CHAPTER - IV

RESULTS AND DISCUSSIONS

CHAPTER - IV

ANALYSIS OF DATA AND RESULTS OF THE STUDY

4.1. OVER VIEW

This chapter deals with the analysis of data collected from the samples under study. The four groups namely Experimental group I (Yoga group) Experimental group II (Physical Training) Experimental group III (Combined) and group IV (Control group) were analyzed with the difference in the measures of physiological variables such as Resting pulse rat, Breath Holding Time, psychological Variables such as Anxiety, Achievement motivation and Anthropometric variables in relation to pre-test, post -test and adjusted post test scores were presented in this chapter.

The subjects were selected at random, but the groups were not equated in relation to the factors to be examined. Hence the difference between the means of four groups in the pre- test had to be taken into account during the analysis of the study. This was achieved by the application of the analysis of covariance, where the final means were adjusted for difference in the initial means, and the adjusted means were tested for significance. When the adjusted post- test means were significant, the Scheffe's post – hoc test was administrated to find out the paired means significant difference.

4.2. TEST OF SIGNIFICANCE

This is the crucial portion of the thesis in arriving at the conclusion by examining the hypothesis. The procedure of testing the hypothesis in accordance with the results obtained in relation to the level of confidence, which was fixed at 0.01 levels, considered necessary for this study.

These tests are usually called the test of significance, since we test whether the difference between the pre- test and post test scores of the samples are significant or not in the present study. When the obtained F-ratio was greater than the table F-ratio at 0.01 level confidences, the hypothesis was accepted to the effect that there existed significant difference between the means of groups compared. And when they obtained F-ratio was less than the table F- ratio at 0.01 level then the hypothesis was rejected to the effect that there existed significant difference between the means of the groups under study.

4.3. LEVEL OF SIGNIFICANCE

The probability level below which, we reject the hypothesis is termed as the level of significance. The F-ratio obtained by analysis of variance and analysis of co-variance needed was 3.98 for significant at 0.01 level. In addition to that, the significant difference between the paired adjusted means were tested by computing the confidence interval value, utilizing Scheffe's post hoc test, in which the obtained mean difference value needed to be greater than the Scheffe's confidence internal value for significance.

4.4 COMPUTATION OF ANALYSIS OF COVARIANCE AND POST HOC TEST

The following tables illustrate the statistical results of the Quantification of Anthropometric, Physiological and Psychological responses to yogic practices, physical exercises and combination of both among college men students in Andrapradesh.

TABLE –II

COMPUTATION OF ANALYSIS OF COVARIANCE ON RESTING PULSE RATE OF PRETEST, POST TEST AND ADJUSTED POST- TEST OF FOUR GROUPS

(Scores in Beats / Minute)

Test	ExI Yoga	Ex II Phy.Ex.	Ex III Comb.	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	OF-Value	TF
Pre test Mean	72.41	72.36	67.39	72.27	Between With in	23.00 247.11	3 116	7.67 2.13	3.60	3.98
Post Test Mean	69.95	69.35	66.34	71.76	Between With in	477.39 449.68	3 116	159.13 3.89	40.91	3.98*
Adjusted Post test	68.62	69.35	67.80	71.65	Between With in	361.12 340.71	3 115	120.37 2.96	40.66	3.98*
Mean gain	2.46	3.06	1.05	0.51						

4.5. RESULTS OF RESTING PULSE RATE

Table II Shows the analysed data on Resting pulse rate

The pre test means Resting pulse rate were 72.41 for Yogic practices group, 72.36 for Physical exercises group, 67.39for combined (Yogic practices and Physical exercises) group and 72.27for Control group. As the obtained F-ratio 3.60 was lesser than the table F-ratio 3.98, the pre test was not significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 69.95 for Yogic practices group, 69.35 for Physical exercise group, 66.34 for combined (Yogic practices and Physical exercises) group and 71.76 for control group. As the obtained F-ratio 40.91 was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3and 116.

The adjusted post – test means were 68.62 for Yogic practices group 69.35 for Physical exercise group 67.80 for combined (Yogic practices and Physical exercises) group and 71.65for control group. As the obtained F-ratio 40.66 was greater than the table F-ratio 3.98, the post –test was significant at 0.01 level of confidence for the degrees of freedom 3 and 115.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group were 2.46.3.06,1.05 and 0.51 respectively.

TABLE –II (A)

MEAN DIFFERENCE OF RESTING PULSE RATE OF SCHEFFE'S POST HOCK TEST

(Scores in Beats/ Minutes)

Control Group(D)	Ex II Phy.Ex.(B)	ExI Yoga(A)	Ex III Comb.(C)	MD	OF	TF
71.65	69.35			2.30	5.75	3.98
71.65		68.62		3.03	7.24	3.98
71.65			67.80	3.85	9.10	3.98
	69.35	68.62		0.73	3.50	3.98
	69.35		67.80	1.55	4.99	3.98
		68.62	67.80	0.82	3.99	3.98

The Table II (A) shows the Scheffe's post –hoc Test results. The ordered adjusted final mean difference for Resting pulse Rate of experimental groups I, II, III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratios between experimental groups A and B, was 3.50, and it was seen to be lesser than the Table F ratio 3.98. Hence the above comparison was not significant.

However the obtained F ratio between the D and B, D and A, D and C, B and C and A and C, experimental groups, were 5.75, 7.25, 9.10, 4.99 and 3.99 respectively and it was seen to be greater than the Table F ratio 3.98. Hence the above comparisons were significant.

The mean values of Resting pulse rate are shown graphically in fig 1

Figure – I

COMPUTATION OF ANALYSIS ON COVARIANCE ON RESTING PULSE RATE OF PRETEST, POST TEST AND ADJUSTED POST- TEST OF FOUR GROUPS

(Scores in Beats / Minute)

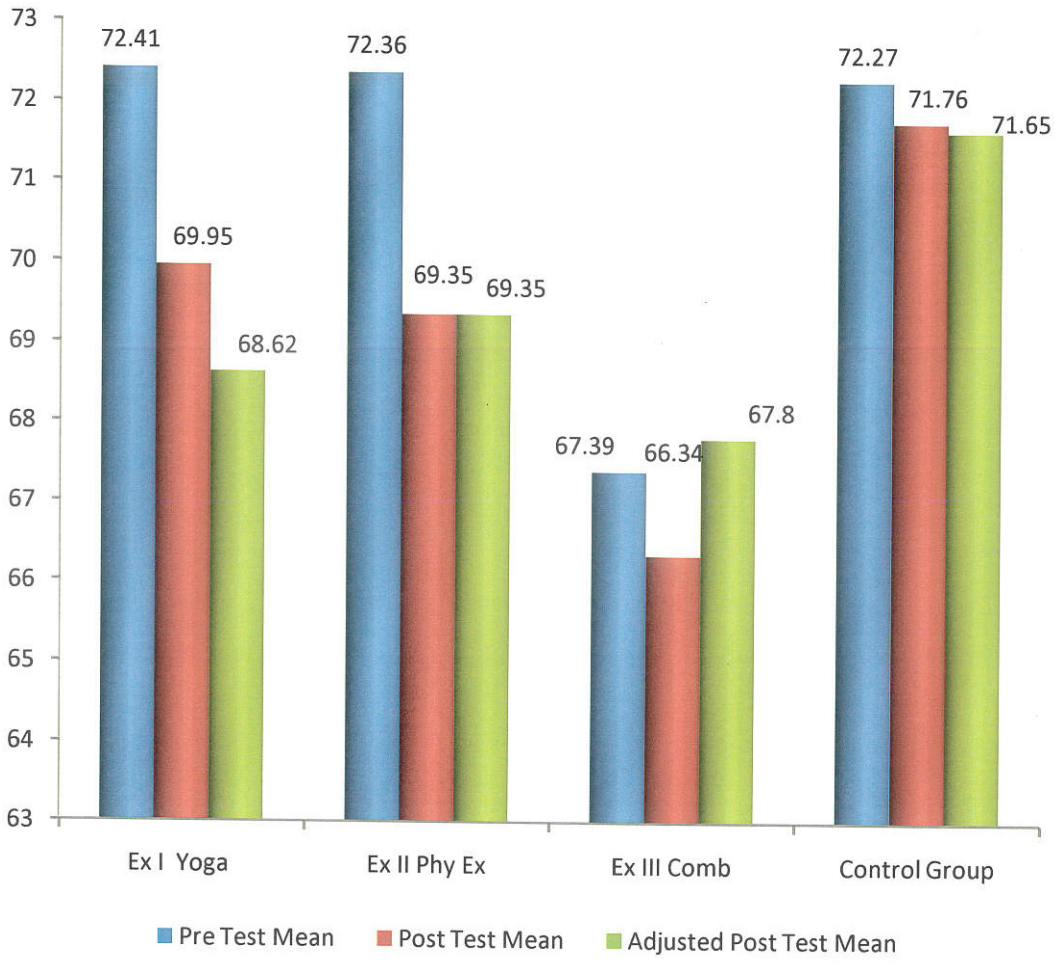


TABLE –III

COMPUTATION OF ANALYSIS OF COVARIANCE ON PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON BREATH HOLDING TIME OF FOUR GROUPS

