CHAPTER IV

RESULTS AND DISCUSSIONS

4.1 OVERVIEW

In this chapter the analysis of data collected from the samples under study is explained. The purpose of this study is to find out the effect of plyometric training and swiss ball training on selected fitness and biochemical variables among university men basketball players. To achieve the purpose, sixty university level men basketball players were randomly selected from different universities in Tamil Nadu state, who participated in university level tournaments. The subjects were randomly selected and their age group was between 19 to 25 years with mean age of 22 with standard deviation $\pm$ 2.5 years. The subjects expressed their willingness to participate in the study. Physical fitness variables, explosive power, speed, agility and flexibility, biochemical variables, triglycerides, total cholesterol, high density lipoprotein, and low density lipoprotein were selected for the study. Randomly selected 60 subjects were divided into three groups, swiss ball training group, plyometric training group, and control group. Swiss ball training group underwent 12 weeks swiss ball exercises and the plyomeric training group underwent plyometric training for 12 weeks. And the control group which was not involved in any special treatment. Prior to the experimental treatment all the subjects were measured of their physical fitness levels, explosive power, speed, agility and flexibility and blood samples to determine biochemical variables, triglycerides, total cholesterol, high density lipoprotein and low density lipoprotein, which forms the pre test scores. After the completion of 12 weeks experimental, the subjects were measured of the selected physical and biochemical variable, which was considered as the final or post test scores. The difference between the initial and final scores was considered as the effect of the respective training.

4.2 TEST OF SIGNIFICANCE

The methods of inference used to support or reject claims based on sample data are known as tests of significance. Tests for statistical significance indicate whether observed differences between assessment results occur because of sampling error or chance. It is the crucial portion of the thesis in arriving at conclusion by examining the hypothesis. The procedure of accepting the hypothesis or rejecting the hypothesis in accordance with results obtained the relation to the level of significance as considered sufficient for the study.

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

4.2.1 LEVEL OF SIGNIFICANCE

The subjects were compared on the effect of plyometric training, swiss ball training on selected criterion variables, explosive power, speed, agility, flexibility, triglycerides, total cholesterol, high density lipoprotein and low density lipoprotein. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, between the groups on selected criterion variable. In all the cases, 0.05 level of confidence was fixed to test the significance, which was considered as appropriate.

In this study, if the 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 the obtained values were lesser than the required values at 0.05 level, then the null hypotheses were accepted to the effect that there existed no significant differences among the means of the groups under study.

4.3.1 ANALYSIS OF EXPLOSIVE POWER

Analysis of the treatment effects was one of the objectives of the study since it aimed to compare the effects of treatment of plyometric training and swiss ball training on selected variables. The results of analysis of covariance on data collected prior to and after the experimental period on variable, Explosive Power among the, plyometric training, swiss ball training and control group are presented in table 4.1

Table 4.1

ANALYSIS OF COVARIENCE ON EXPLOSIVE POWER AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in Centimeters)

	PLYOMETRIC TRAINING	SWISS BALL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	Df	MEAN SQUARES	OBTAINED F
Pre Test Mean (N=20)	57.70	58.65	56.80	Between	34.23	2	17.12	0.55
				Within	1773.95	57	31.12	
Post Test Mean (N=20)	66.65	62.20	57.80	Between	783.23	2	391.62	8.59*
				Within	2598.95	57	45.60	
Adjusted Post Test Mean(N=20)	66.66	61.47	58.52	Between	678.50	2	339.25	12.62*
				Within	1505.88	56	26.89	
Mean Diff	8.95	3.55	1.00					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 86 (df) 3.16.

*Significant

As shown in table 4.1, the obtained pre test means on explosive power on plyometric training group was 57.70, swiss ball training group was 58.65 and control group was 56.80 and obtained pre test F ratio is 0.55. Since the obtained pre test F ratio of 0.55 failed to reach the required table value of 3.16, it was found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

The obtained post test means on explosive power on plyometric training group was 66.65, swiss ball training group was 62.20 and control group was 57.80 and the obtained F ratio was 8.59. Since the obtained F ratio of 8.59 on post test means on explosive power was greater than the required table value 3.16, it was found to be significant at 0.05 level of confidence for 2 and 57 degrees of freedom.

Taking into consideration of the pre test means and post test means adjusted post test means are determined and analysis of covariance was done and the obtained mean values are 66.66, 61.47, and 58.52 on plyometric training, swiss ball training and control groups respectively and obtained F ratio was 12.62. Since the obtained F ratio 12.62 for the adjusted post test means on explosive power was higher than the required value of 3.16, it was found to be significant at 0.05 level of confidence for 2 and 56 degrees of freedom.

The results of this study indicate that there was statistically significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on explosive power. Therefore, it was concluded that there was significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on explosive power.

To determine which of the paired means had a significant difference, the Scheffe's test was used as post-hoc test and the results are presented in the table 4.2.

Table 4.2

Scheffe's Confidence Interval Test Scores on Explosive Power MEANS				Confidence Interval
Plyometric Training Group	**Swiss ball Training Group**	**Control Group**	**Mean Difference**	
66.66	61.47		5.20*	4.12
66.66		58.52	8.14*	4.12
	61.47	58.52	2.95	4.12

* Significant

Table 4.2, revealed that the mean difference on testing the adjusted mean difference between the pairs were: 5.20 (plyometric training and swiss ball training groups) 8.14 (plyometric training and control groups), and 2.95 (swiss ball training group and control group), The mean difference obtained on Explosive Power between the paired adjusted means to be significant at 0.05 level of significance, the required confidence interval was 4.12.

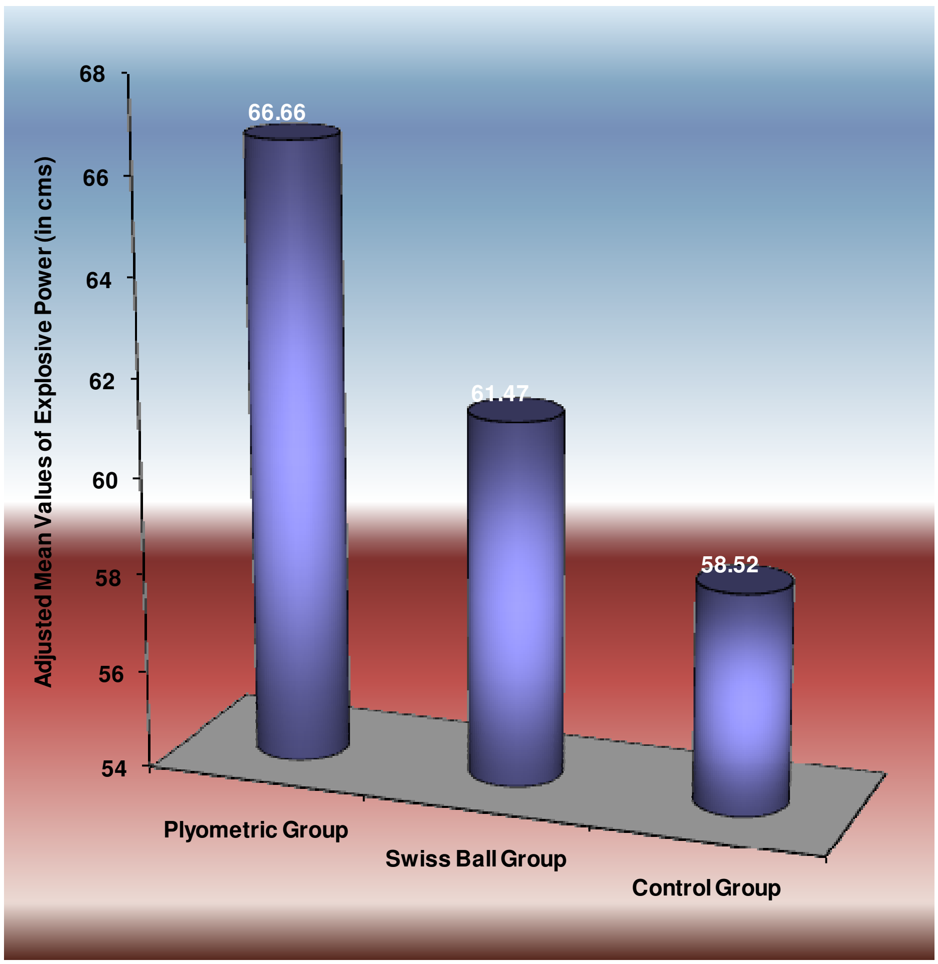
From the results, the paired adjusted means of plyometric training, swiss ball training and control group on Explosive Power were observed. The obtained mean differences, 5.20 (plyometric training and swiss ball training groups) and 8.14 (plyometric training and control groups), were statistically significant since the mean differences were found to be higher than the required confidence interval of 4.12.

