance, level of significance, discussion on findings and discussion on hypothesis were presented. The purpose of the study was to find out the effect of aerobic and folk dance on selected health related physical fitness and physiological variables among obese school boys.

Two hundred eighty eight male students were chosen at random, the Body Mass Index was analyzed for the selected subjects on the basis of BMI guidelines given by World Health Organization.

After the Body Mass Index analysis Hundred class-I obesity school boys were randomly selected and their age ranged between 14 and 16 years from Alwin Public Matriculation School, Medavakkam, Chennai City, Tamil Nadu, India. They were assigned into four equal groups. Each group consisted of twenty five subjects. The four groups are namely Group I acted as Experimental Group I -(Aerobic Dance), Group II acted as Experimental Group II -(Folk Dance), Group III acted as -Experimental Group III (Aerobic and Folk Dance combination), and Group IV acted as -Control group.

Pre test was conducted for all hundred subjects on selected health related physical fitness variables namely cardio respiratory endurance, muscular strength, muscular endurance, flexibility and body composition and physiological variables namely Pulse Rate, Mean Arterial Blood pressure, Breath Holding Time, Respiratory Rate, Vital Capacity. Experimental Group I was exposed to aerobic dance training,

experimental group II was exposed to folk dance training, experimental group III was exposed to aerobic and folk dance combination training and control group was not exposed to any experimental training other than their regular daily activities. The duration of experimental training period was 12 weeks. After the experimental treatment, all hundred subjects were administered on the selected health related physical fitness variables and physiological variables. This final test scores forms as post test scores of the subjects. Analysis of Covariance (ANCOVA) to find out the significant difference, whenever the 'F' ratio for adjusted test was found to be significant, scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test the hypotheses.

4.2 TEST OF SIGNIFICANCE

This is crucial portion to achieving the conclusion by examining the statistical hypotheses and either by accepting the null hypotheses or rejecting the same in accordance with the results obtained in relation to the level of significance fixed by the investigator.

The test was usually called the test if significance since the investigator tested whether the differences among four groups or within many groups scores were significant or not. In this study, if they obtained F-value were greater than the table value, the null hypotheses were rejected to the effect that there existed significant difference among the means of the groups compared, and if they obtained values were lesser than the required values, then the null hypotheses were accepted to the effect that there existed no significant differences among the means of the groups under study.

4.3 LEVEL OF SIGNIFICANCE

The pre test and post test scores of the experimental and control groups were analyzed to find out the improvement of fitness programme intervention on the selected health related physical fitness and physiological variables among obese school boys. The dependent 't' test was used and analysis of covariance(ANCOVA) was used to find out significant difference if any, between the groups on selected criterion variables separately. In all cases, 0.05 level of confidence was fixed to test the significance which was considered as appropriate.

4.4 COMPUTATION OF ANALYSIS OF COVARIANCE AND POST HOC TEST

4.4.1 HEALTH RELATED PHYSICAL FITNESS

4.4.1.1 RESULTS ON CARDIO RESPIRATORY ENDURANCE

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on cardio respiratory endurance in table -IX.

TABLE-IX

COMPUTATION OF ANALYSIS OF COVARIANCE ON CARDIO RESPIRATORY ENDURANCE- VO_2max

(Scores in ml/kg/min)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	30.18	30.40	30.49	30.86	B	5.94	3	1.98	1.05
					W	180.20	96	1.88	
Post Test	32.91	31.55	34.61	29.74	B	319.96	3	106.65	65.66*
					W	155.93	96	1.62	
Adjusted	33.03	31.59	34.61	29.59	B	337.146	3	112.38	82.77*
					W	128.987	95	1.36	
Mean Gain	2.730	1.1556	4.1228	1.124					

***Significant Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on cardio respiratory endurance were 30.18, 30.40. 30.49 and 30.86 respectively. The post test scores of experimental group I, experimental group II, experimental group III and control group on cardio respiratory endurance were 32.91, 31.55, 34.61 and 29.74 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on cardio respiratory endurance were 33.03, 31.59, 34.61 and 29.59 respectively.

The obtained F value on pre test score 1.05 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that

the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 65.66 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 82.77 was greater than the means due to the experimental training on cardio respiratory endurance.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-X.

TABLE –X
SCHEFFE'S POST HOC TEST ON CARDIO RESPIRATORY ENDURANCE- VO_2max
(Scores in ml/kg/min)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
33.03	31.59	-	-	1.44*	1.33
33.03	-	-	29.59	3.44*	
-	31.59	-	29.59	2.00*	
-		34.61	29.59	5.02*	
-	31.59	34.61	-	3.02*	
33.03	-	34.61	-	1.58*	

***Significant**

The multiple mean comparison showed in Table-X proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG)

and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 1.33.

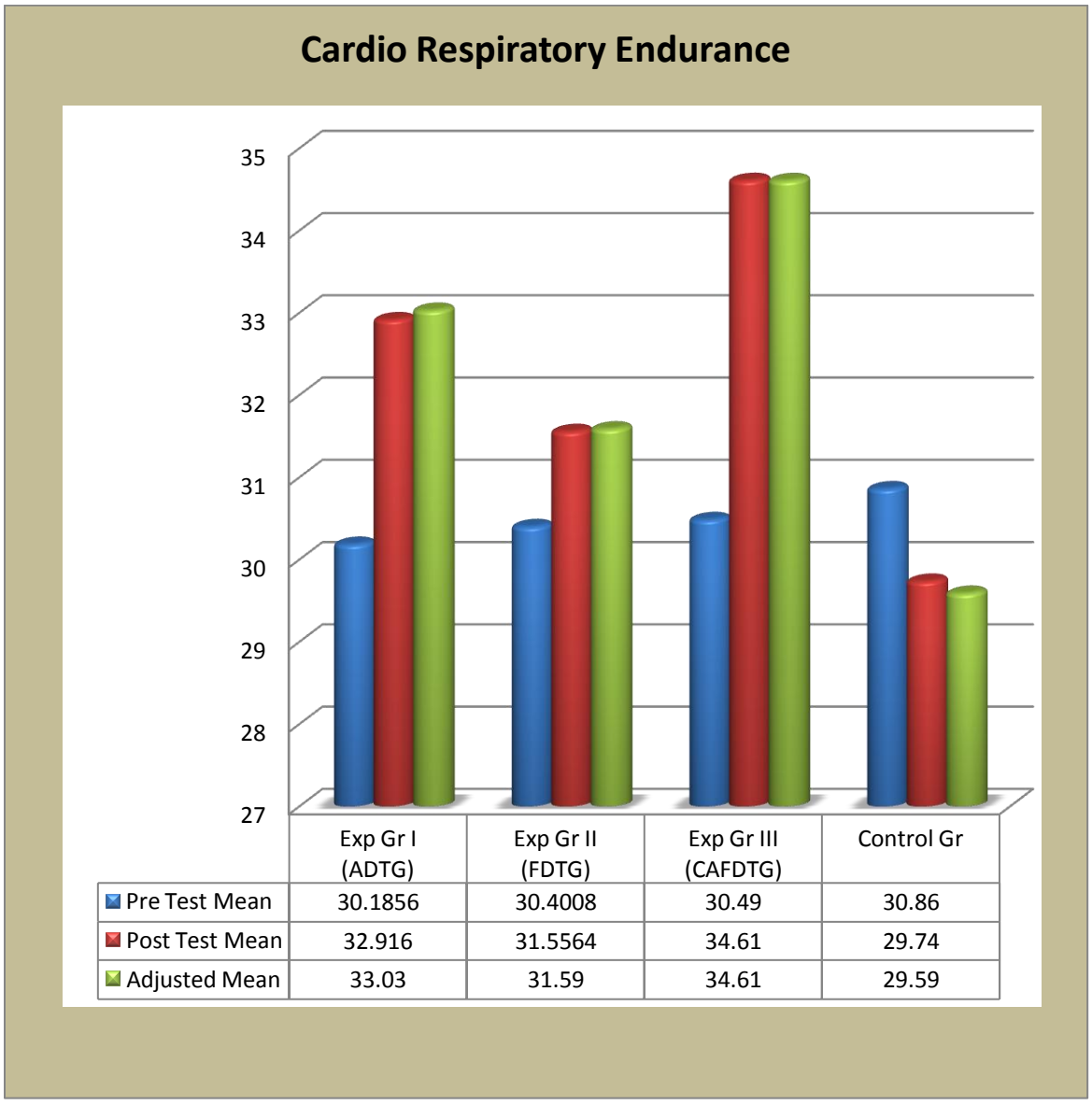
Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on cardio respiratory endurance then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on cardio respiratory endurance were presented through bar diagram for better understanding of the results of this study in Figure-13.