(Scores in seconds)

Test	ExI Yoga	Ex II Phy.Ex	Ex III Comb.	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	F- Value	TF
Pre test Mean	17.44	18.22	16.60	18.50	Between With in	120.16 175.33	3 116	40.05 1.51	26.52	3.98*
Post Test Mean	17.23	18.26	16.33	18.87	Between With in	245.26 155.17	3 116	81.75 1.34	61.01	3.98*
Adjusted Post test	17.14	18.20	16.07	18.71	Between With in	290.78 145.45	3 115	98.66 1.99	49.58	3.98*
Mean gain	0.21	0.04	0.27	0.37						

4.6. RESULT OF BREATH HOLDING TIME

Table III Shows the analyzed data on Breath Holding Time

The pre test means of breath holding time were 17.44 for Yogic practices group, 18.22 for Physical exercises group, 16.60 for combined (Yogic practices and Physical exercises) group and 18.50 for Control group. As the obtained F-ratio 26.52 was lesser than the table F-ratio 3.98, the pre test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 17.23 for Yogic practices group, 18.26 for Physical exercise group, 16.33 for combined (Yogic practices and Physical exercises) group and 18.87 for control group. As the obtained F-ratio 61.01 was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The adjusted post – test means were 17.14 for Yogic practices group, 18.20 for Physical exercise group, 16.07 for combined (Yogic practices and Physical exercises) group and 18.71 for control group. As the obtained F-ratio 49.58 was greater than the table F-ratio 3.98 the post - test was significant at 0.01 level of confidence for the degrees of freedom 3and 115.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group, 021,0.04,0.27,, and 0.37 respectively.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

TABLE –III (A)

MEAN DIFFERENCE OF BREATH HOLDING TIME OF

SCHEFFE'S POST HOC TEST

(Scores in Seconds)

Control Group(D)	Ex II Phy.Ex.(B)	Ex I Yoga(A)	Ex III Comb.(C)	MD	OF	TF
18.71	18.20			0.53	21.01	3.98
18.71		17.14		2.64	65.12	3.98
18.71			16.07	2.64	65.17	3.98
	18.20	17.14		1.06	32.58	3.98
	18.20		16.07	2.13	55.06	3.98
		17.14	16.07	1.07	35.21	3.98

The Table III (A) shows the Scheffe's post –hoc test results. The ordered adjusted final mean difference for Breath Holding Time of experimental groups I,II,III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratio between the D-B and D-A and D-C and B-A and B-C and A-C experimental groups, were 21.01,65.12,65.17,32.58,55.06, and 35.21 it was seen to be greater than the Table F ratio 3.98. Hence the above comparisons were significant.

The mean values of Breath Holding time are shown graphically in fig 2.

Figure – II

COMPUTATION OF ANALYSIS OF COVARIANCE ON PRE- TEST, POST TEST AND ADJUSTED POST- TEST BREATH HOLDING TIME OF FOUR GROUPS

(Scores in seconds)

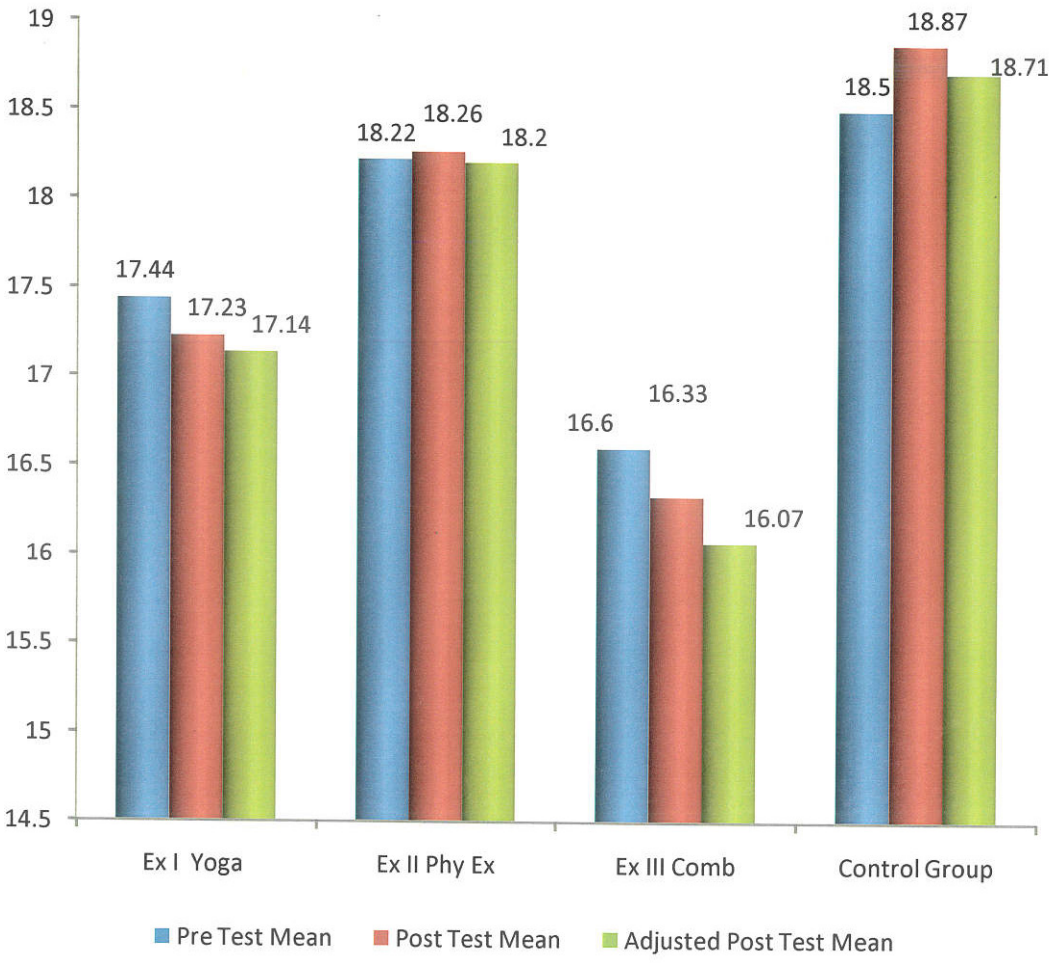


TABLE –IV

COMPUTATION OF ANALYSIS OF COVARIANCE ON PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON ANXIETY OF FOUR GROUPS

(Scores in Points)

Test	ExI	Ex II	Ex III	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	OF-Value	TF Value
Pre test Mean	84.00	80.93	84.93	82.00	Between With in	22.14 299.98	3 116	7.38 2.59	2.85	3.98
Post Test Mean	87.53	87.90	96.30	82.56	Between With in	69.60 185.82	3 116	23.20 1.60	14.50	3.98*
Adjusted Post test	86.57	85.81	96.47	82.30	Between With in	73.90 179.33	3 115	24.63 1.56	15.79	3.98*
Mean gain	3.53	6.97	11.37	0.56						

4.7. RESULTS OF ANXIETY

Table IV Shows the analyzed data on Anxiety

The pre test means of anxiety were 84.00 for Yogic practices group, 80.93 for Physical exercise group 84.93 for combined (Yogic practices and Physical exercises) group and 82.00 for Control group. As the obtained F-ratio 2.85 was lesser than the table F-ratio 3.98 the pre test was not significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 87.53 for Yogic practices group, 87.90 for Physical exercised group, 96.30 for combined (Yogic practices and Physical exercises) group and 82.56 for control group. As the obtained F-ratio 14.50was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The adjusted post – test means were 86.57 for Yogic practices group,85.81 for Physical exercised group,96.47 for combined (Yogic practices and Physical exercises) group and 82.30 for control group. As the obtained F-ratio 15.79 was greater than the table F-ratio 3.98 the post –test was significant at 0.01 level of confidence for the degrees of freedom 3 and 115.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group were 3.53,6.97,11.37 and 0.56 respectively.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

TABLE –IV (A)

MEAN DIFFERENCE OF ANXIETY OF SCHEFFE'S POST HOC TEST

(Scores in points)

Ex III Comb.(C)	Ex I Yoga(A)	Ex II Phy.Ex.(B)	Control Group(D	MD	OF	TF
96.47	86.57			9.90	12.78	3.98
96.47		85.81		10.66	15.01	3.98
96.47			82.30	14.17	18.20	3.98
	86.57	85.81		0.76	2.70	3.98
	86.57		82.30	4.27	8.79	3.98
		85.81	82.30	3.51	7.10	3.98

The Table IV (A) shows the Scheffe's post –hoc test results. The ordered adjusted final mean difference for Anxiety of experimental groups I,II,III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratios between experimental groups A and B, was 2.70 and it was seen to be lesser than the Table F ratio, 3.98. Hence the above comparison was not significant.