The results revealed that, in the performance of Explosive Power, plyometric training shows its dominance as compared to the swiss ball training and control groups.

The ordered adjusted means on Explosive Power are presented through bar diagram for better understanding of the results of this study in Figure 4.1.

Figure 4.1

ORDERED ADJUSTED MEANS OF PHYSICAL FITNESS VARIABLE - EXPLOSIVE POWER



4.3.2 ANALYSIS OF SPEED

The results of analysis of covariance on data collected prior to and after the experimental period on variable, Speed among the, plyometric training, swiss ball training and control group are presented in table 4.3.

Table 4.3

ANALYSIS OF COVARIENCE ON SPEED AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in Seconds)

	PLYOMETRIC TRAINING	SWISS BALL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	Df	MEAN SQUARES	OBTAINED F
Pre Test Mean (N=20)	6.81	6.79	6.83	Between	0.01	2	0.007	0.232
				Within	1.772	57	0.031	
Post Test Mean (N=20)	6.61	6.65	6.81	Between	0.458	2	0.229	7.13*
				Within	1.829	57	0.032	
Adjusted Post Test Mean(N=20)	6.60	6.66	6.79	Between	0.355	2	0.177	48.01*
				Within	0.207	56	0.004	
Mean Diff	0.21	0.14	0.02					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 86 (df) =3.16.

*Significant

As shown in table 4.3, the obtained pre test means on Speed of plyometric training group was 6.81, swiss ball training group was 6.79 and control group was 6.83 and obtained pre test F ratio was 0.232. Since the obtained pre test F ratio of 0.232 failed to reach the required table value of 3.16, it was found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

The obtained post test means on Speed of plyometric training group was 6.61, swiss ball training group was 6.65 and control group was 6.81 and the obtained F ratio was 7.13. Since the obtained F ratio of 7.13 on post test means of Speed was greater than the required table value 3.16, it was found to be significant at 0.05 level of confidence for 2 and 57 degrees of freedom.

Taking into consideration of the pre test means and post test means adjusted post test means were determined and analysis of covariance was done and the obtained mean values were 6.60, 6.66, and 6.79 on plyometric training, swiss ball training and control groups respectively and obtained F ratio was 48.01. Since the obtained F ratio 48.01 for the adjusted post test means on Speed was higher than the required value of 3.16, it was found to be significant at 0.05 level of confidence for 2 and 56 degrees of freedom.

The results of this study indicate that there was statistically significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Speed. Therefore, it was concluded that there was significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Speed.

To determine which of the paired means had a significant difference, the Scheffe's test was used as post-hoc test and the results are presented in the table 4.4.

Table 4.4

Scheffe's Confidence Interval Test Scores on Speed

MEANS				Confidence Interval
Plyometric Training Group	**Swiss ball Training Group**	**Control Group**	**Mean Difference**	
6.60	6.66		0.059*	0.048
6.60		6.79	0.185*	0.048
	6.66	6.79	0.126*	0.048

* Significant

Table 4.4 reveals that the mean difference on testing the adjusted mean difference between the pairs were: 0.059 (plyometric training and swiss ball training groups) 0.185 (plyometric training and control groups), and 0.126 (swiss ball training group and control group), The mean difference obtained on Speed between the paired adjusted means to be significant at 0.05 level of significance, the required confidence interval was 0.048.

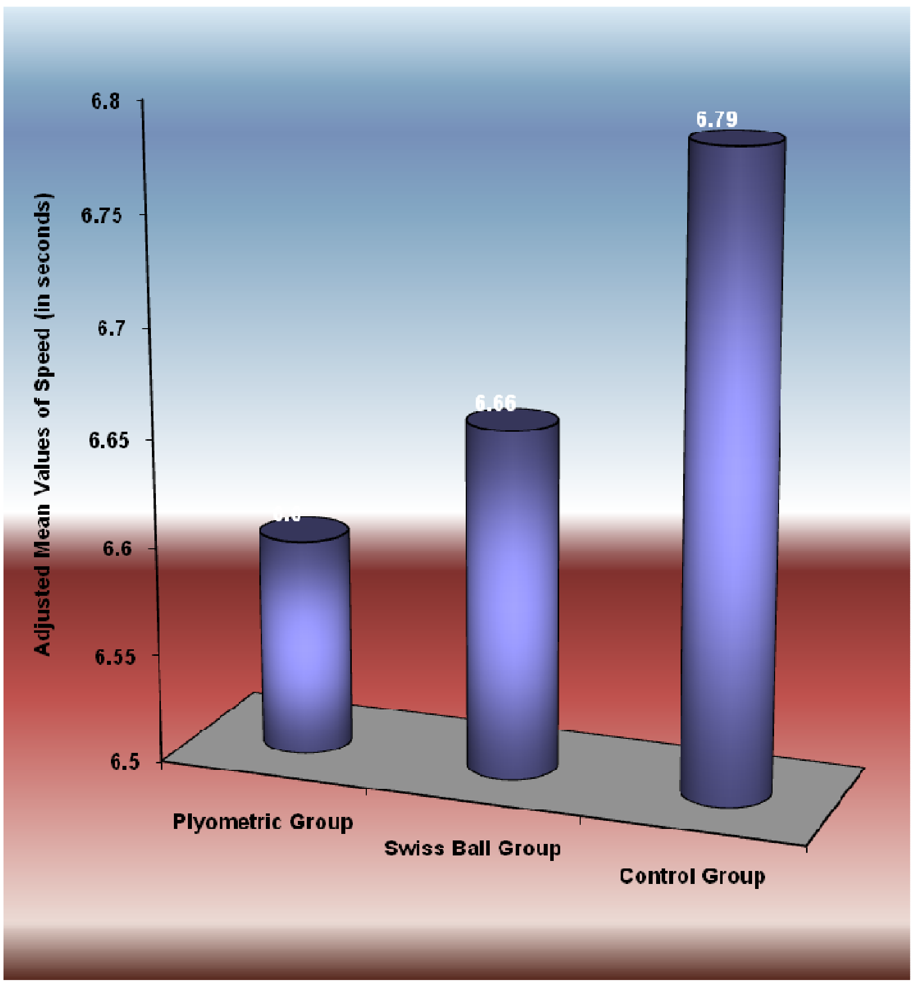
From the results, the paired adjusted means of plyometric training, swiss ball training and control group on Speed were observed. The obtained mean differences, 0.059 (plyometric training and swiss ball training groups) 0.185 (plyometric training and control groups), and 0.126 (swiss ball training group and control group) were statistically significant since the mean differences are found to be higher than the required confidence interval of 0.048.

The results revealed that, in the performance of Speed, plyometric training shows its dominance as compared to the swiss ball training and control groups.

The ordered adjusted means on Speed were presented through bar diagram for better understanding of the results of this study in Figure 4.2.

Figure 4.2

ON ORDERED ADJUSTED MEANS OF PHYSICAL FITNESS VARIABLE - SPEED



4.3.3 ANALYSIS OF AGILITY

The results of analysis of covariance on data collected prior to and after the experimental period on variable, Agility among the, plyometric training, swiss ball training and control group are presented in table 4.5.

Table 4.5

ANALYSIS OF COVARIENCE ON AGILITY AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in Seconds)

	PLYOMETRIC TRAINING	SWISS BALL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	Df	MEAN SQUARES	OBTAINED F
Pre Test Mean (N=20)	10.75	10.81	10.92	Between	0.29	2	0.145	0.77
				Within	10.706	57	0.188	
Post Test Mean (N=20)	10.58	10.71	10.92	Between	1.206	2	0.603	4.45*
				Within	7.729	57	0.136	
Adjusted Post Test Mean(N=20)	10.64	10.73	10.85	Between	0.458	2	0.229	8.88*
				Within	1.444	56	0.026	
Mean Diff	-0.17	-0.10	0.00					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 86 (df) =3.16.