FIGURE - 13

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF CARDIO RESPIRATORY ENDURANCE- VO2max

(Scores in ml/kg/min)



	Exp Gr I (ADTG)	Exp Gr II (FDTG)	Exp Gr III (CAFDTG)	Control Gr
Pre Test Mean	30.1856	30.4008	30.49	30.86
Post Test Mean	32.916	31.5564	34.61	29.74
Adjusted Mean	33.03	31.59	34.61	29.59

4.4.1.1.2 DISCUSSION ON THE FINDINGS OF CARDIO RESPIRATORY ENDURANCE

The results presented in table IX showed that obtained adjusted means on cardio respiratory endurance among aerobic dance training group (ADTG) was 33.03, folk dance training group (FDTG) was 31.59, followed by combination of aerobic and folk dance training group (CAFDTG) was 34.61 and control group with mean value 29.59.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 1.05, 65.66 and 82.77 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the cardio respiratory endurance among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in improving cardio respiratory endurance. Combination of aerobic and folk dance training group was found better significant improvement than the isolated aerobic dance and folk dance training groups in cardio respiratory endurance among obese school boys.

The above result is in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among school girls. Vajda et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.1.2 RESULTS ON MUSCULAR STRENGTH

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on muscular strength in table XI.

TABLE -XI

COMPUTATION OF ANALYSIS OF COVARIANCE ON MUSCULAR STRENGTH

(Scores in Numbers)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	14.04	13.76	14.40	13.92	B	5.55	3	1.85	1.79
					W	99.36	96	1.04	
Post Test	17.64	16.28	19.16	15.24	B	216.64	3	72.21	44.23*
					W	156.72	96	1.63	
Adjusted	17.63	16.50	18.86	15.33	B	166.089	3	55.36	56.90*
					W	92.437	95	0.97	
Mean Gain	3.6	2.52	4.76	1.32					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70

***Significant**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on muscular strength were 14.04, 13.76, 14.40 and 13.92 respectively. The post test scores of experimental group I, experimental group II,

experimental group III and control group on muscular strength were 17.64, 16.28, 19.16 and 15.24 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on muscular strength were 17.63, 16.50, 18.86 and 15.33 respectively.

The obtained F value on pre test score 1.79 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 44.37 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 56.90 was greater than the means due to the experimental training on muscular strength.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-XII.

TABLE – XII
SCHEFFE'S POST HOC TEST ON MUSCULAR STRENGTH
(Scores in Numbers)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
17.63	16.50	-	-	1.13*	1.12
17.63	-	-	15.33	2.30*	
-	16.50	-	15.33	1.17*	
-		18.86	15.33	3.53*	
-	16.50	18.86	-	2.37*	
17.63	-	18.86	-	1.23*	

***Significant**

The multiple mean comparison showed in Table-XII proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG) and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 1.12.

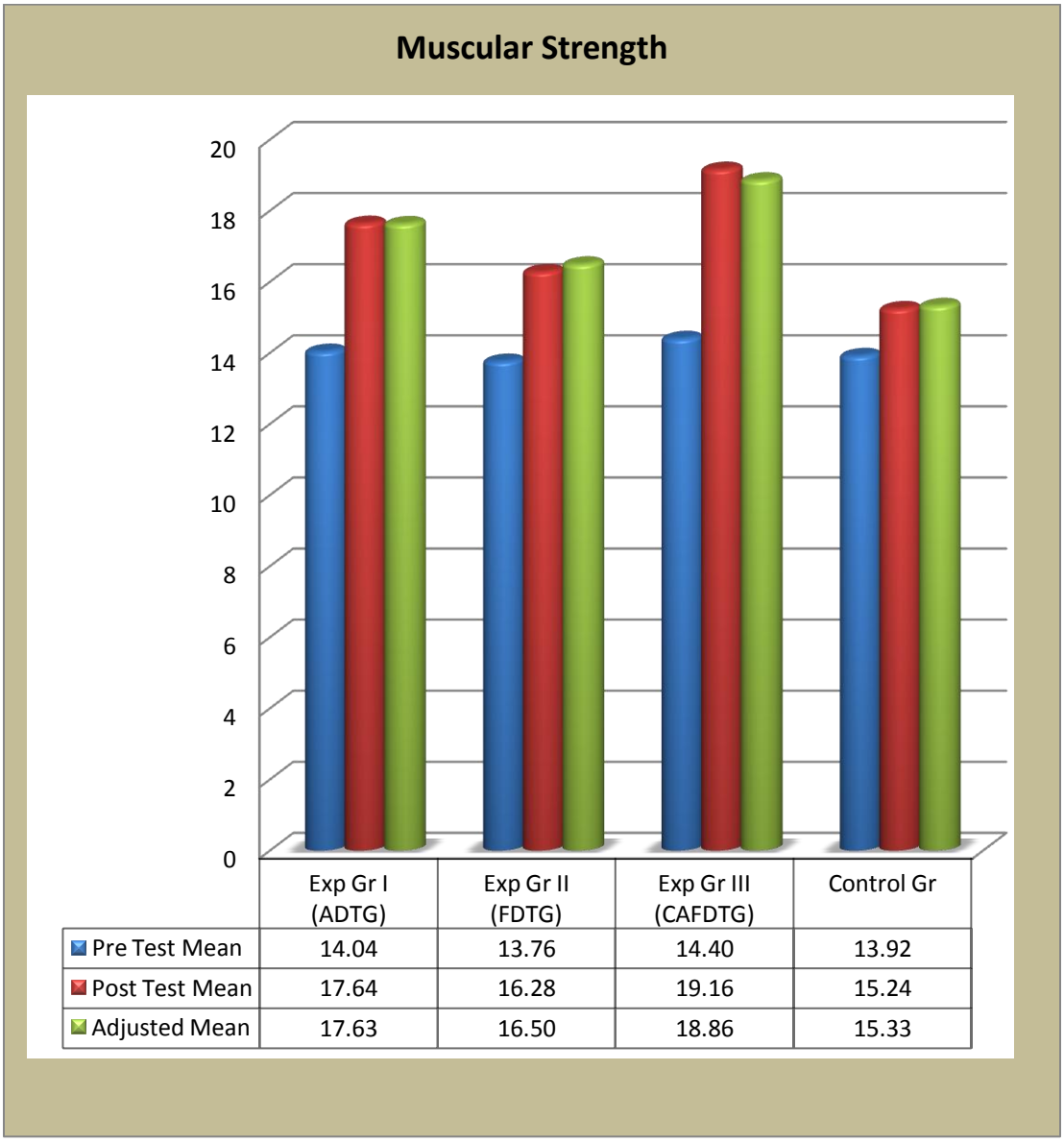
Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on muscular strength then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on muscular strength were presented through bar diagram for better understanding of the results of this study in Figure-14.