However the obtained F ratio between the C-A, C-B, C-D, A- D, B-D experimental groups, were 12.78,15.01,18.20,8.79 and 7.10. and it was seen to be greater than the Table F ratio 3.98. Hence the above comparisons were significant.

The mean values of Anxiety are shown graphically in fig 3.

Figure – III

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ANXIETY OF FOUR GROUPS

(Scores in Points)

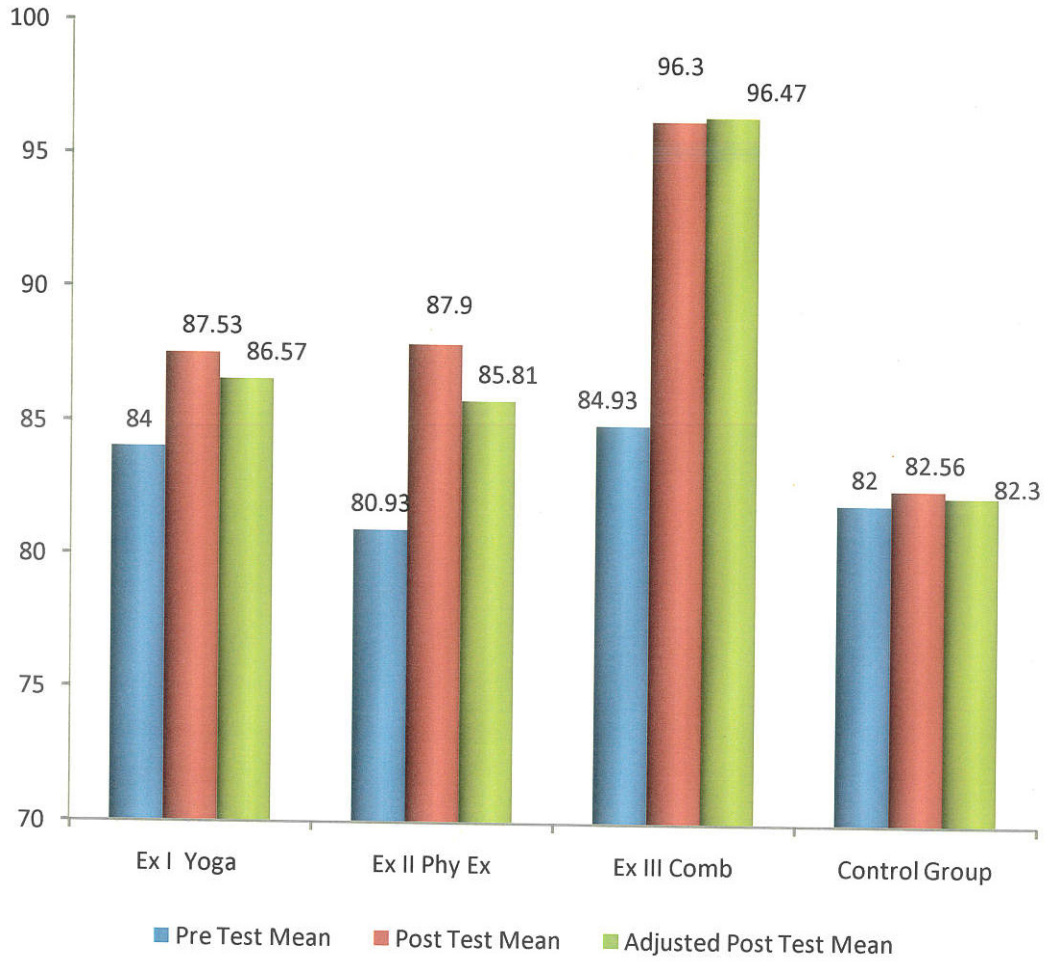


TABLE –V

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON ACHIEVEMENT MOTIVATION OF FOUR GROUPS

(Scores in Points)

Test	ExI	Ex II	Ex III	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	OF-Value	TF Value
Pre test Mean	83.04	84.03	83.93	80.74	Between With in	85.20 1595.72	3 116	28.40 13.76	2.06	3.98
Post Test Mean	85.60	87.90	89.20	81.00	Between With in	110.45 692.93	3 116	38.82 5.97	6.50	3.98*
Adjusted Post test	87.86	84.57	90.02	80.40	Between With in	104.79 662.20	3 115	34.93 5.76	6.06	3.98*
Mean gain	2.58	3.87	5.27	0.26						

4.8. RESULTS OF ACHIEVEMENT MOTIVATION

Table V Shows the analyzed data on Achievement Motivation

The pre test means of Achievement Motivation were 83.04 for Yogic practices group, 84.03 for Physical exercise group 83.93 for combined (Yogic practices and Physical exercises) group and 80.74 for Control group. As the obtained F-ratio 2.06 was lesser than the table F-ratio 3.98 the pre test was not significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 85.60 for Yogic practices group, 87.90 for Physical exercised group, 89.20 for combined (Yogic practices and Physical exercises) group and 81.00 for control group. As the obtained F-ratio 6.50 was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The adjusted post – test means were 87.86 for Yogic practices group,84.57 for Physical exercised group,90.02 for combined (Yogic practices and Physical exercises) group and 80.40 for control group. As the obtained F-ratio 6.06 was greater than the table F-ratio 3.98 the post –test was significant at 0.01 level of confidence for the degrees of freedom 3 and 115.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group were 2.58, 3.87, 5.27, and 0.26 respectively.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

TABLE –V (A)

MEAN DIFFERENCE OF ACHIEVEMENT MOTIVATION OF SCHEFFE'S POST HOC TEST

(Scores in points)

Ex III Comb.(C)	Ex I Yoga(A)	Ex II Phy.Ex.(B)	Control Group(D)	MD	OF	TF
90.47	87.86			2.61	2.24	3.98
90.47		84.57		5.90	8.25	3.98
90.47			80.40	10.07	15.54	3.98
	87.86	84.57		3.29	5.10	3.98
	87.86		80.40	7.46	11.12	3.98
		84.57	80.40	4.17	6.25	3.98

The Table V (A) shows the Scheffe's post –hoc test results. The ordered adjusted final mean difference for Achievement Motivation of experimental groups I,II,III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratios between experimental groups C and A, was 2.24 and it was seen to be lesser than the Table F ratio, 3.98. Hence the above comparison was not significant.

However the obtained F ratio between the C- B, C-D, A-B, A-D, B-D experimental groups, were 8.25,15.54,5.10,11.12and 6.25, and it was seen to be greater than the Table F ratio 3.98. Hence the above comparisons were significant.

The mean values of Achievement Motivation are shown graphically in fig 4.