*Significant

As shown in table 4.5, the obtained pre test means on Agility of plyometric training group was 10.75, swiss ball training group was 10.81 and control group was 10.92 and obtained pre test F ratio was 0.77. Since the obtained pre test F ratio of 0.77 fails to reach the required table value of 3.16, it was found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

The obtained post test means on Agility of plyometric training group was 10.58, swiss ball training group was 10.71 and control group was 10.92 and the obtained F ratio was 4.45. Since the obtained F ratio of 4.45 on post test means on Agility was greater than the required table value 3.16, it was found to be significant at 0.05 level of confidence for 2 and 57 degrees of freedom.

Taking into consideration of the pre test means and post test means adjusted post test means are determined and analysis of covariance was done and the obtained mean values are 10.64, 10.73, and 10.85 on plyometric training, swiss ball training and control groups respectively and obtained F ratio was 8.88. Since the obtained F ratio 8.88 for the adjusted post test means on Agility was higher than the required value of 3.16, it was found to be significant at 0.05 level of confidence for 2 and 56 degrees of freedom.

The results of this study indicate that there is statistically significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Agility. Therefore, it was concluded that there is significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Agility.

To determine which of the paired means had a significant difference, the Scheffe's test was used as post-hoc test and the results are presented in the table 4.6.

Table 4.6

Scheffe's Confidence Interval Test Scores on Agility

MEANS				Confidence Interval
Plyometric Training Group	**Swiss ball Training Group**	**Control Group**	**Mean Difference**	
10.64	10.73		0.088	0.127
10.64		10.85	0.216*	0.127
	10.73	10.85	0.128*	0.127

* Significant

Table 4.6 reveals that the mean difference on testing the adjusted mean difference between the pairs are: 0.088 (plyometric training and swiss ball training groups) 0.216 (plyometric training and control groups), and 0.128 (swiss ball training group and control group), The mean difference obtained on Agility between the paired adjusted means to be significant at 0.05 level of significance, the required confidence interval was 0.127.

From the results, the paired adjusted means of plyometric training, swiss ball training and control group on Agility were observed. The obtained mean differences, 0.216 (plyometric training and control groups), and 0.128 (swiss ball training group and control group) are statistically significant since the mean differences are found to be higher than the required confidence interval of 0.127.

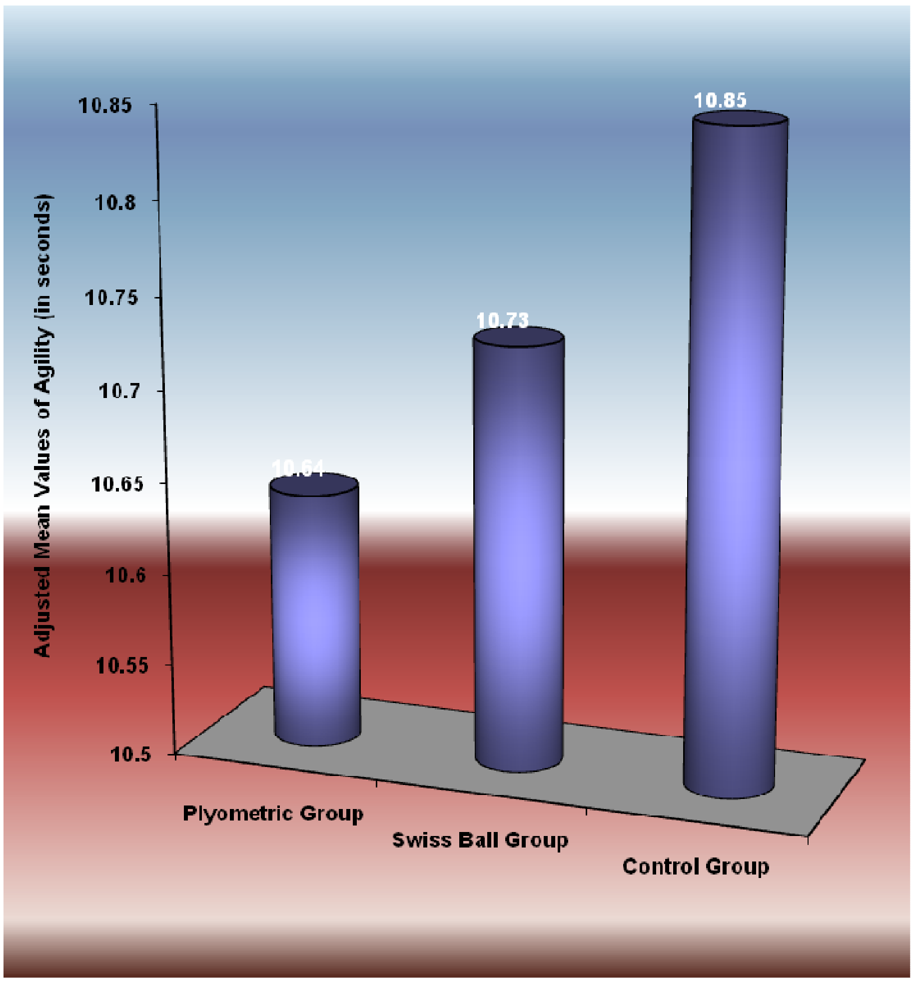
The results revealed that, in the performance of Agility, plyometric training and swiss ball training show dominance as compared to the control group.

The ordered adjusted means on Agility are presented through bar diagram for better understanding of the results of this study in Figure 4.3.

Figure 4.3

ON ORDERED ADJUSTED MEANS OF PHYSICAL FITNESS

VARIABLE - AGILITY



4.3.4 ANALYSIS OF FLEXIBILITY

Analysis of the treatment effects is as one of the objectives of the study since it aims to compare the effects of treatment of plyometric training and swiss ball training on selected variables. The results of analysis of covariance on data collected prior to and after the experimental period on variable, Flexibility among the, plyometric training, swiss ball training and control group are presented in table 4.7.

Table 4.7

ANALYSIS OF COVARIENCE ON FLEXIBILITY AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in Centimeters)

	PLYOMETRIC TRAINING	SWISS BALL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	Df	MEAN SQUARES	OBTAINED F
Pre Test Mean (N=20)	24.65	25.00	25.10	Between	2.23	2	1.12	0.57
				Within	112.35	57	1.97	
Post Test Mean (N=20)	27.30	29.00	25.50	Between	122.53	2	61.27	15.79*
				Within	221.20	57	3.88	
Adjusted Post Test Mean (N=20)	27.55	28.92	25.33	Between	131.24	2	65.62	29.90*
				Within	122.88	56	2.19	
Mean Diff	2.65	4.00	0.40					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 86 (df) =3.16.

*Significant

As shown in table 4.7, the obtained pre test means on Flexibility of plyometric training group was 24.65, swiss ball training group was 25.00 and control group was 25.10 and obtained pre test F ratio is 0.57. Since the obtained pre test F ratio of 0.57 fails to reach the required table value of 3.16, it was found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

The obtained post test means on Flexibility of plyometric training group was 27.30, swiss ball training group was 29.00 and control group was 25.50 and the obtained F ratio is 15.79. Since the obtained F ratio of 15.79 on post test means of Flexibility is greater than the required table value 3.16, it is found to be significant at 0.05 level of confidence for 2 and 57 degrees of freedom.

Taking into consideration of the pre test means and post test means adjusted post test means are determined and analysis of covariance was done and the obtained mean values are 27.55, 28.92, and 25.33 on plyometric training, swiss ball training and control groups respectively and obtained F ratio is 29.90. Since the obtained F ratio 29.90 for the adjusted post test means on Flexibility is higher than the required value of 3.16, it is found to be significant at 0.05 level of confidence for 2 and 56 degrees of freedom.

The results of this study indicate that there is statistically significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Flexibility. Therefore, it is concluded that there is significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Flexibility.

To determine which of the paired means had a significant difference, the Scheffe's test was used as post-hoc test and the results are presented in the table 4.8.

Table 4.8

Scheffe's Confidence Interval Test Scores on Flexibility

MEANS				Confidence Interval
Plyometric Training Group	**Swiss ball Training Group**	**Control Group**	**Mean Difference**	
27.55	28.92		1.37*	1.18
27.55		25.33	2.22*	1.18
	28.92	25.33	3.59*	1.18

* Significant

Table 4.8 reveals that the mean difference on testing the adjusted mean difference between the pairs was: 1.37 (plyometric training and swiss ball training groups) 2.22 (plyometric training and control groups), and 3.59 (swiss ball training group and control group), The mean difference obtained on Flexibility between the paired adjusted means to be significant at 0.05 level of significance, the required confidence interval was 1.18.