FIGURE - 14

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF MUSCULAR STRENGTH

(Scores in Numbers)



	Exp Gr I (ADTG)	Exp Gr II (FDTG)	Exp Gr III (CAFDTG)	Control Gr
Pre Test Mean	14.04	13.76	14.40	13.92
Post Test Mean	17.64	16.28	19.16	15.24
Adjusted Mean	17.63	16.50	18.86	15.33

4.4.1.2.1 DISCUSSION ON THE FINDINGS OF MUSCULAR STRENGTH

The results presented in table showed that obtained adjusted means on muscular strength among aerobic dance training group (ADTG) was 17.63, folk dance training group (FDTG) was 16.50, followed by combination of aerobic and folk dance training group (CAFDTG) was 18.86 and control group with mean value 15.33.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 1.79, 44.37 and 56.90 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the muscular strength among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in improving muscular strength. Combination of aerobic and folk dance training group was found better significant improvement than the aerobic dance and folk dance training groups in muscular strength among obese school boys.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.1.3 RESULTS ON MUSCULAR ENDURANCE

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on muscular endurance in table XIII.

TABLE -XIII

COMPUTATION OF ANALYSIS OF COVARIANCE ON MUSCULAR ENDURANCE

(Scores in Numbers)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	14.04	13.76	14.40	13.92	B	5.55	3	1.85	1.79
					W	99.36	96	1.04	
Post Test	17.64	16.28	19.16	15.24	B	216.64	3	72.21	44.23*
					W	156.72	96	1.63	
Adjusted	17.63	16.50	18.86	15.33	B	166.089	3	55.36	56.90*
					W	92.437	95	0.97	
Mean Gain	3.6	2.52	4.76	1.32					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70

***Significant**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on muscular strength were 14.04, 13.76, 14.40 and 13.92 respectively. The post test scores of experimental group I, experimental group II, experimental group III and control group on muscular endurance were 17.64, 16.28, 19.16 and 15.24 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on muscular endurance were 17.63, 16.50, 18.86 and 15.33 respectively.

The obtained F value on pre test score 1.79 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 44.37 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 56.90 was greater than the means due to the experimental training on muscular endurance.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-XII.

TABLE – XIV
SCHEFFE'S POST HOC TEST ON MUSCULAR ENDURANCE
(Scores in Numbers)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
17.63	16.50	-	-	1.13*	1.12
17.63	-	-	15.33	2.30*	
-	16.50	-	15.33	1.17*	
-		18.86	15.33	3.53*	
-	16.50	18.86	-	2.37*	
17.63	-	18.86	-	1.23*	

***Significant**

The multiple mean comparison showed in Table-XIV proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG) and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 1.12.

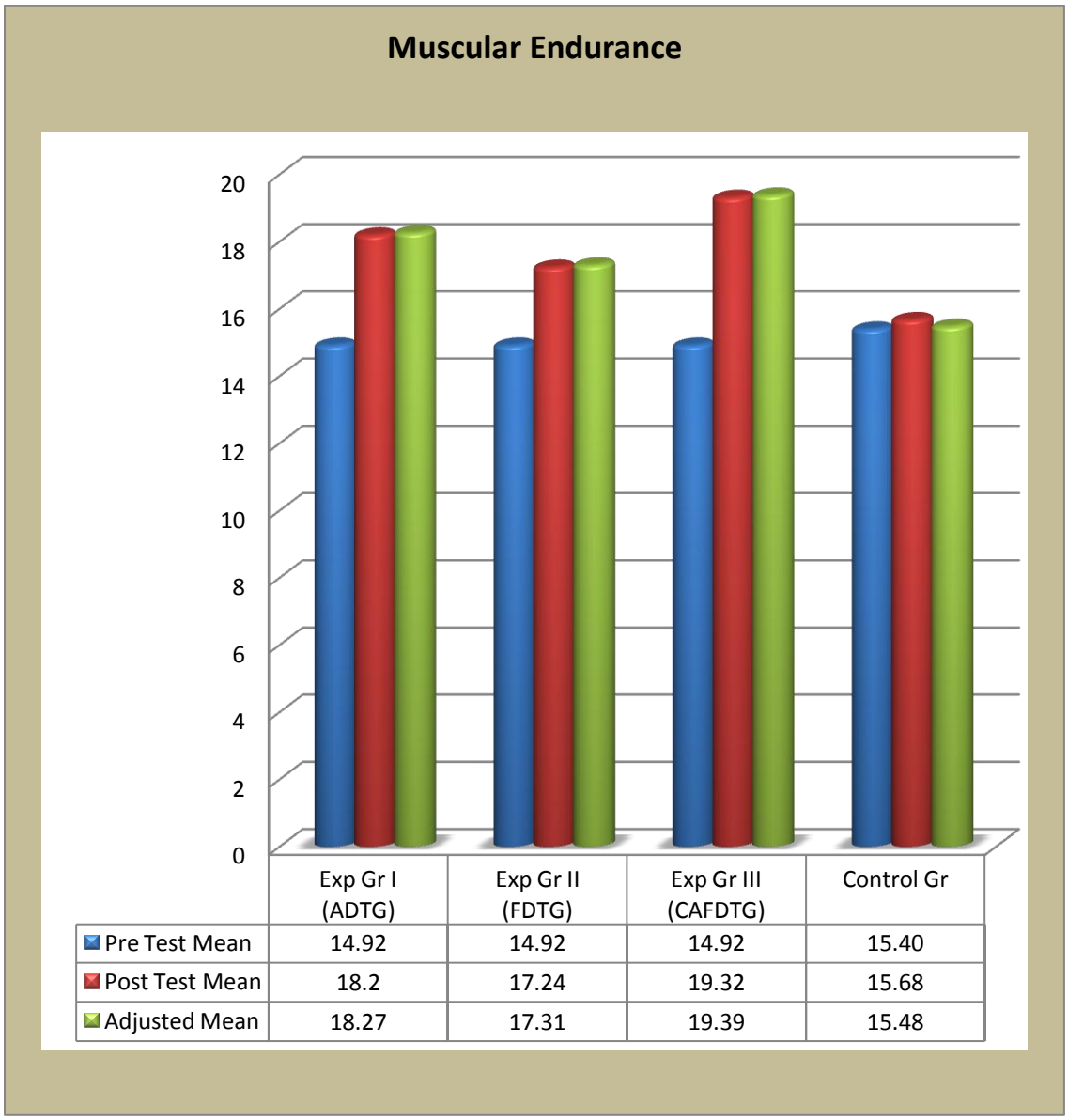
Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on muscular endurance then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on muscular endurance were presented through bar diagram for better understanding of the results of this study in Figure-15.

FIGURE - 15

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF MUSCULAR ENDURANCE

(Scores in Numbers)



4.4.1.3.1 DISCUSSION ON THE FINDINGS OF MUSCULAR ENDURANCE

The results presented in table showed that obtained adjusted means on muscular endurance among aerobic dance training group (ADTG) was 18.47, folk dance training group (FDTG) was 17.31, followed by combination of aerobic and folk dance training group (CAFDTG) was 19.67 and control group with mean value 15.48.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 0.94, 48.63 and 80.73 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the muscular endurance among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in improving muscular endurance. Combination of aerobic and folk dance training group was found better significant improvement than the aerobic dance and folk dance training groups in muscular endurance among obese school boys.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda

et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.1.4 RESULTS ON FLEXIBILITY

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on flexibility in table -XV.