Figure – IV

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON ACHIEVEMENT MOTIVATION OF FOUR GROUPS

(Scores in Points)

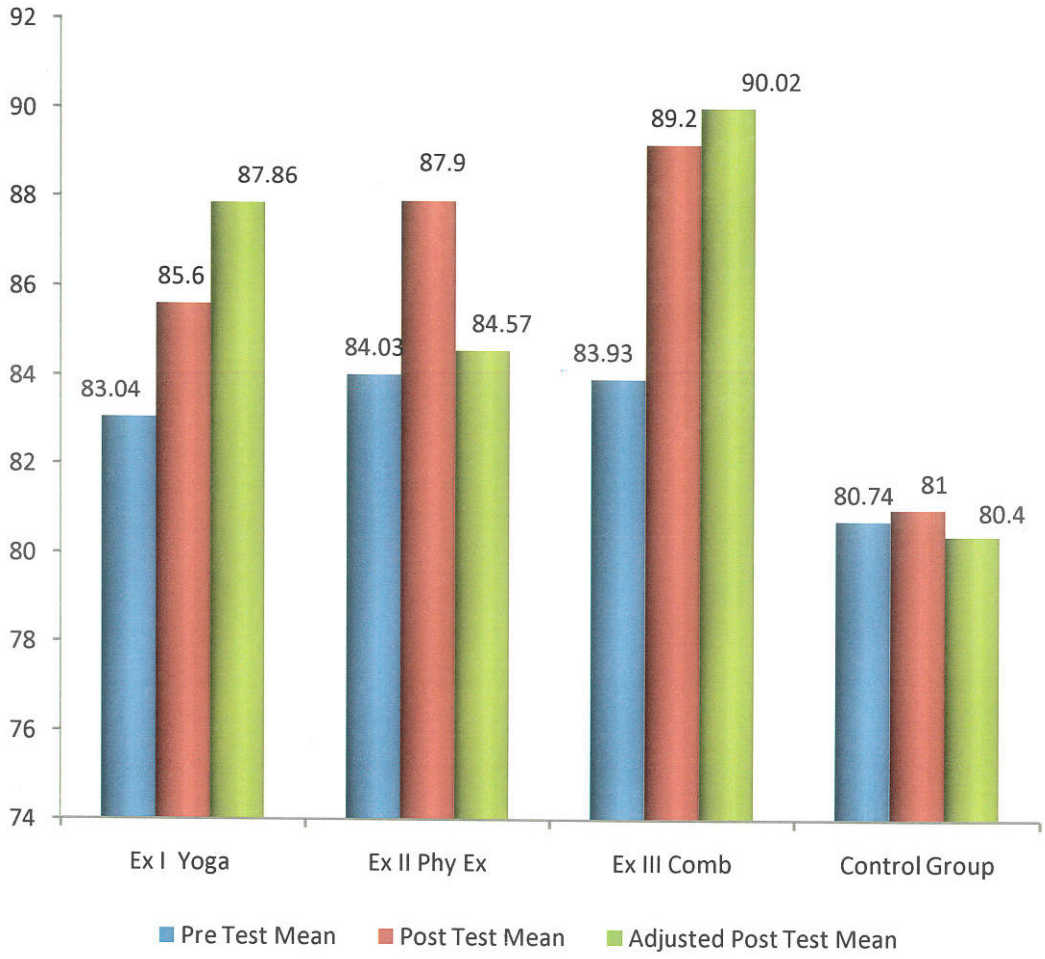


TABLE –VI

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON BODY WEIGHT OF FOUR GROUPS

(Scores in kilograms)

Test	ExI	Ex II	Ex III	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	OF-Value	TF Value
Pre test Mean	64.00	63.93	64.93	64.10	Between With in	56.14 820.73	3 116	18.71 7.08	2.64	3.98
Post Test Mean	67.53	66.90	67.30	64.43	Between With in	104.40 789.69	3 116	34.8 6.81	5.11	3.98
Adjusted Post test	66.95	66.86	67.47	64.53	Between With in	123.78 759.43	3 115	41.26 6.60	6.25	3.98
Mean gain	3.53	2.97	2.37	0.33						

4.9. RESULTS OF BODY WEIGHT

Table VI Shows the analyzed data on body weight.

The pre test means of body weight were 64.00 for Yogic practices group, 63.93 for Physical exercise group 64.93, for combined (Yogic practices and Physical exercises) group and 64.10 for Control group. As the obtained F-ratio 2.64 was lesser than the table F-ratio 3.98 the pre test was not significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 67.53 for Yogic practices group, 66.90 for Physical exercised group, 67.30 for combined (Yogic practices and Physical exercises) group and 64.43 for control group. As the obtained F-ratio 5.11 was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The adjusted post – test means were 66.95 for Yogic practices group,66.86 for Physical exercised group,67.47 for combined (Yogic practices and Physical exercises) group and 64.53 for control group. As the obtained F-ratio 6.25 was greater than the table F-ratio 3.98 the post –test was significant at 0.01 level of confidence for the degrees of freedom 3 and 115.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group were 3.53, 2.97, 2.37and 0.33 respectively.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

TABLE –VII (A)

MEAN DIFFERENCE OF BODY WEIGHT OF SCHEFFE'S POST HOC TEST

(Scores in points)

Ex III Comb.(C))	Ex I Yoga(A	Ex II Phy.Ex.(B)	Control Group(D)	MD	OF	TF
67.47	66.95			0.52	6.15	3.98
67.47		66.86		0.61	7.12	3.98
67.47			64.53	2.94	15.35	3.98
	66.95	66.86		0.09	1.71	3.98
	66.95		64.53	2.42	14.90	3.98
		66.86	64.53	2.33	13.00	3.98

The Table VI (A) shows the Scheffe's post –hoc test results. The ordered adjusted final mean difference for body weight of experimental groups I,II,III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratios between experimental groups A and B, was 1.74 and it was seen to be lesser than the Table F ratio, 3.98. Hence the above comparison was not significant.

However the obtained F ratio between the C-A, C-B, C-D, A-D, B-D experimental groups, were 6.15,7.12,15.35,14.90 and 13.00 and it was seen to be greater than the Table F ratio 3.98. Hence the above comparisons were significant.

The mean values of body weight are shown graphically in fig 5.

Figure – V

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON BODY WEIGHT OF FOUR GROUPS

(Scores in kilograms)

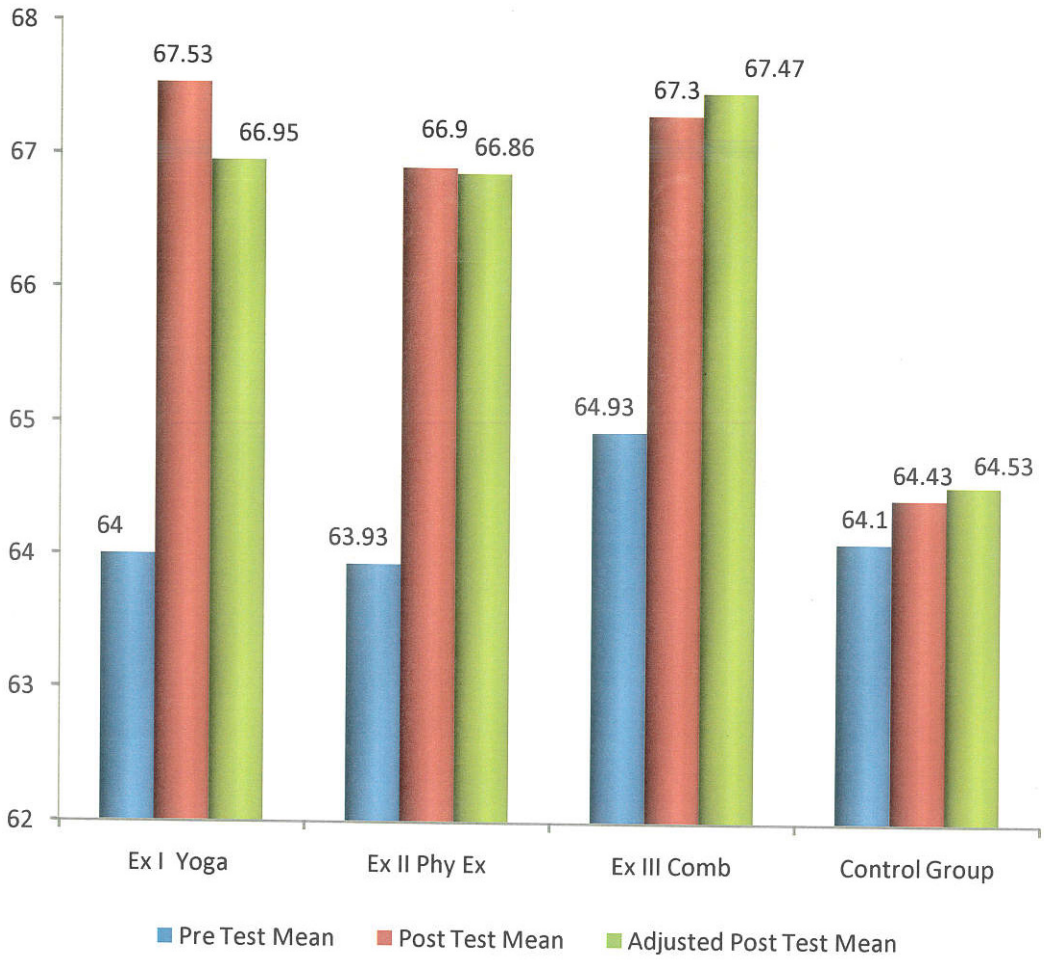


TABLE –VII

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON ARM GIRTH OF FOUR GROUPS

(Scores in centimeters)