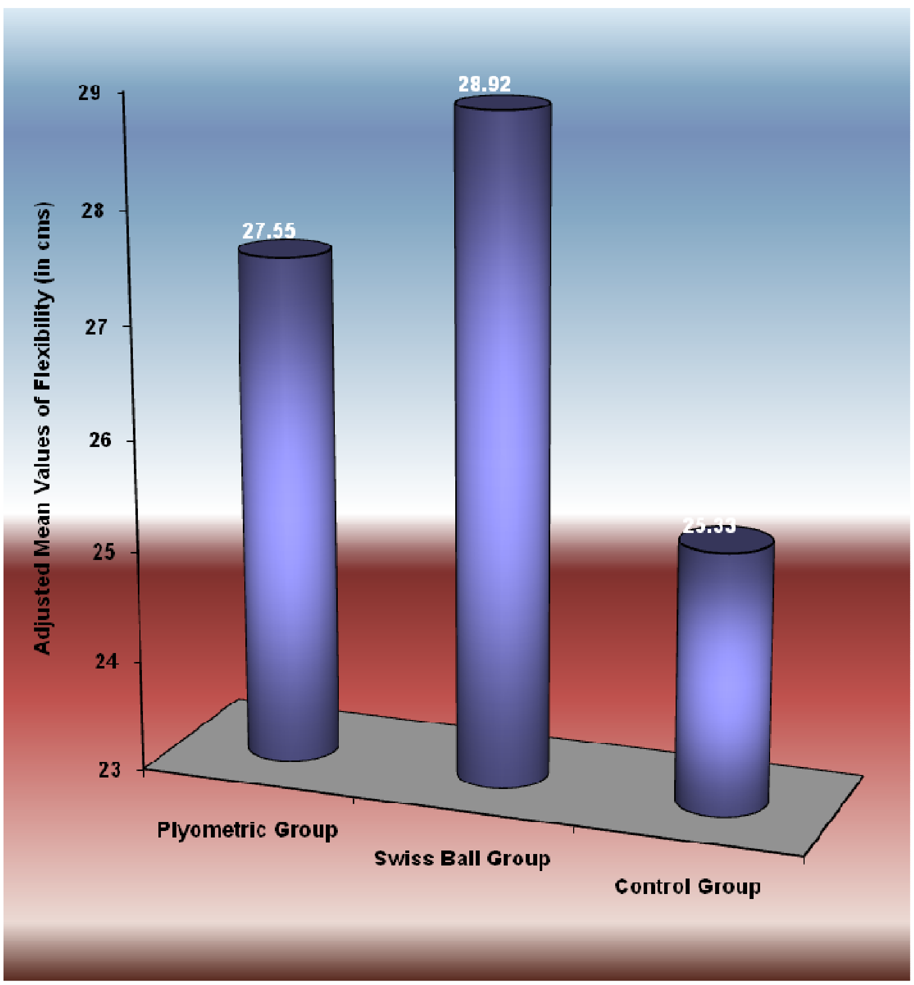
From the results, the paired adjusted means of plyometric training, swiss ball training and control group on Flexibility were observed. The obtained mean differences, 1.37 (plyometric training and swiss ball training groups) 2.22 (plyometric training and control groups), and 3.59 (swiss ball training group and control group) are statistically significant since the mean differences are found to be higher than the required confidence interval of 1.18.

The results revealed that, in the performance of Flexibility, swiss ball shows its dominance as compared to the plyometric training and control groups.

The ordered adjusted means on Flexibility are presented through bar diagram for better understanding of the results of this study in Figure 4.4.

Figure 4.4

ON ORDERED ADJUSTED MEANS OF PHYSICAL FITNESS VARIABLE – FLEXIBILITY



4.3.5 ANALYSIS OF TRIGLYCERIDES

Analysis of the treatment effects is as one of the objectives of the study since it aims to compare the effects of treatment of plyometric training and swiss ball training on selected variables. The results of analysis of covariance on data collected prior to and after the experimental period on variable, Triglycerides among the, plyometric training, swiss ball training and control group are presented in table 4.9.

Table 4.9

ANALYSIS OF COVARIENCE ON TRIGLYCERIDES AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in mg/dl)

	PLYOMETRIC TRAINING	SWISS BALL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	Df	MEAN SQUARES	OBTAINED F
Pre Test Mean (N=20)	146.52	148.89	145.35	Between	129.72	2	64.86	0.59
				Within	6254.61	57	109.73	
Post Test Mean (N=20)	144.30	145.20	144.42	Between	9.55	2	4.78	0.04
				Within	7370.73	57	129.31	
Adjusted Post Test Mean(N=20)	144.66	143.44	145.82	Between	55.57	2	27.79	0.66
				Within	2370.39	56	42.33	
Mean Diff	-2.22	-3.69	-0.93					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 86 (df) =3.16.

Not Significant

As shown in table 4.9, the obtained pre test means on triglycerides of plyometric training group is 146.52, swiss ball training group is 148.89 and control group is 145.35 and obtained pre test F ratio is 0.59. Since the obtained pre test F ratio of 0.59 fails to reach the required table value of 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

The obtained post test means on triglycerides of plyometric training group is 144.30, swiss ball training group is 145.20 and control group is 144.42 and the obtained F ratio is 0.04. Since the obtained F ratio of 0.04 on post test means on Triglycerides is less than the required table value 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

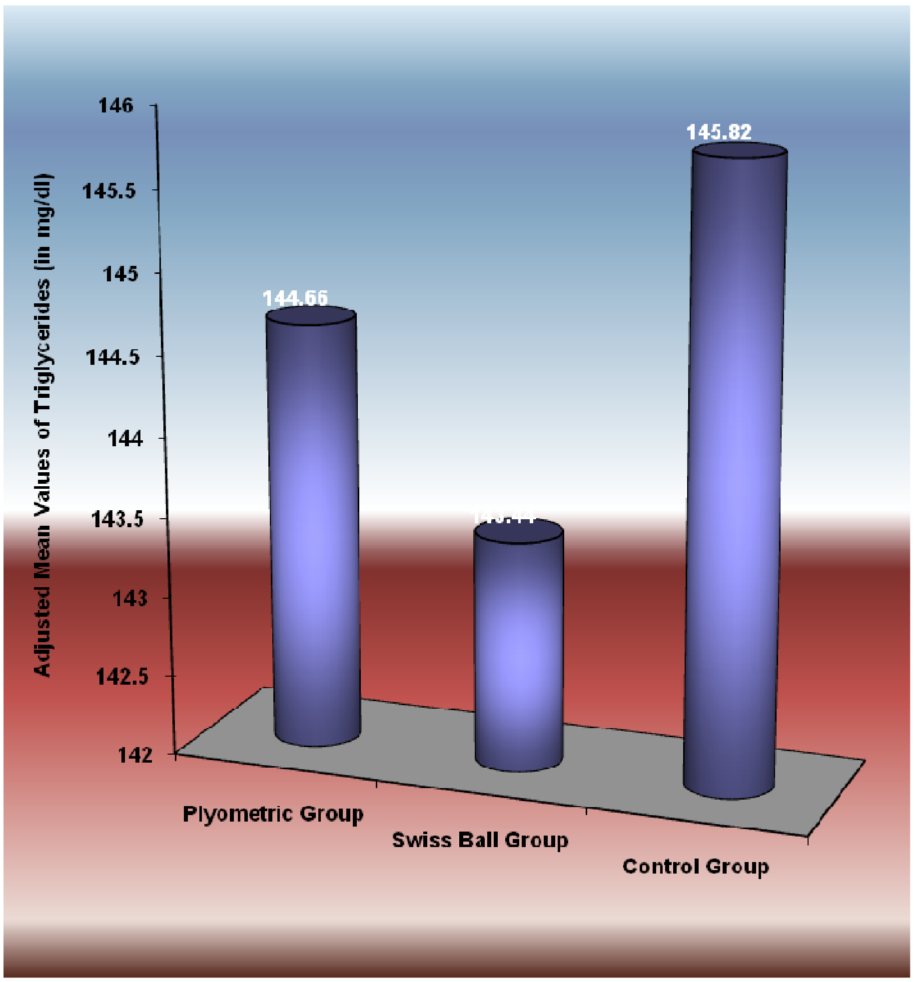
Taking into consideration of the pre test means and post test means adjusted post test means are determined and analysis of covariance was done and the obtained mean values are 144.66, 143.44, and 145.82 on plyometric training, swiss ball training and control groups respectively and obtained F ratio is 0.66. Since the obtained F ratio 0.66 for the adjusted post test means on Triglycerides is lesser than the required value of 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 56 degrees of freedom.