TABLE -XV

COMPUTATION OF ANALYSIS OF COVARIANCE ON FLEXIBILITY
(Scores in Centimeter)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	21.04	20.40	20.96	20.88	B	6.20	3	2.07	1.04
					W	190.56	96	1.98	
Post Test	24.04	22.44	25.12	21.36	B	208.72	3	69.57	34.16*
					W	195.52	96	2.04	
Adjusted	23.87	22.76	25.01	21.31	B	186.545	3	62.18	67.85*
					W	87.066	95	0.92	
Mean Gain	3.000	2.040	4.160	0.480					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70
***Significant**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on flexibility were 21.04, 20.20, 20.96 and 20.88 respectively. The post test scores of experimental group I, experimental group II, experimental group III and control group on flexibility were 24.04, 22.44, 25.12 and 21.36 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on flexibility were 23.87, 22.76, 25.01 and 21.31 respectively.

The obtained F value on pre test score 1.04 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 34.16 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 67.85 was greater than the means due to the experimental training on flexibility.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-XVI.

TABLE – XVI
SCHEFFE'S POST HOC TEST ON FLEXIBILITY
(Scores in Centimeter)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
23.87	**22.76**	**-**	**-**	**1.12***	
18.47	**-**	**-**	**15.48**	**2.99***	
-	**17.31**	**-**	**15.48**	**1.83***	**1.09**
-	**-**	**19.67**	**15.48**	**4.19***	
-	**17.31**	**19.67**	**-**	**2.36***	
18.47	**-**	**19.67**	**-**	**1.20***	

***Significant**

The multiple mean comparison showed in Table-XVI proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG) and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 1.12.

Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on flexibility then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on flexibility were presented through bar diagram for better understanding of the results of this study in Figure-16.

FIGURE - 16

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF FLEXIBILITY

(Scores in Centimeter)

	Exp Gr I (ADTG)	Exp Gr II (FDTG)	Exp Gr III (CAFDTG)	Control Gr
Pre Test Mean	21.04	20.40	20.96	20.88
Post Test Mean	24.04	22.44	25.12	21.36
Adjusted Mean	23.87	22.76	25.01	21.31

4.4.1.4.1 DISCUSSION ON THE FINDINGS OF FLEXIBILITY

The results presented in table-XV showed that obtained adjusted means on flexibility among aerobic dance training group (ADTG) was 33.03, folk dance training group (FDTG) was 31.59 followed by combination of aerobic and folk dance training group (CAFDTG) was 34.61 and control group with mean value 29.59.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 1.05, 65.66 and 82.77 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the flexibility among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in improving flexibility. Combination of aerobic and folk dance training group was found better significant improvement than the aerobic dance and folk dance training groups in flexibility among obese school boys.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda

et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.1.5 RESULTS ON BODY COMPOSITION -PERCENT BODY FAT

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on body composition-percent body fat in table -XVII.

TABLE -XVII

COMPUTATION OF ANALYSIS OF COVARIANCE ON BODY COMPOSITION -PERCENT BODY FAT
(Scores in Percentage)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	30.74	30.65	30.70	30.79	B	0.27	3	0.09	1.41
					W	6.23	96	0.06	
Post Test	29.80	30.07	29.48	30.84	B	25.09	3	8.36	113.27*
					W	7.09	96	0.07	
Adjusted	29.79	30.09	29.49	30.81	B	23.548	3	7.85	121.90*
					W	6.118	95	0.06	
Mean Gain	0.940	0.585	1.216	-0.044					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70

***Significant**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on body composition-percent body fat were 30.74, 30.65, 30.70 and 30.79 respectively. The post test scores of experimental group I, experimental group II, experimental group III and control group on body composition-percent body fat were 29.80, 30.07, 29.48 and 30.84 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on flexibility were 29.79, 30.09, 29.49 and 30.81 respectively.

The obtained F value on pre test score 1.41 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 113.27 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 121.90 was greater than the means due to the experimental training on body composition-percent body fat.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-XVIII.

TABLE – XVIII
SCHEFFE'S POST HOC TEST ON BODY COMPOSITION-PERCENT BODY FAT
(Scores in Percentage)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
29.79	**30.09**	**-**	**-**	**0.30***	**0.29**
29.79	**-**	**-**	**30.81**	**1.01***	
-	**30.09**	**-**	**30.81**	**0.71***	
-	**-**	**29.49**	**30.81**	**1.32***	
-	**30.09**	**29.49**	**-**	**0.60***	
29.79	**-**	**29.49**	**-**	**0.31***	

***Significant**

The multiple mean comparison showed in Table-XVIII proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG) and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 0.29.

Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on body composition-percent body fat then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on body composition-percent body fat were presented through bar diagram for better understanding of the results of this study in Figure-17.

FIGURE - 17

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF BODY COMPOSITION- PERCENT BODY FAT

(Scores in Percentage)

	Exp Gr I (ADTG)	Exp Gr II (FDTG)	Exp Gr III (CAFDTG)	Control Gr
Pre Test Mean	30.74	30.65	30.70	30.79
Post Test Mean	29.80	29.90	29.81	30.94
Adjusted Mean	29.79	29.94	29.83	30.90

4.4.1.5.1 DISCUSSION ON THE FINDINGS OF BODY COMPOSITION-PERCENT BODY FAT

The results presented in table-XVII showed that obtained adjusted means on body composition-percent body fat among aerobic dance training group (ADTG) was 79.79, folk dance training group (FDTG) was 30.09 followed by combination of aerobic and folk dance training group (CAFDTG) was 29.49 and control group with mean value 30.81.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 1.41, 113.27 and 121.90 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the body composition-percent body fat among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in body composition-percent body fat. Combination of aerobic and folk dance training group was found better significant improvement than the aerobic dance and folk dance training groups in body composition-percent body fat among obese school boys.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.2 PHYSIOLOGICAL VARIABLES

4.4.2.1 RESULTS ON PULSE RATE

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on pulse rate in table -XIX.

TABLE -XIX

COMPUTATION OF ANALYSIS OF COVARIANCE ON PULSE RATE

(Scores in Beats per Minute)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	74.8	74.8	74.84	74.08	B	10.11	3	3.37	0.87
					W	373.20	96	3.89	
Post Test	71.84	72.92	70.64	73.92	B	149.31	3	49.77	14.80*
					W	322.80	96	3.36	
Adjusted	71.70	72.78	70.47	74.36	B	200.622	3	66.87	77.09*
					W	82.414	95	0.87	
Mean Gain	2.96	1.88	4.2	0.16					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70

***Significant**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on pulse rate were 74.8, 74.8, 74.84 and 74.08 respectively.

The post test scores of experimental group I, experimental group II, experimental group III and control group on pulse rate were 71.84, 72.92, 70.64 and 73.92 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on flexibility were 71.70, 72.78, 70.47 and 74.36 respectively.

The obtained F value on pre test score 0.87 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 14.80 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 77.09 was greater than the means due to the experimental training on pulse rate.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-XX.

TABLE – XX
SCHEFFE'S POST HOC TEST ON PULSE RATE
(Scores in Beats per Minute)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
71.70	**72.78**	**-**	**-**	**1.08***	
71.70	**-**	**-**	**74.36**	**2.66***	
-	**72.78**	**-**	**74.36**	**1.58***	**1.06**
-	**-**	**70.47**	**74.36**	**3.89***	
-	**72.78**	**70.47**	**-**	**2.31***	
71.70	**-**	**70.47**	**-**	**1.23***	

***Significant**

The multiple mean comparison showed in Table-XX proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG) and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 1.06.