Test	Ex I	Ex II	Ex III	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	OF-Value	TF Value
Pre test Mean	26.00	27.93	28.93	25.80	Between With in	46.14 720.73	3 116	15.38 6.21	2.48	3.98
Post Test Mean	26.53	27.90	28.30	25.60	Between With in	95.40 689.69	3 116	31.8 5.95	5.29	3.98*
Adjusted Post test	27.45	27.30	28.02	25.01	Between With in	95.78 659.43	3 115	31.93 5.73	5.57	3.98*
Mean gain	0.53	0.03	0.63	0.20						

4.10. RESULTS OF ARM GIRTH

Table VII Shows the analyzed data on Arm girth

The pre test means of Arm girth were 26.00 for Yogic practices group, 27.93 for Physical exercise group 28.93 for combined (Yogic practices and Physical exercises) group and 25.80 for Control group. As the obtained F-ratio 2.48 was lesser than the table F-ratio 3.98 the pre test was not significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 26.53for Yogic practices group, 27.90 for Physical exercised group, 28.30 for combined (Yogic practices and Physical exercises) group and 28.60 for control group. As the obtained F-ratio 5.29 was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The adjusted post – test means were 27.45 for Yogic practices group,27.30 for Physical exercised group,28.02 for combined (Yogic practices and Physical exercises) group and 25.01 for control group. As the obtained F-ratio 5.57 was greater than the table F-ratio 3.98 the post –test was significant at 0.01 level of confidence for the degrees of freedom 3 and 115.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group were 0.53,0.03,0.63,and 0.20 respectively.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

TABLE –VII (A)

MEAN DIFFERENCE ARM GIRTH OF SCHEFFE'S POST HOC TEST

(Scores in points)

Ex III Comb.(C))	Ex I Yoga(A	Ex II Phy.Ex.(B)	Control Group(D)	MD	OF	TF
28.02	27.45			0.57	7.01	3.98
28.02		27.30		0.72	7.85	3.98
28.02			25.01	3.01	19.03	3.98
	27.45	27.30		0.15	2.76	3.98
	27.45		25.01	2.44	17.25	3.98
		27.30	25.01	2.29	16.15	3.98

The Table VII (A) shows the Scheffe's post –hoc test results. The ordered adjusted final mean difference for Arm girth of experimental groups I,II,III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratios between experimental groups A and B, was 2.76 and it was seen to be lesser than the Table F ratio, 3.98. Hence the above comparison was not significant.

However the obtained F ratio between the C-A, C-B, C-D, A-D, B-D experimental groups, were 7.01,7.85,19.03,17.25 and 16.15 and it was seen to be greater than the Table F ratio 3.98 Hence the above comparisons were significant.

The mean values of Arm girth are shown graphically in fig. 6

Figure – VI

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON ARM GIRTH OF FOUR GROUPS

(Scores in centimeters)

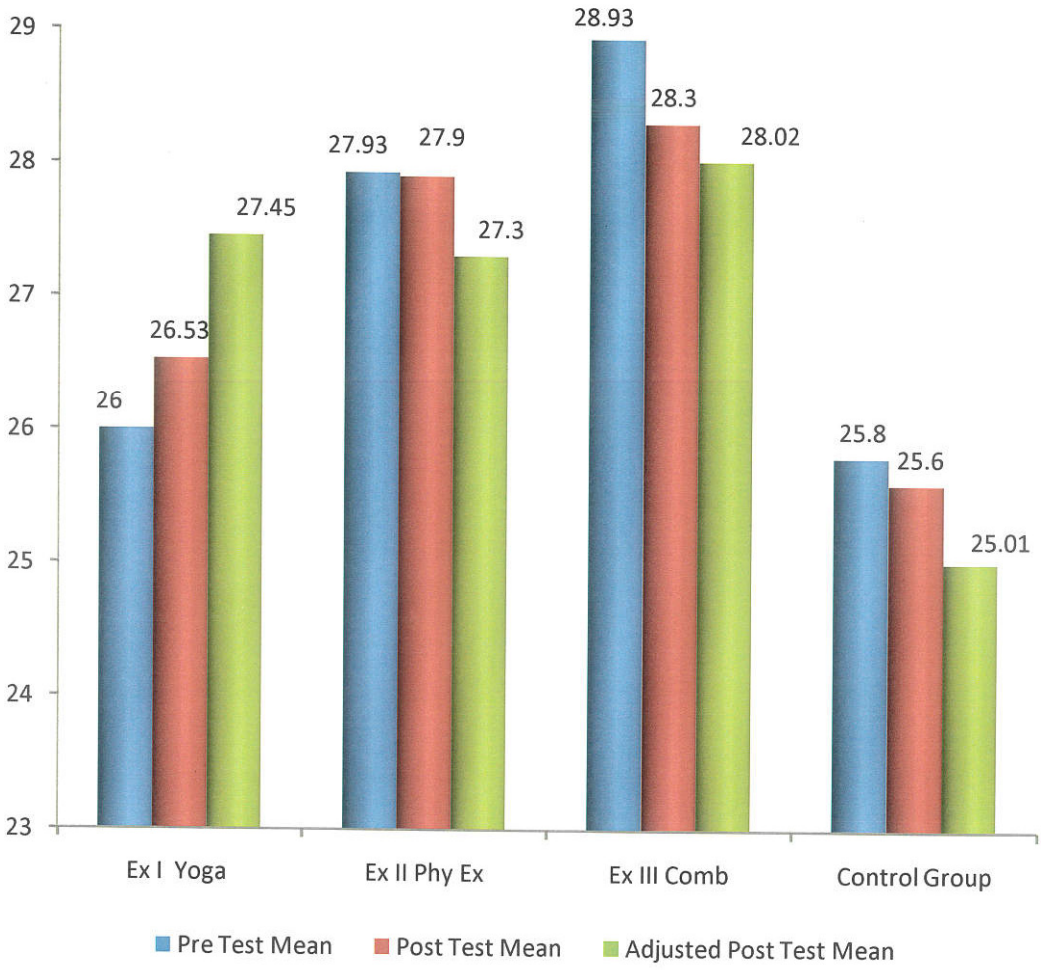


TABLE –VIII

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON THIGH GIRTH OF FOUR GROUPS

(Scores in centimeters)

Test	Ex I	Ex II	Ex III	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	OF-Value	TF Value
Pre test Mean	54.55	54.35	54.01	54.80	Between With in	66.25 780.30	3 116	22.08 6.73	4.17	3.98
Post Test Mean	57.35	56.23	58.25	54.50	Between With in	105.90 710.61	3 116	35.30 6.13	5.76	3.98
Adjusted Post test	55.90	55.10	56.80	54.63	Between With in	98.88 690.24	3 115	32.96 6.01	5.48	3.98
Mean gain	2.8	1.88	4.24	0.30						

4.11. RESULTS OF THIGH GIRTH

Table VIII Shows the analyzed data on Thigh girth

The pre test means of Thigh girth were 54.55 for Yogic practices group, 54.35 for Physical exercise group 54.01, for combined (Yogic practices and Physical exercises) group and 54.80 for Control group. As the obtained F-ratio 4.17 was lesser than the table F-ratio 3.98 the pre test was not significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 57.35 for Yogic practices group, 56.23 for Physical exercised group, 58.25 for combined (Yogic practices and Physical exercises) group and 54.50 for control group. As the obtained F-ratio 5.76 was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The adjusted post – test means were 55.90 for Yogic practices group,55.10 for Physical exercised group,56.80 for combined (Yogic practices and Physical exercises) group and 54.63 for control group. As the obtained F-ratio 5.48 was greater than the table F-ratio 3.98 the post –test was significant at 0.01 level of confidence for the degrees of freedom 3 and 115.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group were 2.8, 1.88, 4.24and 0.30respectively.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

TABLE –IX (A)

MEAN DIFFERENCE OF CALF GIRTH OF SCHEFFE'S POST HOC TEST

(Scores in points)

Ex III Comb.(C))	Ex I Yoga(A	Ex II Phy.Ex.(B)	Control Group(D)	MD	OF	TF
34.02	32.45			1.57	6.54	3.98
34.02		31.40		2.62	8.90	3.98
34.02			31.20	2.82	9.25	3.98
	32.45	31.40		1.05	5.20	3.98
	32.45		31.20	1.25	5.70	3.98
		31.40	31.20	0.20	2.47	3.98

The Table IX (A) shows the Scheffe's post –hoc test results. The ordered adjusted final mean difference for calf girth of experimental groups I,II,III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratios between experimental groups B and D, was 2.47 and it was seen to be lesser than the Table F ratio, 3.98. Hence the above comparison was not significant.

However the obtained F ratio between the A and C, C and B, C and D, A and B , A and D experimental groups, were 6.54,8.90,9.25,5.20, and 5.70, and it was seen to be greater than the Table F ratio 3.98. Hence the above comparisons were significant.