The results of this study indicate that there is statistically insignificant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Triglycerides. Therefore, it was concluded that there is no significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Triglycerides.

The ordered adjusted means on Triglycerides are presented through bar diagram for better understanding of the results of this study in Figure 4.5.

Figure 4.5

ON ORDERED ADJUSTED MEANS OF BIOCHEMICAL VARIABLE – TRIGLYCERIDES



4.3.6 ANALYSIS OF TOTAL CHOLESTEROL

Analysis of the treatment effects is as one of the objectives of the study since it aims to compare the effects of treatment of plyometric training and swiss ball training on selected variables. The results of analysis of covariance on data collected prior to and after the experimental period on variable, Total Cholesterol among the, plyometric training, swiss ball training and control group are presented in table 4.10.

Table 4.10

ANALYSIS OF COVARIENCE ON TOTAL CHOLESTEROL AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in mg/dl)

	PLYOMETRIC TRAINING	SWISS BALL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	Df	MEAN SQUARES	OBTAINED F
Pre Test Mean (N=20)	196.52	196.89	195.35	Between	25.72	2	12.86	0.12
				Within	6254.61	57	109.73	
Post Test Mean (N=20)	190.30	193.22	195.20	Between	243.05	2	121.52	1.15
				Within	6021.85	57	105.65	
Adjusted Post Test Mean(N=20)	190.04	192.62	196.06	Between	363.25	2	181.62	28.68*
				Within	354.61	56	6.33	
Mean Diff	-6.22	-3.67	-0.15					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 86 (df) =3.16.

*Significant

As shown in table 4.10, the obtained pre test means on total cholesterol of plyometric training group is 196.52, swiss ball training group is 196.89 and control group is 195.35 and obtained pre test F ratio is 0.12. Since the obtained pre test F ratio of 0.12 fails to reach the required table value of 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

The obtained post test means on total cholesterol of plyometric training group is 190.30, swiss ball training group is 193.22 and control group is 195.20 and the obtained F ratio is 1.15. Since the obtained F ratio of 1.15 on post test means on Total Cholesterol is less than the required table value of 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

Taking into consideration of the pre test means and post test means adjusted post test means are determined and analysis of covariance was done and the obtained mean values of plyometric training, swiss ball training and control groups, are 190.04, 192.62, and 196.06 respectively and obtained F ratio is 28.68. Since the obtained F ratio 28.68 for the adjusted post test means on total cholesterol is higher than the required value of 3.16, it is found to be significant at 0.05 level of confidence for 2 and 56 degrees of freedom.

The results of this study indicate that there is statistically significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on total cholesterol. Therefore, it was concluded that there is significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on total cholesterol.

To determine which of the paired means had a significant difference, the Scheffe's test was used as post-hoc test and the results are presented in the table 4.11.

Table 4.11

Scheffe's Confidence Interval Test Scores on Total Cholesterol

MEANS				Confidence Interval
Plyometric Training Group	**Swiss ball Training Group**	**Control Group**	**Mean Difference**	
190.04	192.62		2.57*	2.00
190.04		196.06	6.01*	2.00
	192.62	196.06	3.44*	2.00

* Significant

Table 4.11 reveals that the mean difference on testing the adjusted mean difference between the pairs are: 2.57 (plyometric training and swiss ball training groups) 6.01 (plyometric training and control groups), and 3.44 (swiss ball training group and control group), The mean difference obtained on total cholesterol between the paired adjusted means to be significant at 0.05 level of significance, the required confidence interval was 2.00.

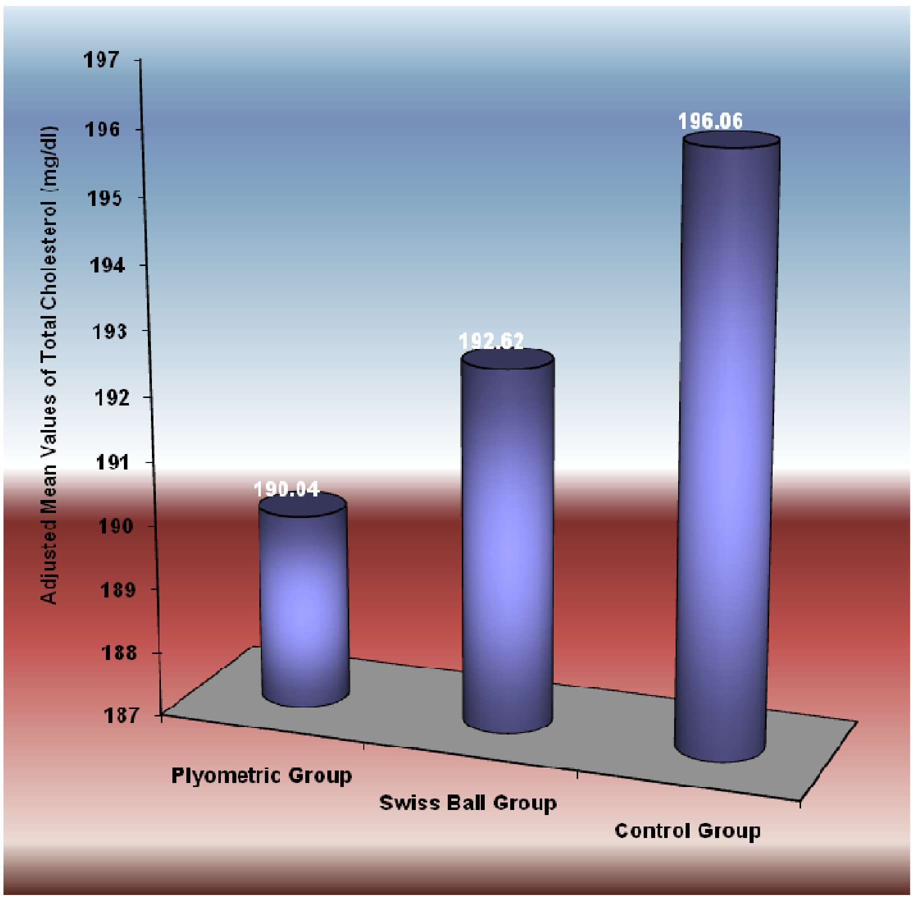
From the results, the paired adjusted means of plyometric training, swiss ball training and control group on total cholesterol were observed. The obtained mean differences, 2.57 (plyometric training and swiss ball training groups) 6.01 (plyometric training and control groups), and 3.44 (swiss ball training group and control group) are statistically significant since the mean differences are found to be higher than the required confidence interval of 2.00.

The results revealed that, in the performance of total cholesterol, plyometric training shows its dominance as compared to the swiss ball training and control groups.

The ordered adjusted means on total cholesterol are presented through bar diagram for better understanding of the results of this study in Figure 4.6.

Figure 4.6

ON ORDERED ADJUSTED MEANS OF BIOCHEMICAL VARIABLE - TOTAL CHOLESTEROL



4.3.7 ANALYSIS OF HIGH DENSITY LIPOPROTEIN

Analysis of the treatment effects is as one of the objectives of the study since it aims to compare the effects of treatment of plyometric training and swiss ball training on selected variables. The results of analysis of covariance on data collected prior to and after the experimental period on variable, High density lipoprotein among the, plyometric training, swiss ball training and control group are presented in table 4.12.

Table 4.12

ANALYSIS OF COVARIENCE ON HIGH DENSITY LIPOPROTEIN AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in mg/dl)

	PLYOMETRIC TRAINING	SWISS BALL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	Df	MEAN SQUARES	OBTAINED F
Pre Test Mean (N=20)	55.65	54.65	55.20	Between	10.03	2	5.02	1.30
				Within	220.30	57	3.86	
Post Test Mean (N=20)	56.65	55.80	55.95	Between	8.23	2	4.12	1.01
				Within	232.70	57	4.08	
Adjusted Post Test Mean (N=20)	56.29	56.19	55.92	Between	1.40	2	0.70	0.36
				Within	108.59	56	1.94	
Mean Diff	1.00	1.15	0.75					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 86 (df) =3.16.