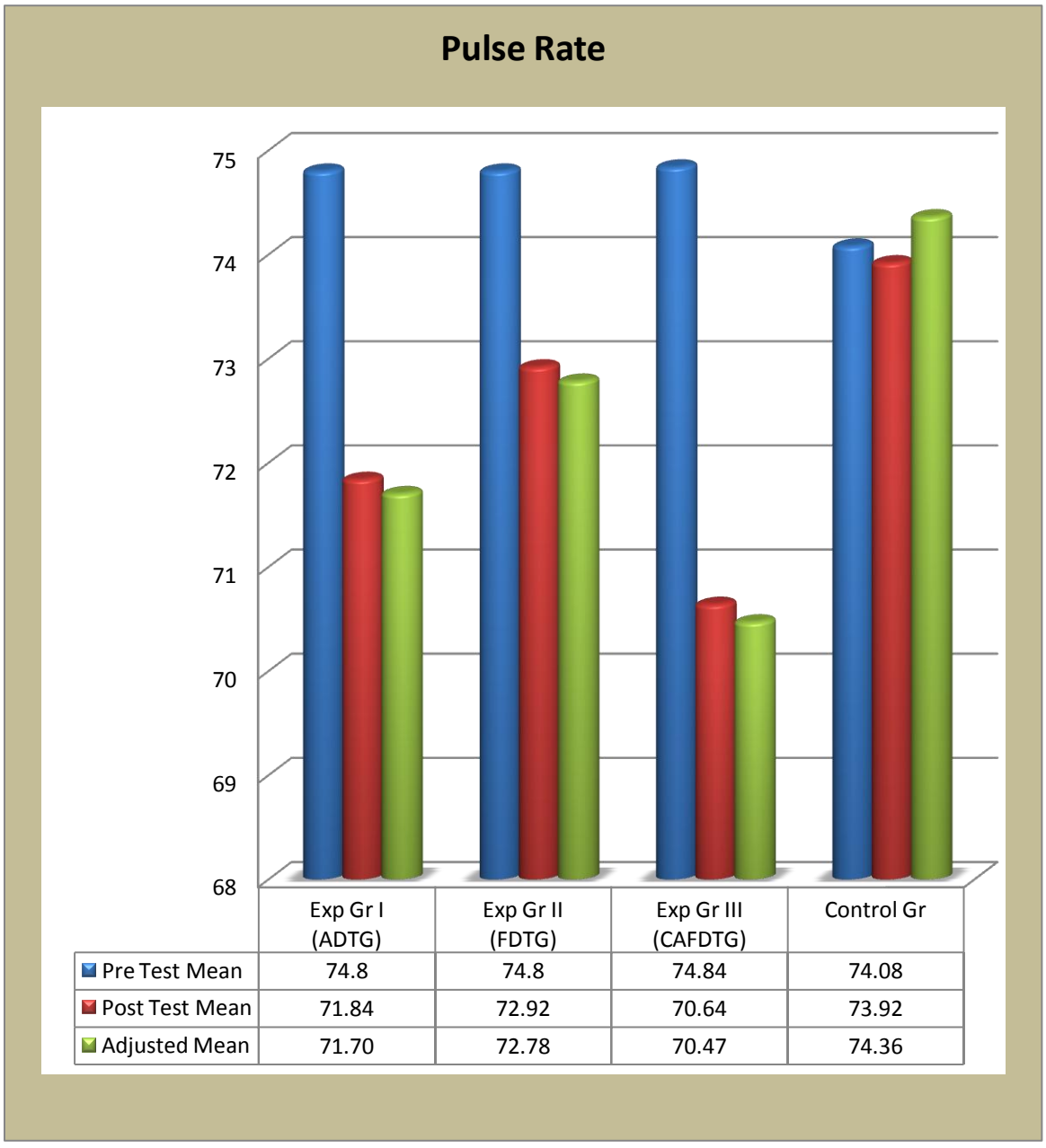
Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on pulse rate then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on pulse rate were presented through bar diagram for better understanding of the results of this study in Figure-18.

FIGURE - 18

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF PULSE RATE

(Scores in Beats per Minute)



	Exp Gr I (ADTG)	Exp Gr II (FDTG)	Exp Gr III (CAFDTG)	Control Gr
Pre Test Mean	74.8	74.8	74.84	74.08
Post Test Mean	71.84	72.92	70.64	73.92
Adjusted Mean	71.70	72.78	70.47	74.36

4.4.2.1.1 DISCUSSION ON THE FINDINGS OF PULSE RATE

The results presented in table-XIX showed that obtained adjusted means on pulse rate among aerobic dance training group (ADTG) was 71.70, folk dance training group (FDTG) was 72.78 followed by combination of aerobic and folk dance training group (CAFDTG) was 70.47 and control group with mean value 74.36.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 0.87, 14.80 and 77.09 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the pulse rate among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in pulse rate. Combination of aerobic and folk dance training group was found better significant improvement than the aerobic dance and folk dance training groups in pulse rate among obese school boys.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda

et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.2.2 RESULTS ON MEAN ARTERIAL BLOOD PRESSURE

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on mean arterial blood pressure in table -XXI.

TABLE -XXI

COMPUTATION OF ANALYSIS OF COVARIANCE ON MEAN ARTERIAL BLOOD PRESSURE

(Scores in mm/Hg)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	82.72	82.52	82.84	82.80	B	1.52	3	0.51	0.32
					W	150.64	96	1.57	
Post Test	82.12	82.44	82.92	82.60	B	8.32	3	2.77	1.34
					W	198.64	96	2.07	
Adjusted	82.12	82.62	82.81	82.53	B	6.392	3	2.13	2.54
					W	79.797	95	0.84	
Mean Gain	0.6	0.08	0.08	0.2					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70

***Significant**

The pre-test scores of experimental group I, experimental group II, experimental group III and control group on mean arterial blood pressure were 82.72, 82.52, 82.84 and 82.80 respectively. The post test scores of experimental group I, experimental group II, experimental group III and control group on mean arterial blood pressure were 82.12, 82.44, 82.92 and 82.60 respectively.

The ordered adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on speed were 8.08, 8.04, 7.98 and 8.20 respectively.

The mean gain in the experimental group I, experimental group II, experimental group III and control group were 0.6, 0.08, 0.08 and 0.2 respectively. The obtained F value on pre test scores 0.32 was less than the required F value of 2.70 to be significant at 0.05 level. This proved that there were no significant deference between the three experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental and control groups, as they obtained F value 1.34 was less than the required F value of 2.70. This proved that the differences between the post-test means of the subjects were not significant.