The mean values of calf girth are shown graphically in fig.8

Figure – VIII

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON CALF GIRTH OF FOUR GROUPS

(Scores in centimeters)

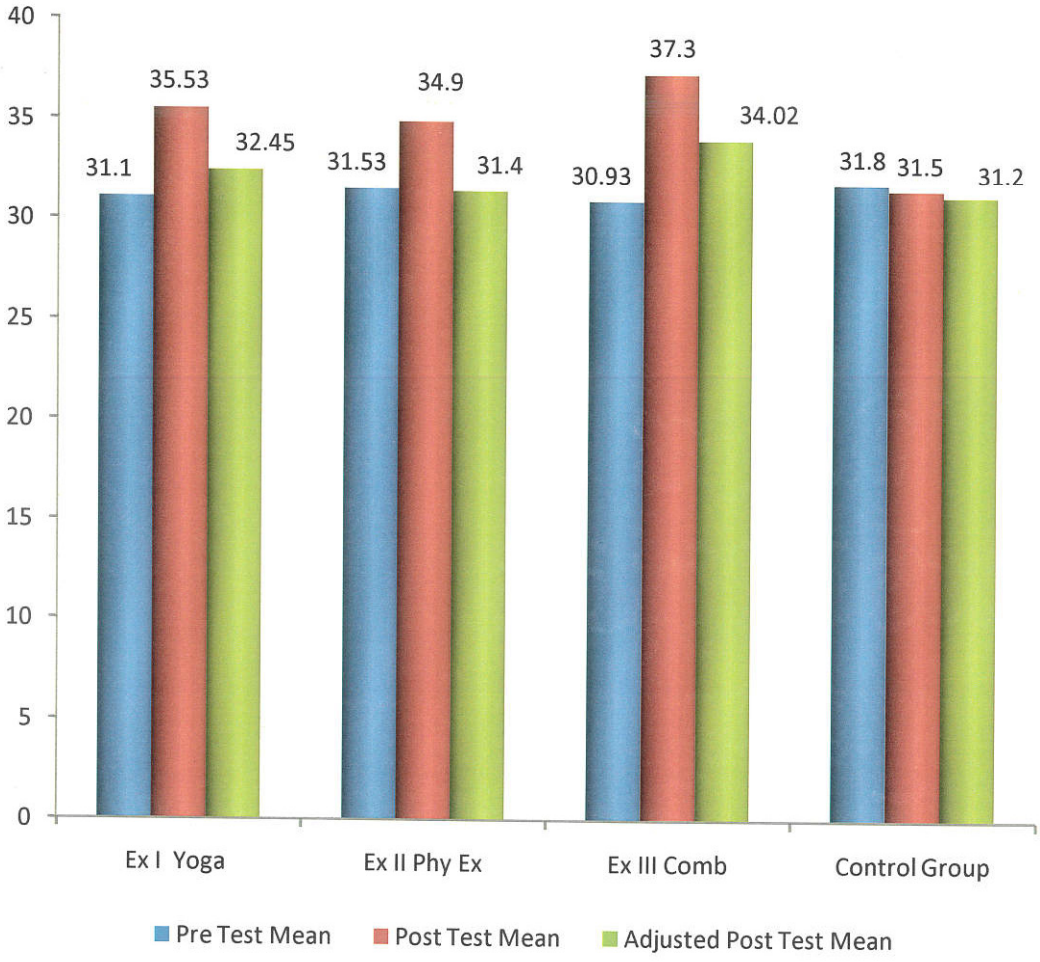


TABLE –X

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON BODY FAT OF FOUR GROUPS

(Scores in Percentage)

Test	Ex I	Ex II	Ex III	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	OF-Value	TF Value
Pre test Mean	19.14	19.58	19.89	19.29	Between With in	113.28 1100.82	3 116	37.76 9.49	3.98	3.98
Post Test Mean	16.62	17.80	15.62	19.12	Between With in	705.22 1005.32	3 116	235.07 8.67	27.11	3.98
Adjusted Post test	16.12	17.10	15.60	19.20	Between With in	600.89 814.35	3 115	200.30 7.08	28.29	3.98
Mean gain	2.52	1.78	4.27	0.14						

4.13. RESULTS OF BODY FAT

Table X Shows the analyzed data on body fat

The pre test means body fat was 19.14 for Yogic practices group, 19.58 for Physical exercises group, 19.89 for combined (Yogic practices and Physical exercises) group and 19.29. for Control group. As the obtained F-ratio 3.98 was greater than the table F-ratio 3.98, the pre test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 16.62 for Yogic practices group, 17.80 for Physical exercise group, 15.62 for combined (Yogic practices and Physical exercises) group and 19.12 for control group. As the obtained F-ratio 27.11 was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3and 116.

The adjusted post – test means were 16.12 for Yogic practices group,17.10 for Physical exercise group,15.60 for combined (Yogic practices and Physical exercises) group and 19.20 for control group. As the obtained F-ratio 28.29 was greater than the table F-ratio 3.98, the adjusted post –test was significant at 0.01 level of confidence for the degrees of freedom 3 and 115.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group were 2.52,1.78,4.27 and 0.14 respectively.

TABLE –X (A)

MEAN DIFFERENCE OF BODY FAT PERCENTAGE OF SCHEFFE'S POST HOC TEST

(Scores in Percentage)

Control Group(D)	Ex II Phy.Ex.(B)	Ex I Yoga(A)	Ex III Comb.(C)	MD	OF	TF
19.20	17.10			2.10	6.54	3.98
19.20		16.12		3.08	8.10	3.98
19.20			15.60	3.60	9.90	3.98
	17.10	16.12		0.98	3.99	3.98
	17.10		15.60	1.50	5.65	3.98
		16.12	15.60	0.52	2.40	3.98

The Table X (A) shows the Scheffe's post –hoc Test results. The ordered adjusted final mean difference for Body Fat of experimental groups I,II,III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratio of 2.40 between experimental group A and C, was seen to be lesser than the Table F ratio 3.98 Hence the above comparison was not significant.

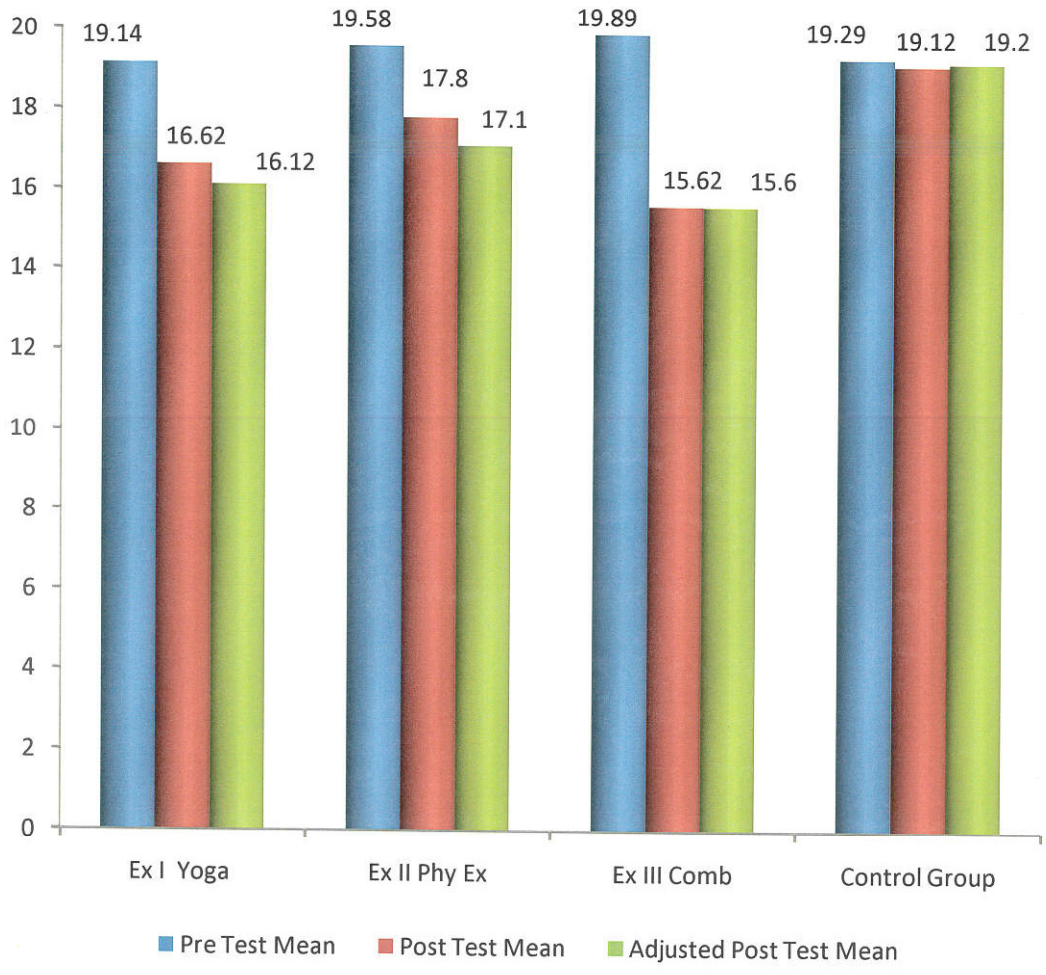
However, the obtained F ratio between experimental groups, D-B, D-A, D-C, B-A, B-C were, 6.54,8.10,9.90,3.99,and 5.65 respectively. The obtained F ratios were seen to be greater than the Table F ratio 3.98. Hence the above comparisons were significant.