Not Significant

As shown in table 4.12, the obtained pre test means on high density lipoprotein of plyometric training group is 55.65, swissball training group is 54.65 and control group is 55.20 and obtained pre test F ratio is 1.30. Since the obtained pre test F ratio of 1.30 fails to reach the required table value of 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

The obtained post test means on high density lipoprotein of plyometric training group is 56.65, swiss ball training group is 55.80 and control group is 55.95 and the obtained F ratio is 1.01. Since the obtained F ratio of 1.01 on post test means on High density lipoprotein is less than the required table value 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

Taking into consideration of the pre test means and post test means adjusted post test means are determined and analysis of covariance was done and the obtained mean values of plyometric training, swiss ball training and control groups are 56.29, 56.19 and 55.92 and respectively and obtained F ratio is 0.36. Since the obtained F ratio 0.36 for the adjusted post test means on high density lipoprotein is lesser than the required value of 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 56 degrees of freedom.

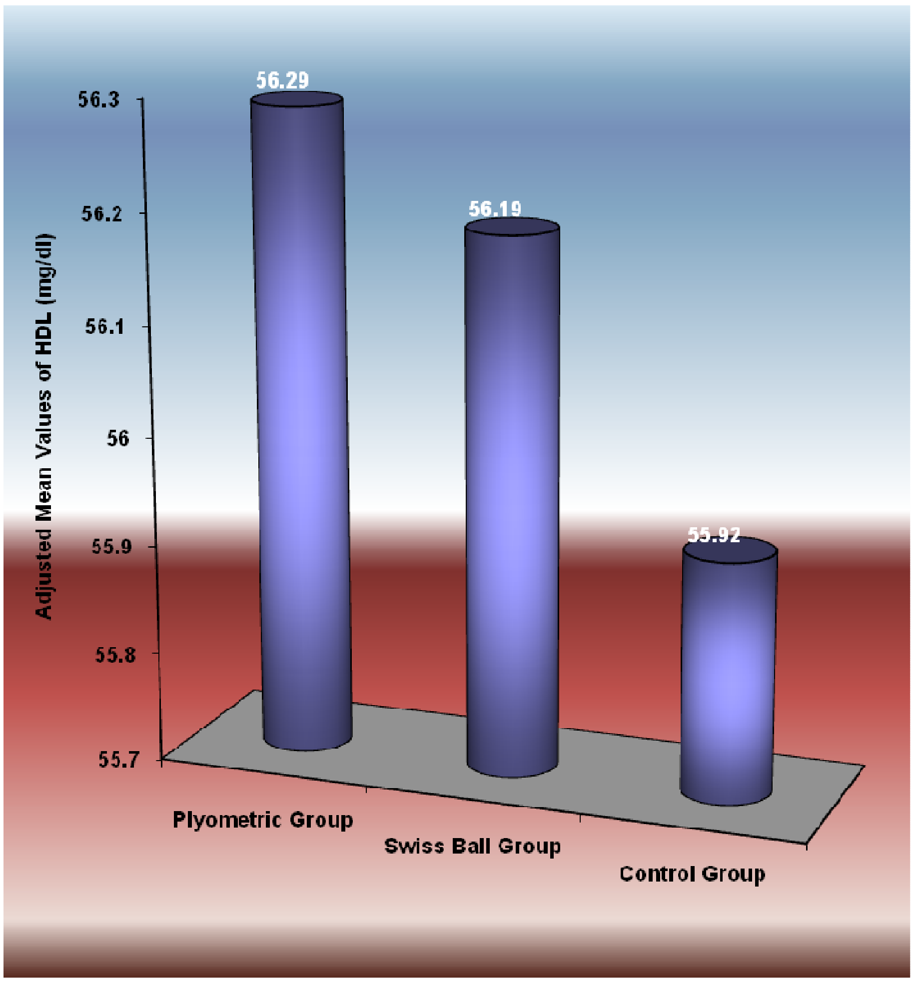
The results of this study indicate that there is statistically significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on high density lipoprotein. Therefore, it is concluded that there is no significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on high density lipoprotein.

The ordered adjusted means on high density lipoprotein are presented through bar diagram for better understanding of the results of this study in Figure 4.7.

Figure 4.7

ON ORDERED ADJUSTED MEANS OF BIOCHEMICAL

VARIABLE - HIGH DENSITY LIPOPROTEIN



4.3.8 ANALYSIS OF LOW DENSITY LIPOPROTEIN

Analysis of the treatment effects is as one of the objectives of the study since it aims to compare the effects of treatment of plyometric training and swiss ball training on selected variables. The results of analysis of covariance on data collected prior to and after the experimental period on variable, Low density lipoprotein among the, plyometric training, swiss ball training and control group are presented in table 4.13.

Table 4.13

ANALYSIS OF COVARIENCE ON LOW DENSITY LIPOPROTEIN AMONG PLYOMETRIC TRAINING, SWISS BALL TRAINING AND CONTROL GROUP.

(Scores in mg/dl)

	PLYOMETRIC TRAINING	SWISS BALL TRAINING	CONTROL GROUP	SOURCE OF VARIANCE	SUM OF SQUARES	df	MEAN SQUARES	OBTAINED F
Pre Test Mean (N=20)	96.37	95.70	96.18	Between	4.71	2	2.36	0.03
				Within	3959.11	57	69.46	
Post Test Mean (N=20)	92.64	94.04	95.42	Between	77.01	2	38.50	0.61
				Within	3620.81	57	63.52	
Adjusted Post Test Mean(N=20)	92.38	94.39	95.33	Between	90.70	2	45.35	8.69*
				Within	292.10	56	5.22	
Mean Diff	-3.73	-1.66	-0.76					

Table F-ratio at 0.05 level of confidence for 2 and 57 (df) =3.16, 2 and 86 (df) =3.16.

*Significant

As shown in table 4.13, the obtained pre test means on Low density lipoprotein of plyometric training group is 96.37, swiss ball training group is 95.70 and control group is 96.18 and obtained pre test F ratio is 0.03. Since the obtained pre test F ratio of 0.03 fails to reach the required table value of 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

The obtained post test means on Low density lipoprotein of plyometric training group is 92.64, swiss ball training group is 94.04 and control group is 95.42 and the obtained F ratio is 0.61. Since the obtained F ratio of 0.61 on post test means on Low density lipoprotein is lesser than the required table value 3.16, it is found to be insignificant at 0.05 level of confidence for 2 and 57 degrees of freedom.

Taking into consideration of the pre test means and post test means adjusted post test means are determined and analysis of covariance was done and the obtained mean values are 92.38, 94.39, and 95.33 on plyometric training, swiss ball training and control groups respectively and obtained F ratio is 8.69. Since the obtained F ratio 8.69 for the adjusted post test means on Low density lipoprotein is higher than the required value of 3.16, it is found to be significant at 0.05 level of confidence for 2 and 56 degrees of freedom.

The results of this study indicate that there is statistically significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Low density lipoprotein. Therefore, it is concluded that there is significant difference among the adjusted post-test means of plyometric training, swiss ball training and control group on Low density lipoprotein.

To determine which of the paired means had a significant difference, the Scheffe’s test was used as post-hoc test and the results are presented in the table 4.14.

Table 4.14

Scheffe's Confidence Interval Test Scores on Low density lipoprotein

MEANS				**Confidence Interval**
Plyometric Training Group	**Swiss ball Training Group**	**Control Group**	**Mean Difference**	
92.38	94.39		2.01*	1.81
92.38		95.33	2.95*	1.81
	94.39	95.33	0.94	1.81

* Significant

Table 4.14 reveals that the mean difference on testing the adjusted mean difference between the pairs is: 2.01 (plyometric training and swiss ball training groups) 2.95 (plyometric training and control groups), and 0.94 (swiss ball training group and control group), The mean difference obtained on Low density lipoprotein between the paired adjusted means to be significant at 0.05 level of significance, the required confidence interval was 1.81.