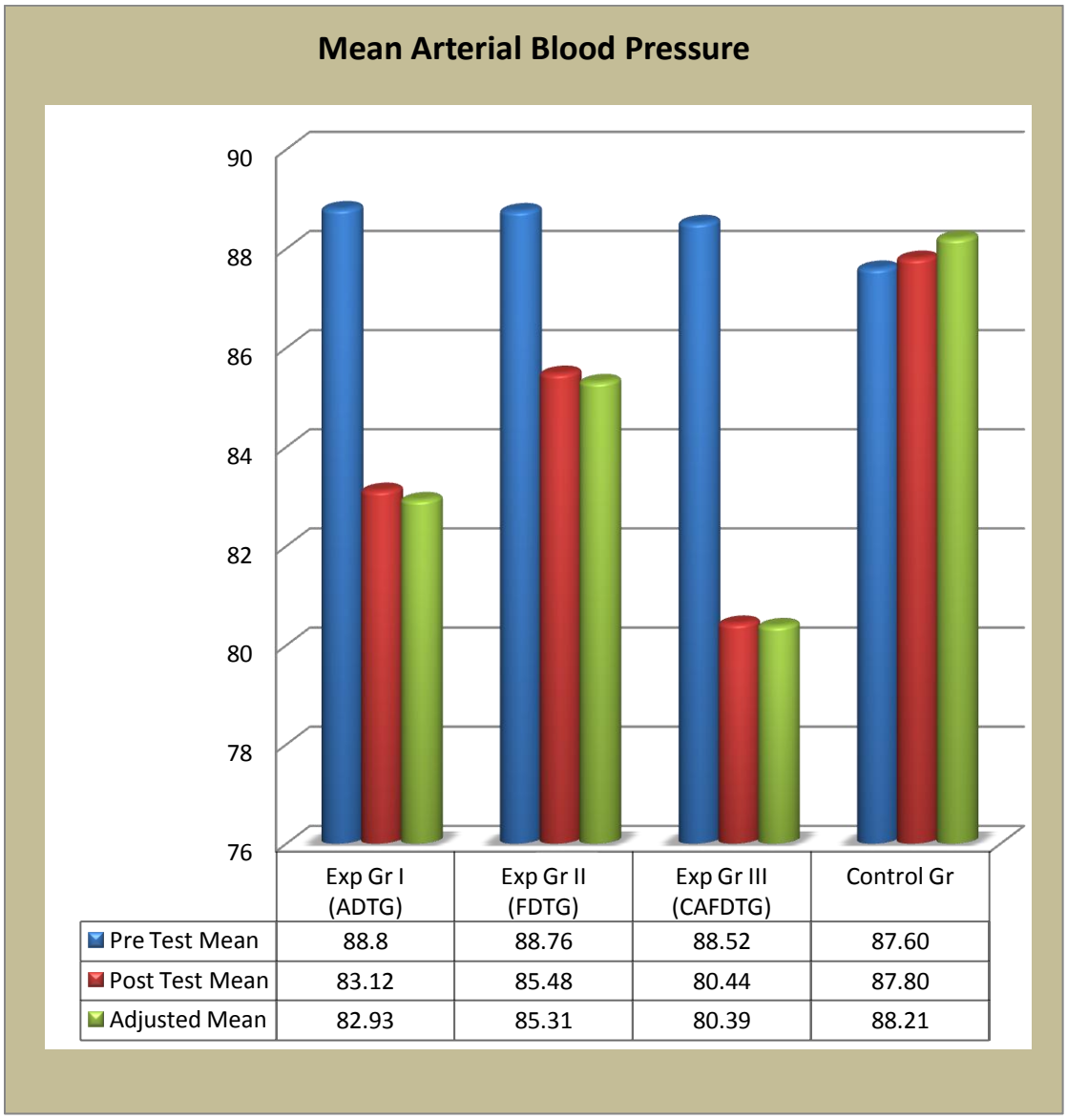
Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and subjected to statistical treatment. The obtained F value of 2.54 was less than the required F value 2.70. This proved that there was no significant difference among the means due to the experimental training on mean arterial blood pressure.

. The adjusted means on mean arterial blood pressure were presented through bar diagram for better understanding of the results of this study in Figure - 19

FIGURE -19

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF MEAN ARTERIAL BLOOD PRESSURE

(Scores in mm/Hg)



	Exp Gr I (ADTG)	Exp Gr II (FDTG)	Exp Gr III (CAFDTG)	Control Gr
Pre Test Mean	88.8	88.76	88.52	87.60
Post Test Mean	83.12	85.48	80.44	87.80
Adjusted Mean	82.93	85.31	80.39	88.21

4.4.2.2.1 DISCUSSION ON THE FINDINGS OF MEAN ARTERIAL BLOOD PRESSURE

The results presented in table-XXI showed that obtained adjusted means on mean arterial blood pressure among aerobic dance training group (ADTG) was 82.12, folk dance training group (FDTG) was 82.62 followed by combination of aerobic and folk dance training group (CAFDTG) was 82.81 and control group with mean value 82.53.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 0.32, 1.34 and 2.54 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

It was found that obtained F value on pre, post-test and adjusted means scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.2.3 RESULTS ON RESPIRATORY RATE

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on respiratory rate in table -XXII.

TABLE -XXII

COMPUTATION OF ANALYSIS OF COVARIANCE ON RESPIRATORY RATE
(Scores in Beats per Minute)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	22.00	21.72	21.76	22.12	B	19.00	3	0.92	0.94
					W	94.24	96	0.98	
Post Test	19.56	20.60	18.32	21.88	B	171.95	3	57.32	53.82*
					W	102.24	96	1.06	
Adjusted	19.53	20.66	18.36	21.81	B	163.073	3	54.36	55.52*
					W	93.018	95	0.98	
Mean Gain	2.440	1.120	3.440	0.240					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70

***Significant**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on respiratory rate were 22.00, 21.17, 21.76 and 22.12 respectively. The post test scores of experimental group I, experimental group II, experimental group III and control group on respiratory rate were 19.56, 20.60, 18.32 and 21.88 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on respiratory rate were 19.53, 20.66, 18.36 and 21.81 respectively.

The obtained F value on pre test score 0.94 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 53.82 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 55.52 was greater than the means due to the experimental training on respiratory rate.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-XXIII.

TABLE – XXIII
SCHEFFE'S POST HOC TEST ON RESPIRATORY RATE
(Scores in Beats per Minute)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
19.53	**20.66**	**-**	**-**	**1.13***	**1.13**
19.53	**-**	**-**	**21.81**	**2.28***	
-	**20.66**	**-**	**21.81**	**1.15***	
-	**-**	**18.36**	**21.81**	**3.45***	
-	**20.66**	**18.36**	**-**	**2.29***	
19.53	**-**	**18.36**	**-**	**1.16***	

***Significant**

The multiple mean comparison showed in Table-XXIII proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG) and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 1.13.

Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on respiratory rate then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on respiratory rate were presented through bar diagram for better understanding of the results of this study in Figure-20.

FIGURE - 20

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF RESPIRATORY RATE

(Scores in Beats per Minute)

	Exp Gr I (ADTG)	Exp Gr II (FDTG)	Exp Gr III (CAFDTG)	Control Gr
Pre Test Mean	22.00	21.72	21.76	22.12
Post Test Mean	19.56	20.60	18.32	21.84
Adjusted Mean	19.53	20.66	18.36	21.81

4.4.2.3.1 DISCUSSION ON THE FINDINGS OF RESPIRATORY RATE

The results presented in table-XXII showed that obtained adjusted means on respiratory rate among aerobic dance training group (ADTG) was 19.53, folk dance training group (FDTG) was 20.66 followed by combination of aerobic and folk dance training group (CAFDTG) was 18.33 and control group with mean value 21.76.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 0.94, 53.65 and 56.26 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the respiratory rate among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in improving respiratory rate. Combination of aerobic and folk dance training group was found better significant improvement than the aerobic dance and folk dance training groups in respiratory rate among obese school boys.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda

et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.2.4 RESULTS ON BREATH HOLDING TIME

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on breath holding time in table -XXIV.