The mean values of Body Fat are shown graphically in fig:9

Figure – IX

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON BODY FAT OF FOUR GROUPS

(Scores in Percentage)



4.14. DISCUSSIONS ON FINDINGS ON RESTING PULSE RATE

The findings of Resting Pulse Rate showed that there was significant reduction in resting pulse rate due to the influence of yoga, physical exercises and combined training. Further, it reveals that the combined training , reduced the resting pulse rate greater than that of the isolated training of yoga and physical exercises.

Regular participation in endurance activity such as jogging, cycling and distance swimming can be done to reduce the pulse rate. Good Cardio respiratory condition would be indicated by pulse rate of 60 for women and 50 for men. The lesser pulse rate gives good performance for all the sports and games.

The findings of Gibbon (1976) and Udupa and others (1974) stated that Resting pulse rate was reduced due to the influence of long duration of physical exercises and the practice of pranayama .

The finding of the above said study has supported the present study.

4.14. DISCUSSIONS ON FINDINGS ON BREATH HOLDING TIME

The finding of the study showed that there was significant improvement in breath holding time due to the influence of yoga, physical exercise and combined training.

Further, it reveals that the combined training has increased the breath holding time greater than isolated training of yoga and physical exercise.

4.15. DISCUSSIONS ON FINDINGS ON ANXIETY

The finding of the study on Anxiety showed that there was significant reduction in anxiety due to the influence of yoga, physical exercise and combined training. Further, it reveals that the combined training of yoga and physical exercises decreased anxiety greater than that of yogic practices and physical exercise.

Anxiety is a transitory emotional state or condition of the human organism that is characterized by subjective, pursued feeling of tension and apprehension and heightened autonomous nervous system activity. Anxiety is an emotional reaction followed by complicated psychological disturbances affecting respiratory, circulatory, digestive process etc. which might lead to psychological status having far reaching consequences for the organism. The origin of anxiety may be either psychic or somatic. Moderate anxiety in sports and games enhances performance. While higher anxiety level interferes with performance. There are many dimensions of fear and anxiety in athletes and non-athletes. Athletes and non-athletes, top level and pre top level players, male and female athletes , experienced and inexperienced athletes, team game and individual sports players are reported to differ on the level of pre competition anxiety.

Research findings on anxiety in the conduct of physical activity and sports are divergent and at times contradictory in many ways, chiefly because of inconsistencies in terminology and lack of agreement among the scientists

about the meaning of anxiety and implications of "effective" state of performance in athletic feats. Moderate anxiety is reported to be pleasurable and enhancer of performance while higher anxiety level interferes with performance.

4.16. DISCUSSIONS ON FINDINGS ON ACHIEVEMENT MOTIVATION

The finding on Achievement Motivation showed that there was significant reduction in Achievement Motivation due to the influence of yoga, physical exercise and combined trainings groups. Further, it reveals that the combined training of yoga and physical exercises decreased Achievement Motivation greater than that of yogic practices and physical exercise.

Thus, achievement motivation comes into picture when an individual knows that his performance will be evaluated, that the consequence of his actions will be either a success or a failure and that good performance will produce a feeling of pride in accomplishment. Hence, achievement motivation may be considered a disposition to approach or a capacity for taking pride in accomplishment when success at one or another activity is achieved.

The finding was however in conformity with previous studies reported by Hassarni (1991) on effect of training on Achievement Motivation.

TABLE –VIII (A)

MEAN DIFFERENCE OF THIGH GIRTH OF SCHEFFE'S POST HOC TEST

(Scores in points)

Ex III Comb.(C))	Ex I Yoga(A	Ex II Phy.Ex.(B)	Control Group(D)	MD	OF	TF
56.80	55.90			0.90	8.21	3.98
56.80		55.10		1.7	12.36	3.98
56.80			54.63	2.17	16.23	3.98
	55.90	55.10		0.80	7.35	3.98
	55.90		54.63	1.27	10.25	3.98
		55.10	54.63	0.47	4.27	3.98

The Table VIII (A) shows the Scheffe's post –hoc test results. The ordered adjusted final mean difference for Thigh girth of experimental groups I,II,III and IV were tested for significance against Scheffe's post –hoc F-ratio.

The obtained F ratio between the C-A, C-B, C-D, A-B, A-D, B-D experimental groups, were 8.21,12.36,16.23,7.35,10.25, and 4.27, and it was seen to be greater than the Table F ratio 3.98. Hence the above comparisons were significant.

The mean values of Thigh girth are shown graphically in fig.7

Figure – VII

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON THIGH GIRTH OF FOUR GROUPS

(Scores in centimeters)

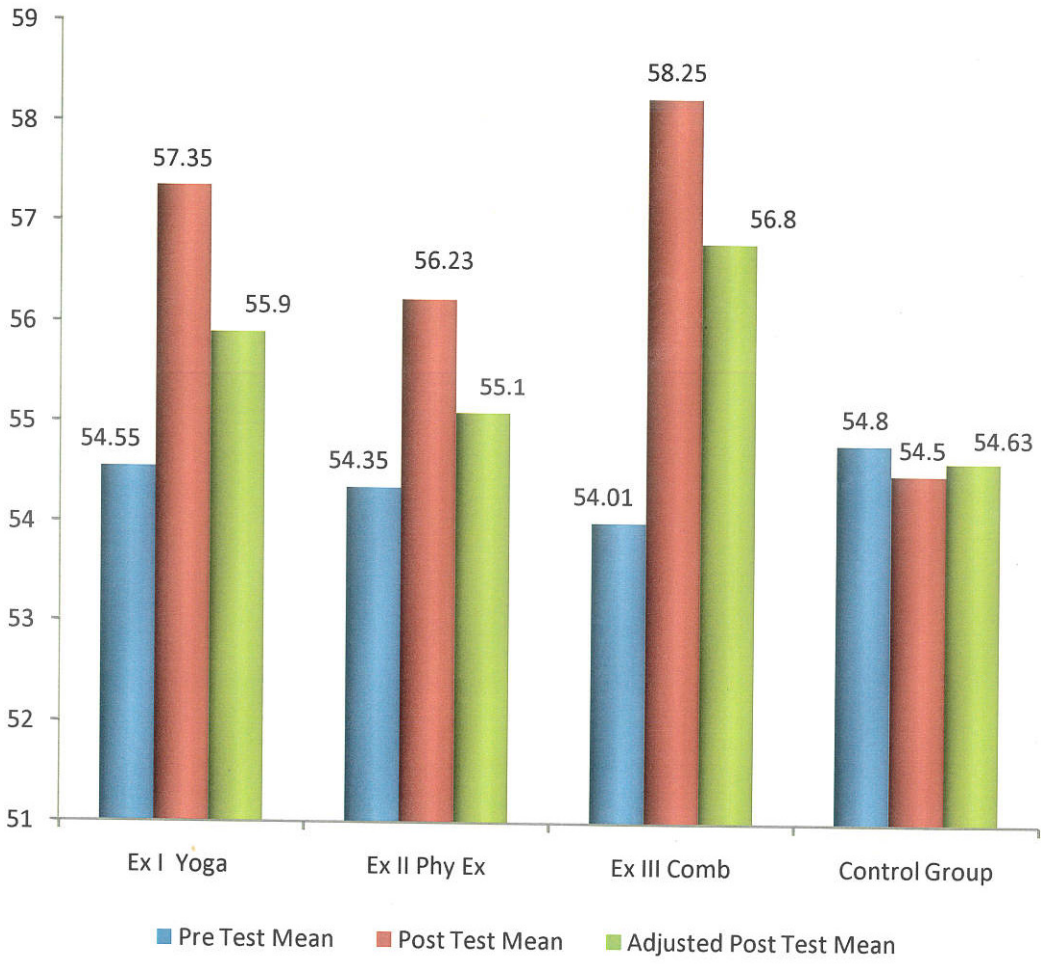


TABLE –IX

COMPUTATION OF ANALYSIS OF COVARIANCE OF PRE- TEST, POST TEST AND ADJUSTED POST- TEST ON CALF GIRTH OF FOUR GROUPS

(Scores in centimeters)