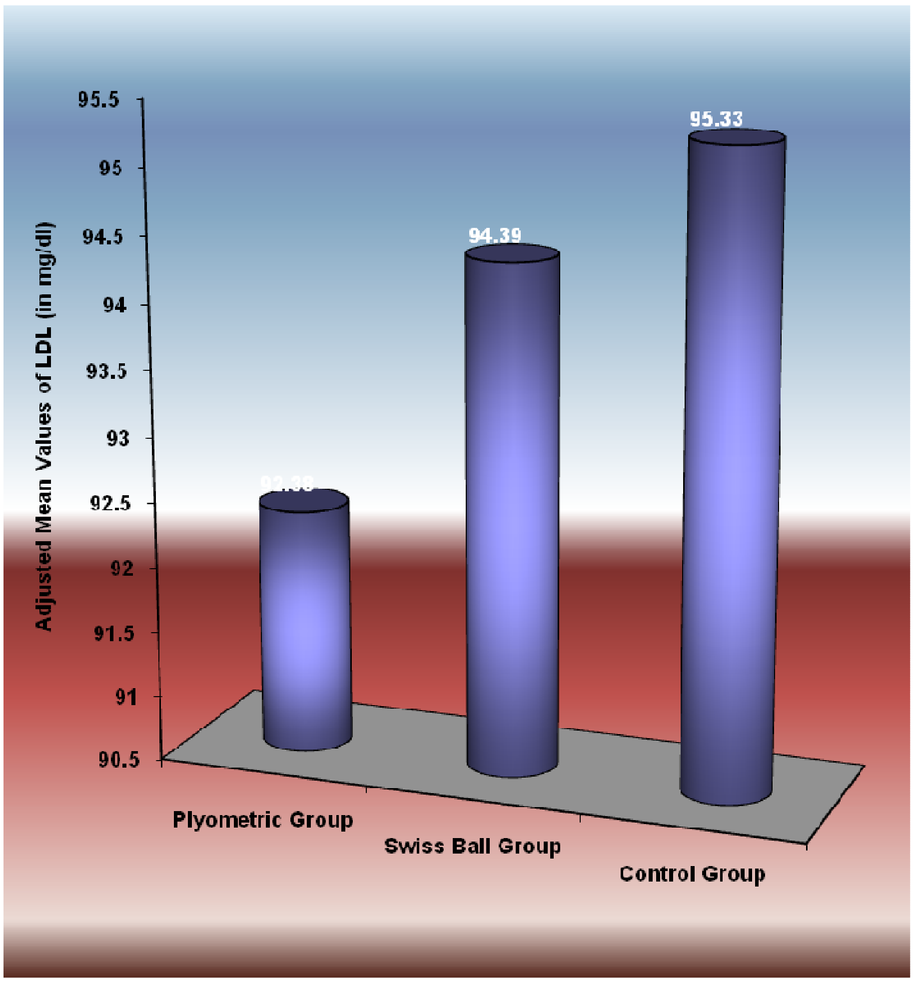
From the results, the paired adjusted means of plyometric training, swiss ball training and control group on Low density lipoprotein were observed. The obtained mean differences, 2.01 (plyometric training and swiss ball training groups) and 2.95 (plyometric training and control groups) are statistically significant since the mean differences are found to be higher than the required confidence interval of 1.81.

The results revealed that, in the performance of Low density lipoprotein, plyometric training shows its dominance as compared to the swiss ball training and control groups.

The ordered adjusted means on Low density lipoprotein are presented through bar diagram for better understanding of the results of this study in Figure 4.8.

Figure 4.8

ON ORDERED ADJUSTED MEANS OF BIOCHEMICAL VARIABLE - LOW DENSITY LIPOPROTEIN



4.4 DISCUSSIONS ON RESULTS

4.4.1 Discussions on Physical Fitness – Explosive Power

In the game of basketball a player must jump high to score the ball, run faster, jump high to collect rebound ball frequently and change his direction abruptly during the play. Power is the basic factor for the most of the above activities. The leg explosive power is predominanent for the palying ability of basketball. In this research, the investigator made an attempt to trace out whether plyometric training or swiss ball training contributes for developing explosive power among the selected university basketball players.

The results of this study proved that (Tables 4.1. and 4.2) the obtained F ratio 12.62 on adjusted means of explosive power was greater than the required F ratio of 3.16 to be significant at 0.05 level. The Scheffe's post hoc analysis comparing paired adjusted means of the plyometric training, swiss ball training and control groups proved that plyometric group was significantly better than swiss ball training and control group in improving explosive power among university men basketball players.

The findings of this study are in accordance with the researches made by Shahram Alam et.al. (2012) who proved that the of plyometric circuit exercises had meaningful effect on the participants' records in vertical jump- shuttle briskness- medicine ball throw- 30 meters speed run. Further Markovic (2007) determined the precise effect of polymeric training (PT) on vertical jump height in healthy individuals and justified the application of PT for the purpose of development of vertical jump performance in healthy individuals. Markovic (2007) also proved that the plyometric training influenced vertical jump performance among even healthy individuals. In this study the plyometric training significantly improved explosive power among the selected university level basketball players.

4.4.2 Discussions on Speed

Thomas (2009) in his study proved that the speed, power and agility were improved among the youth soccer players due to two type of plyometric training. Reynold (2004) concluded that organised training emphasized the specific characteristics for a sprinter. It developed greater leg power, acceleration and maximal speed for a middle distance competitor. It improved basic speed and speed endurance and for a distance runner better speed endurance and aerobic endurance were developed. The results presented in the (Table 4.3 and 4.4) of this study proved that the speed was significantly improved The findings of this study are in agreement with the findings of Kotzamanidis (2006) who indicated that plyometric exercises could improve squat jump and running velocity and improve speed in prepubertal boys. Spnrrs et.al. (2002) conducted a study of the effect of plyometric training on distance running performance an demonstrated that a 6-week plyometric significantly improved the running performance. Shahram Alam et.al. (2012) found that plyometric circuit exercises among 20 elite male athletes (year 17-19) had meaningful effect on the participants' records in speed run. Girinathan (2010) found that swiss ball training significantly improved speed of the cricket players. Jesimala (2011) found that swiss ball training significantly improved speed of kho kho players. The findings of this study that speed is significantly improved by plyometric exercises and swiss ball exercises are in accordance with these findings. However, there was no previous studies made to compare the effect of plyometric and swiss ball exercises and the findings of this study proved that plyometric exercises are better than swiss ball exercises in improving speed of the basketball men players.

4.4.3 Discussions on Agility

Agility is another important physical fitness parameter required for the successful performance in the game of basketball. A player must jump high to score the ball, run fast frequently and change his direction abruptly during the play. Power is the basic factor for the most of the above activities. The core stability directly associated with the fast twitch muscle fibre, greater the percentage of core stability, better the agility and speed. Basketball players mostly depend on anaerobic activities to improve leg explosive power. In this research, the investigator made an attempt whether plyometric training and swiss ball training could contribute for developing agility among elite basketball players, namely, university men basketball players. The results of this study (Table 4.5) proved that the obtained F ratio of 8.88 on adjusted means on agility was significant at 0.05 level and the multiple comparisons of paired adjusted means (Table 4.6) proved plyometric training and swiss ball training were significantly improved agility of the basketball players.

The results of this study are in agreement with the findings of Shahram Alam et.al. (2012) found that plyometric circuit exercises among 20 elite male athletes (year 17-19) significantly improved shuttle briskness, Reynold (2004) found plyometric exercises improved agility for a middle distance competitor. It improved basic speed and speed endurance and for a distance runner better speed endurance which contributed for improved agility. Willardson JM. (2007) swiss ball exercises involving isometric muscle actions, small loads, and long tension times are recommended for increases in core endurance. Gopi (2009) found that swiss ball exercises improved agility of the soccer players. Ramkumar (2009) found that swiss ball exercises improved core muscle strength of soccer players. Girinathan (2010) found that swiss ball exercises improved agility of the cricket players. Agility was significantly improved due to plyometric training among the volleyball players proved by Arumugam (2007). When compared to swiss ball training the plyometric training had significantly better effect in improving agility among the sports men. The results of this study are in agreement with the above findings. The finding of the study were in accordance with the study conducted by Thomas (2009) who proved that the speed, power and agility were improved among the youth soccer players due to two type of plyometric training.

4.4.4 Discussions on Flexibility

Flexibility of the whole body is important in basketball, being necessary for developing other physical capabilities (strength, speed, vertical jump, agility), also for acquiring the basketball technique better. It is also a prerequisite ability to become a good player. In case of flexibility, the athletic movements are quicker and more forceful, and also plays a role in the movements are energetically more economic saving energy. Also flexible muscles which recover quickly ensure precise performance of movements, being therefore a prerequisite for developing good technical skills. If the movement of hips, shoulders, spine is good, the basketball player can make good deceptive movements, turns, stops, shoots, play in defense, be active in rebounding. Often the ball has to be fought for in extreme circumstances, good mobility is the key. Muscles in good state also have a smaller risk of injuries. In basketball, muscular stiffening occurs often, in order to prevent it, stretches should be performed regularly. The effectiveness of plyometric training and swiss ball training are considered in this research to find out which of the experimental protocol is more beneficial to the university men basketball players.