TABLE -XXIV

COMPUTATION OF ANALYSIS OF COVARIANCE ON BREATH HOLDING TIME

(Scores in Seconds)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	31.88	31.32	31.68	31.28	B	6.28	3	2.09	1.13
					W	178.56	96	1.86	
Post Test	35.44	33.72	36.68	31.00	B	453.95	3	151.32	71.69*
					W	202.64	96	2.11	
Adjusted	35.21	33.87	36.59	31.17	B	391.454	3	130.48	101.61*
					W	121.995	95	1.28	
Mean Gain	3.56	2.4	5	0.28					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70

***Significant**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on breath holding time were 31.88, 31.32, 31.68 and 31.28 respectively. The post test scores of experimental group I, experimental group II, experimental group III and control group on breath holding time were 35.44, 33.72, 36.68 and 31.00 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on breath holding time were 35.21, 33.87, 36.59 and 31.17 respectively.

The obtained F value on pre test score 1.13 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 71.69 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 101.61 was greater than the means due to the experimental training on breath holding time.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-XXV.

TABLE – XXV
SCHEFFE'S POST HOC TEST ON BREATH HOLDING TIME
(Scores in Seconds)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
35.21	**33.87**	**-**	**-**	**1.34***	**1.29**
35.21	**-**	**-**	**31.17**	**4.04***	
-	**33.87**	**-**	**31.17**	**2.69***	
-	**-**	**36.59**	**31.17**	**5.41***	
-	**33.87**	**36.59**	**-**	**2.72***	
35.21	**-**	**36.59**	**-**	**1.37***	

***Significant**

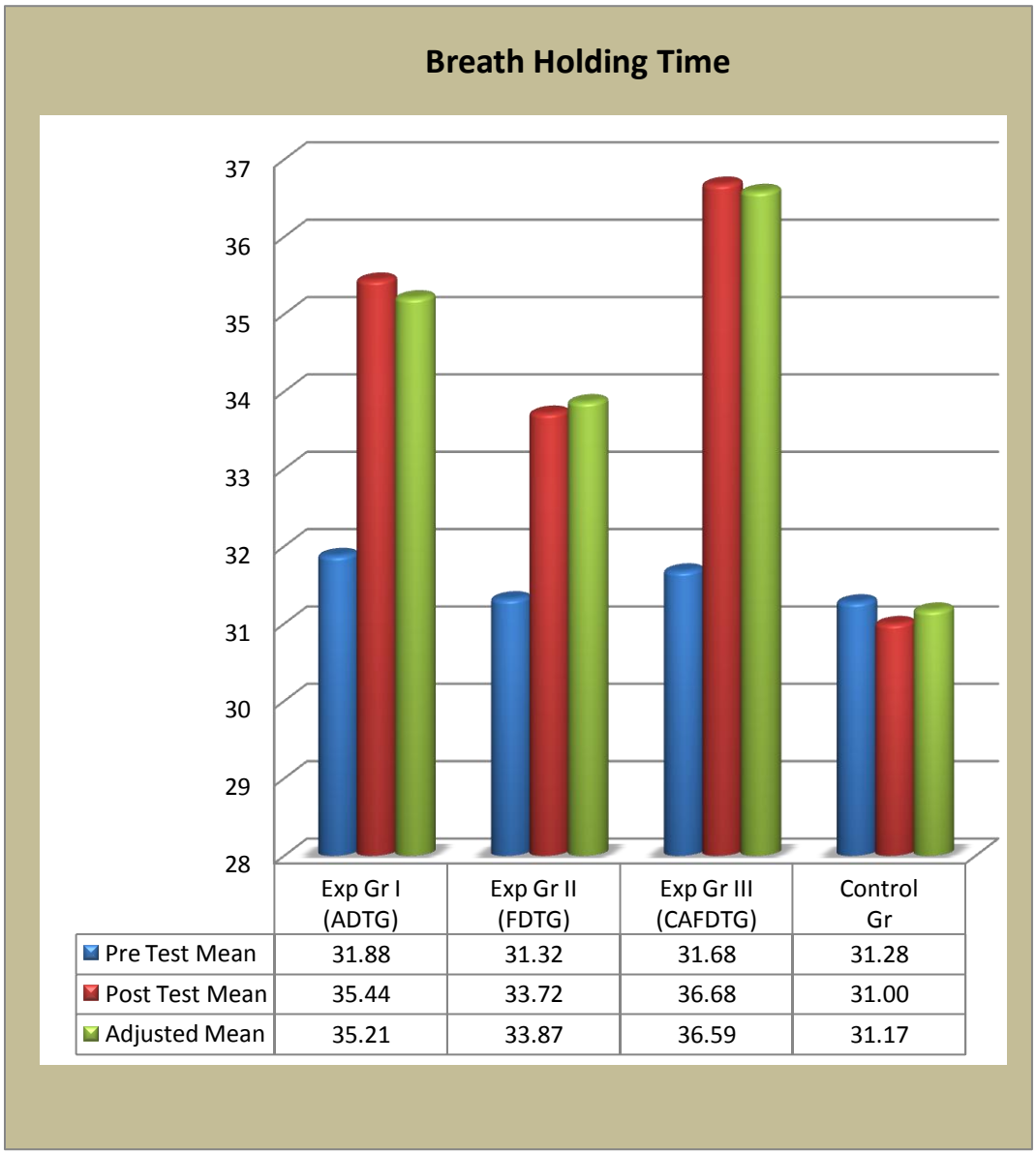
The multiple mean comparison showed in Table-XXV proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG) and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 1.29.

Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on respiratory rate then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on breath holding time were presented through bar diagram for better understanding of the results of this study in Figure-21.

FIGURE - 21

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF BREATH HOLDING TIME
(Scores in Seconds)



	Exp Gr I (ADTG)	Exp Gr II (FDTG)	Exp Gr III (CAFDTG)	Control Gr
Pre Test Mean	31.88	31.32	31.68	31.28
Post Test Mean	35.44	33.72	36.68	31.00
Adjusted Mean	35.21	33.87	36.59	31.17

4.4.2.4.1 DISCUSSION ON THE FINDINGS OF BREATH HOLDING TIME

The results presented in table-XXIV showed that obtained adjusted means on breath holding time among aerobic dance training group (ADTG) was 35.21, folk dance training group (FDTG) was 33.87 followed by combination of aerobic and folk dance training group (CAFDTG) was 36.59 and control group with mean value 31.17.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 1.13, 71.69 and 101.61 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the breath holding time among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in improving breath holding time. Combination of aerobic and folk dance training group was found better significant improvement than the aerobic dance and folk dance training groups in breath holding time among obese school boys.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda

et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.4.2.5 RESULTS ON VITAL CAPACITY

The statistical analysis comparing the initial and final means of experimental group I, experimental group II, experimental group III and control group on vital capacity in table -XXVI.

TABLE -XXVI

COMPUTATION OF ANALYSIS OF COVARIANCE ON VITAL CAPACITY

(Scores in Milliliters)

Test	Mean				SV	Sum of Squares	df	Mean Squares	Obtained F
	Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group					
Pre Test	2346	2316.80	2318	2318.00	B	15147.00	3	5049.00	1.12
					W	431144.00	96	4491.08	
Post Test	2398	2346.40	2394	2325.20	B	96419.00	3	32139.67	6.80*
					W	454000.00	96	4729.17	
Adjusted	2377.04	2354.17	2400.59	2331.79	B	65566.781	3	21855.59	56.59*
					W	36687.256	95	386.18	
Mean Gain	52.000	29.600	76.000	7.200					

Table F-ratio at 0.05 level of confidence for 4 and 96 (df) = 2.70, and 95 (df) = 2.70

***Significant**

The pre test scores of experimental group I, experimental group II, experimental group III and control group on vital capacity were 2346, 2316.80, 2318 and 2318 respectively. The post test scores of experimental group I, experimental group II, experimental group III and control group on vital capacity were 2398, 2346.40, 2394 and 2325.20 respectively.