Test	Ex I	Ex II	Ex III	Control Group	Source of Variance	Sum of Squares	Df	Mean Squares	OF-Value	TF Value
Pre test Mean	31.10	31.53	30.93	31.80	Between With in	56.04 730.63	3 116	18.68 6.30	2.97	3.98
Post Test Mean	35.53	34.90	37.30	31.50	Between With in	98.45 697.79	3 116	32.82 6.02	5.45	3.98
Adjusted Post test	32.45	31.40	34.02	31.20	Between With in	101.88 688.43	3 115	33.96 5.99	5.67	3.98
Mean gain	4.83	3.37	6.37	0.30						

4.12. RESULTS OF CALF GIRTH

Table IX Shows the analyzed data on Calf girth

The pre test means of Calf girth were 31.10 for Yogic practices group, 31.53 for Physical exercise group 30.93, for combined (Yogic practices and Physical exercises) group and 31.80 for Control group. As the obtained F-ratio 2.97 was lesser than the table F-ratio 3.98 the pre test was not significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The post – test means were 35.53 for Yogic practices group, 34.90 for Physical exercised group, 37.30 for combined (Yogic practices and Physical exercises) group and 31.50 for control group. As the obtained F-ratio 5.45 was greater than the table F-ratio 3.98, the post- test was significant at 0.01 level of confidence for the degrees of freedom 3 and 116.

The adjusted post – test means were 32.45 for Yogic practices group,31.40 for Physical exercised group,34.02 for combined (Yogic practices and Physical exercises) group and 31.20 for control group. As the obtained F-ratio 65.67 was greater than the table F-ratio 3.98 the post –test was significant at 0.01 level of confidence for the degrees of freedom 3 and 115.

The mean gain of yogic practices, physical exercises, combined (yogic practice & Physical exercises) group and control group were 4.83, 3.37, 6.37and 0.30 respectively.

Scheffe's post hoc test was therefore resorted to find out the significance of ordered adjusted final mean differences among the groups.

4.17. DISCUSSIONS ON FINDINGS ON BODY WEIGHT

The finding of body weight showed that there was significant reduction in body weight due to the influence of yoga, physical exercises and combined training. Further it reveals that the combined training , reduced the body weight greater than that of the isolated training of yoga and physical exercises.

Mall (1987) found that the variables such as height, weight, arm length and leg length influence the performance in swimming. Leone M, Lariviere G, and Comtois AS., (2002) found that elite adolescent female athletes show physical and biomotor differences that clearly distinguish them according to their particular sport. Thus, the above findings suggest that weight has a definite say on the performance of the athletes and their type of particular sports activity. The findings of this study proved that there were significant differences among the university level athletes, namely, sprinters, jumpers, throwers and long distance runners. Thus, the findings of this study were in agreement with the findings of the studies of Mall (1987) and Lariviere G. and other (2002).

4.18. DISCUSSIONS ON FINDINGS OF ARM GIRTH

The finding of Upper arm girth showed that there was significant reduction in upper arm girth due to the influence of yoga, physical exercises and combined training. Further, it reveals that the combined training, reduced

the upper arm girth greater than that of the isolated training of yoga and physical exercises.

Knechtle B, et. al. (2008) found in an ultra-endurance run over 1200 km within 17 consecutive days, circumference of the upper arm was the only factor associated with performance in well-experienced ultra-endurance runners. Giampietro M, Pujia A, and Bertini I., (2003) examined the anthropometric features and body composition of athletes practising karate at a high and medium competitive level and found differences between the groups. Vucetić V, et.al. (2008) found significantly higher thigh and lower leg circumference in sprinters, as well as greater upper arm skinfold in middle-distance runners. The cited previous research findings suggest that upper arm circumferences are associated with the different levels of athletic activities. The findings of this study proved that there were significant differences between university athletes, sprinters, jumpers, throwers and long distance runners from different topography in their upper arm girth. Thus, the findings of this study are in agreement with the findings of Knechtle B, et.al. (2008), Giampietro M, Pujia A, and Bertini I., (2003) and Vucetić V, et.al. (2008).

4.19. DISCUSSIONS ON FINDINGS ON THIGH GIRTH

The finding of Thigh girth showed that there was significant reduction in upper thigh girth due to the influence of yoga, physical exercises and combined training. Further it reveals that the combined training, reduced the Thigh girth greater than that of the isolated training of yoga and physical exercises.

Vucetić V, et.al. (2008) found significantly higher thigh and lower leg circumference in sprinters, as well as greater upper arm skinfold in middle-distance runners. Mayhew J L, et.al. (1993) found body structure and conformation make significant contributions to maximum strength performance in highly trained athletes. Thus, the previous findings proved that sprinters would have better thigh circumference than middle distance runners. Body structure would contribute for maximum strength performance in highly trained athletes. The findings of this study proved that throwers have more thigh circumference than sprinters, jumpers and long distance runners. The findings of this study are in agreement with the findings of Mayhew J L, et.al. (1993).

4.20 DISCUSSIONS ON FINDINGS ON CALF GIRTH

The finding of Calf girth showed that there was significant reduction in calf girth due to the influence of yoga, physical exercises and combined training. Further, it reveals that the combined training reduced the Calf girth greater than that of the isolated training of yoga and physical exercises.

The finding was however in conformity with previous studies reported by Vucetić V, et.al. (2008) on effect of yogic practice and physical exercises on Calf girth.

4.21. DISCUSSIONS ON FINDINGS ON BODY FAT

The finding of Body fat showed that there was significant reduction in Body fat due to the influence of yoga, physical exercises and combined training. Further it reveals that the combined training, reduced the Body fat

Arrese A L, Ostáriz E S., (2006) study indicated that skinfold thickness in the lower limb is positively associated with running time over several distances. Giampietro M, Pujia A, and Bertini I., (2003) examined the anthropometric features and body composition of athletes practising karate at a high and medium competitive level and found differences between the groups. The findings of this study contradict the findings of Knechtle B, et. al. (2008) and Knechtle B, et.al. (2007) who found that there was no association between percent body fat and running performance. The findings of this study proved that throwers have greater percent body fat than other athletes, sprinters, jumpers and long distance runners and are in agreement with the findings of Arrese A L, Ostáriz ES., (2006) and Giampietro M, Pujia A, and Bertini I., (2003).

4.22. DISCUSSION ON HYPOTHESIS

It was hypothesized that yogic practice, physical exercise and combination of both the training will significantly improve the selected Anthropometric variables such as body weight, arm girth, thigh girth , calf girth, body fat, physiological variables such as resting pulse rate, breath

holding time, psychological variables, such as anxiety and achievement motivation among college men students in Andhrapradesh.

The finding on the study showed that there was significant improvement in body weight, arm girth, thigh girth , calf girth, body fat, physiological variables such as resting pulse rate, breath holding time, Psychological variables, such as, anxiety and achievement motivation among college men students in Andrapradesh. Hence the first hypothesis was accepted on the above said variables.

The second hypothesis stated that the combined training of yogic practices and physical exercises will significantly improve the body weight, arm girth, thigh girth , calf girth, body fat, resting pulse rate, breath holding time, anxiety and achievement motivation were greater than that of physical exercises and yogic practices among college men students in Andhrapradesh

The finding of the study showed that the combined training of yogic practices and physical exercises significantly improved the body weight, arm girth, thigh girth , calf girth, body fat, resting pulse rate, breath holding time , anxiety and achievement motivation is greater than that of physical exercises and yogic practices among college men students in Andrapradesh.. Hence the second hypothesis was accepted on the above said variables.

The third hypothesis stated that the yogic practice will significantly improve the breath holding time, resting pulse rate, anxiety and achievement

motivation greater than that of physical exercises among college men students in Andhrapradesh.

The finding of the study showed that the yogic practices significantly improved the resting pulse rate greater than that of physical exercises among college men students in Andhrapradesh. Hence the third hypothesis was accepted partially on the above said variables only.

However the physical exercise, significantly increased the Breath holding time, Resting pulse rate, anxiety and achievement motivation greater than that of yogic practice. Hence the third hypothesis was rejected (partially) on the above said variables only.