The order adjusted mean scores of experimental group I, experimental group II, experimental group III and control group on breath holding time were 2377.04, 2354.17, 2400.59 and 2331.79 respectively.

The obtained F value on pre test score 1.12 was lesser than the required table F value of 2.70 to be significant at 0.05 level. This result proved that there was no significant difference between the three experimental and control groups indication that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post test scores analysis proved that were significant differences between the three experimental groups and control group, the obtained F value 6.80 was greater than the required F value of 2.70. This proved that the differences between the post test means of the subjects were significant.

Taking into consideration the pre and post test scores among the groups, adjusted mean scores were calculated and statistical treatment. The obtained F value of 56.59 was greater than the means due to the experimental training on vital capacity.

Since significant differences were recorded, the results were subjected to post hoc analysis using Scheffe's post hoc test. The results were presented in Table-XXVII.

TABLE – XXVII
SCHEFFE'S POST HOC TEST ON VITAL CAPACITY
(Scores in Milliliters)

Experimental Group- I (ADTG)	Experimental Group - II (FDTG)	Experimental Group - III (CAFDTG)	Control Group	MD	CI
2377.04	2354.17	-	-	22.87*	22.37
2377.04	-	-	2331.79	45.25*	
-	2354.17	-	2331.79	22.38*	
-	-	2400.59	2331.79	68.80*	
-	2354.17	2400.59	-	46.42*	
2377.04	-	2400.59	-	23.55*	

***Significant**

The multiple mean comparison showed in Table-XXVII proved that there was significant differences exists between the adjusted means of aerobic dance training group (ADTG) and folk dance training group (FDTG), aerobic dance training group (ADTG) and control group, folk dance training group (FDTG) and control group, combination of aerobic and folk dance training group (CAFDTG) and control group, folk dance training group (FDTG) and combination of aerobic and folk dance training group (CAFDTG), aerobic dance training group (ADTG) and combination of aerobic and folk dance training group (CAFDTG) the mean difference were greater than the required confidence interval 22.37.

Comparing means of the four groups, experimental group-III (combination of aerobic and folk dance training group) was found better significant improvement on respiratory rate then the experimental group-I aerobic dance training group, experimental group-II folk dance training group and control group.

The adjusted means on vital capacity were presented through bar diagram for better understanding of the results of this study in Figure-22.

FIGURE - 22

BAR DIAGRAM ON PRE, POST AND ORDERED ADJUSTED MEANS OF VITAL CAPACITY
(Scores in Milliliters)

	1	2	3	4
Pre Test Mean	2322.00	2346.00	2316.80	2318.00
Post Test Mean	2368.00	2378.40	2377.20	2327.20
Adjusted Mean	2371.69	2358.18	2386.07	2334.87

4.4.2.5.1 DISCUSSION ON THE FINDINGS OF VITAL CAPACITY

The results presented in table-XXVI showed that obtained adjusted means on breath holding time among aerobic dance training group (ADTG) was 2377.04, folk dance training group (FDTG) was 2354.17 followed by combination of aerobic and folk dance training group (CAFDTG) was 2400.59 and control group with mean value 2331.79.

The difference among pre test, post test scores and adjusted means scores of the subjects were statistically treated using ANCOVA and F value were 1.12, 6.80 and 56.59 respectively. It was found that obtained F value on pre test scores were not significant at 0.05 level of confidence as these were lesser than the required table F value of 2.70 and the obtained F Values on post-test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 2.70.

The post hoc analysis through Scheffe's confidence test proved that due to twelve weeks training of aerobic dance, folk dance and combination of aerobic and folk dance training group significantly improved better than the control group, clearly indicating the positive influences of aerobic dance, folk dance and combination of aerobic and folk dance training group in improving the vital capacity among obese school boys.

Further, the post hoc analysis shows that there was significant difference between the experimental groups in improving vital capacity. Combination of aerobic and folk dance training group was found better significant improvement than the aerobic dance and folk dance training groups in vital capacity among obese school boys.

The above result in line with Vijaya. (2009) found that aerobic dancing group has significantly improved the cardio respiratory endurance among among school girls. Vajda

et al. (2007) found that physical activity brought about such development in the cardio-respiratory functions of the obese subjects.

4.5 DISCUSSION ON HYPOTHESES

The investigator formulated three hypotheses to further progress his study and to make it more fruitful. A hypothesis is a conjectural statement which is stated for the purpose of testing its validity, which might result in its acceptance or rejection.

The suggested hypotheses were expended and developed through deductive reasoning. The investigator had deducted the consequences of the formulated hypothesis involving the problem as related to the available relevant facts. In this study, hypotheses tested through valid observation and experimentation leading to their acceptance or rejection.

The following hypotheses were formulated in solving the problem by reasonable and worthy investigation.

1. . It was hypothesized that there would be a significant improvement on selected health related physical fitness variables namely cardio respiratory endurance, muscular strength, muscular endurance, flexibility and body composition due to the aerobic dance and folk dance and its combination of dance training among obese school boys.
2. It was hypothesized that there would be a significant improvement on selected physiological variables namely pulse rate, mean arterial blood pressure, breath

holding time, respiratory rate and vital capacity due to the effect of aerobic and folk dance and its combination of dance training among obese school boys.

3. It was hypothesized that the combination of aerobic and folk dance training group would have better significant improvement on the selected health related physical fitness and physiological variables than the isolated aerobic and folk dance training among obese school boys.

To test the hypotheses, which were formulated, the data were collected and observation were made. The difference between the means for the collected data were tested with suitable statistical applications.

It was found that there was a significant improvement on selected health related physical fitness variable such as cardio respiratory endurance, muscular strength, muscular endurance, flexibility and body composition due to the aerobic dance and folk dance and its combination of dance training among obese school boys. Hence the first research hypothesis was accepted and null hypothesis was rejected.

It was found that there was a no significant improvement on selected physiological variable such as mean arterial blood pressure due to the aerobic dance and folk dance and its combination of dance training among obese school boys. Hence the second research hypothesis was rejected and null hypothesis was accepted.

It was found that there was a significant improvement on selected physiological variables such as pulse rate, breath holding time, respiratory rate and vital capacity due to the aerobic dance and folk dance and its combination of dance training among obese

school boys. Hence the second research hypothesis was accepted and null hypothesis was rejected for the above said variable except mean arterial blood pressure.

It was found that there was a better significant improvement on selected health related physical fitness variable such as cardio respiratory endurance, muscular strength, muscular endurance, flexibility and body composition. The physiological variables such as pulse rate, breath holding time, respiratory rate and vital capacity combination of dance training group among obese school boys. Hence the third research hypothesis was accepted and null hypothesis was rejected for the above said variable except mean arterial blood pressure.

TABLE-XXVIII

SHOWING THE RESULTS OF THE STUDY

S. NO	VARIABLES	RESEARCH HYPOTHESIS	NULL HYPOTHESIS
Health Related Physical Fitness Variables			
1.	Cardio Respiratory Endurance - VO2 Max	Accepted	Rejected
2.	Muscular Strength	Accepted	Rejected
3.	Muscular Endurance	Accepted	Rejected
4.	Flexibility	Accepted	Rejected
5.	Body Composition - (Percent Body Fat)	Accepted	Rejected
Physiological Variables			
6.	Pulse Rate	Accepted	Rejected
7.	Mean Arterial Blood Pressure	Rejected	Accepted
8.	Breath Holding Time	Accepted	Rejected
9.	Respiratory Rate	Accepted	Rejected
10.	Vital Capacity	Accepted	Rejected