The results of this study proved that (Table 4.7), the obtained F ratio 29.90 was significant at 0.05 level and the post hoc analysis comparing the paired adjusted means (Table 4.8) proved plyometric training and swiss ball training are significantly improved flexibility of the basketball players. Comparing between the experimental groups, it was found that swiss ball training was better than plyometric training and the difference was significant at 0.05 level.

Jerrold S. Petrofsky (2007) found that swiss ball training had significant advantage in working muscles harder and at a better range of motion. Jesimala (2011) found that swiss ball training improved flexibility among Kho Kho players significantly. Sudharson (2011) found that swiss ball training improved flexibility among kabaddi players. Thus, the findings of this study are in agreement with the findings of these researches Further, this study compared the influence of plyometric training and swiss ball training on flexibility and it was found that comparing between the treatment groups, swiss ball training was significantly better than plyometric training in improving flexibility of the basketball players.

4.4.5 Discussions on Triglycerides

Georgios Kipreos et.al. (2010) documented that coronary arteries were subjected daily in high shear stress and manifest atherosclerosis very early in life in comparison to other arteries in the human body. Some factors that are implicated in the evolution and progress of this process are the concentration of lipids and arachidonic acid metabolites, such prostacyclin and thromboxane. It has been reported that those who participate in physical activities such as walking, cycling, jogging or brisk walking might have normal values of the mentioned chemical substances. On the other hand, it is reported that the effects of strength activities have negative effects on the vascular endothelium, which is essential for the maintenance of hemostatic balance and the local regulation of vascular tone. Therefore, even though extensive research has been conducted in this field, there are crucial gaps in our knowledge especially the influence of different training methods, such as plyometric training and swiss ball training on selected biochemical variables. This research made an attempt to find out the effect of plyometric training and swiss ball training on selected biochemical variables among university men basketball players.

The results of this study proved that (Table 4.9) the obtained F ratio of 0.66 was not significant at 0.05 level. Hence, it was proved that both experimental protocols failed to significantly influence triglycerides of the basketball players. Baljinder Singh Bal et. al. (2012) investigated the effects of 6 week plyometric training on biochemical and physical fitness parameters of inter collegiate jumpers. It was found though the physical fitness parameters significantly improved plyometric training failed to significantly improve biochemical variables including triglyceride. The findings of this study are in agreement with the findings of Baljinder Singh Bal et. al. (2012) and Barr SI, et.al. (1991) who found the volume of swimming exercise may not be related to the degree of change in blood lipid and lipoprotein levels in healthy subjects with high activity levels. In this study, trained university level men basketball players were tested on the effect of plyometric training and swiss ball exercises and similar physical activities failed to significantly influence triglycerides of the subjects.

4.4.6 Discussions on Total Cholesterol

Total cholesterol is another biochemical variable. Although total cholesterol levels are lower in persons with high aerobic fitness compared to low aerobic fitness, it has not been conclusively demonstrated that exercise training lowers total cholesterol. Measurements made before and after exercise training have produced variable results with no clear consensus as to whether or not moderate or vigorous exercise can lower total cholesterol. In studies where total cholesterol has been significantly reduced, it appears that the activities are more dynamic and vigorous in nature (Slentz et al. 2007) this research is intended to know how far the experimental protocols, plyometric training and swiss ball training influence the total cholesterol among university men basketball players.

The results of this study (Table 4.10) proved that the obtained F ratio of 28.68 on adjusted means of total cholesterol of basketball players was significant at 0.05 level. The post hoc analysis (Table 4.11) comparing the paired adjusted means proved that plyometric training and swiss ball training significantly reduced total cholesterol of the subjects. Comparing between the experimental treatments, plyometric training was significantly better than swiss ball training in reducing total cholesterol of the basketball players. The findings of this study are in agreement with the findings of Yüksel Savucu et.al. (2011) who found that quick strength and aerobics endurance trainings for 20 weeks changed footballer's blood lipid profiles and contradictory to the findings of Baljinder Singh Bal et. al. (2012) who investigated the effects of 6 week plyometric training on biochemical parameters of inter collegiate jumpers and found no significant change in total cholesterol. In this study, trained university level men basketball players were tested on the effect of plyometric training and swiss ball exercises and similar physical activities failed to significantly influence total Cholesterol of the subjects

4.4.7 Discussions on High Density Lipoprotein

HDL cholesterol is determined by many factors, Exercise often plays an important role in raising it. Endurance athletes, such as runners and cyclists, typically have much higher HDL cholesterol than sedentary individuals. However, research has not shown a direct relationship between exercise and increased HDL cholesterol. A study by T. Yates et al (2010) found that the amount of habitual physical activity was strongly correlated to HDL cholesterol over a four-year period. Hwahyung Lee et al; (2009) high levels of HDL cholesterol among elite college athletes are sport-dependent, with runners and wrestlers having significantly higher HDL than throwers and weight lifters. Thus it has not been conclusively demonstrated that which exercise training lowers HDL. Measurements made before and after exercise training have produced variable results with no clear consensus as to whether or not moderate or vigorous exercise can increase HDL. This research is intended to know how far the experimental protocols, plyometric training and swiss ball training influence the HDL among university men basketball players.

The results of this study (Table 4.12) showed that the obtained F ratio of 0.36 on adjusted means of HDL was insignificant at 0.05 level. And it was proved that the experimental protocols, 12 weeks plyometric training and swiss ball training failed to significantly influence HDL of university men basketball players. The findings of this study are in agreement with the research done by Barr SI, et.al. (1991) who found that the volume of swimming exercise might not be related to the degree of change in blood lipid and lipoprotein levels, including HDL in healthy subjects with high activity levels. In this study, trained university level men basketball players were tested on the effect of plyometric training and swiss ball exercises and similar physical activities failed to significantly influence lipid and lipoprotein levels of the subjects.

4.4.8 Discussions on Low Density Lipoprotein

The impact of habitual aerobic exercise on LDL appears to be quite variable. However, the majority of studies comparing endurance athletes to sedentary controls or the general population reported that athletes had lower LDL levels, with leaner athletes frequently having the lowest values. Although it appears that endurance training may decrease LDL, there is little information about the biochemical mechanism producing this change. Thus the independent effect of exercise type (aerobic vs resistance training) on LDL levels is not fully confirmed by existing theoretical knowledge. (Len Kravitz, and Vivian Heyward, 2003) This research is intended to know how far the experimental protocols, plyometric training and swiss ball training influence the LDL among university men basketball players.

The results of this study (Table 4.13) proved that the obtained F ratio of 8.69 on adjusted means of LDL was significant at 0.05 level. The multiple comparisons (Table 4.14) of paired adjusted means proved that plyometric training significantly reduced LDL than swiss ball training and control groups. Thus, it was proved that LDL could be significantly reduced by plyometric training than swiss ball training among university basketball players. The findings of this study are in agreement with the findings of Yüksel Savucu et.al. (2011) who found footballers' blood lipids could be changed positively due to 20 weeks quick strength and aerobic endurance training and Subramanian and Venkatesan (2012), who found exercise lowers LDL. In this study, trained university level men basketball players were tested on the effect of plyometric training and swiss ball exercises and similar physical activities failed to significantly reduce LDL of the subjects.

4.5 DISCUSSIONS ON HYPOTHESES

For the purpose of this research the following hypotheses were formulated:

1. It was hypothesized that plyometric training and swiss ball training would significantly influence on selected fitness variables, explosive power, speed, agility and flexibility among university men basketball players.

2. It was hypothesized that plyometric training and swiss ball training would significantly influence on selected biochemical variables, total cholesterol, triglycerides, low density lipoprotein and high density lipoprotein.

3. It was hypothesized that the plyometric training would have significantly greater influence on the selected fitness variables, namely, explosive power, speed, agility and flexibility than swissball training among the university men basketball players.

4. It was hypothesized that the plyometric training would have significantly greater influence on the selected biochemical variables, namely, total cholesterol,

triglycerides, high density lipoprotein, and low density lipoprotein than swiss ball training among university men basketball players.

5. It was hypothesised that the controll group might not improve in any of the selected physical and biochemical variables among the university level basketball players.

The formulated hypothesis No. 1 stated that plyometric training and swiss ball training would significantly influence on selected fitness variables, explosive power, speed, agility and flexibility among university men basketball players. The results presented in tables, show the Tables 4.1, 4.2, 4.5 and 4.7 ANCOVA results on physical fitness variables, explosive power, speed, agility and flexibility due to plyometric training and swiss ball training. Based on the results of the study the above hypothesis was accepted at 0.05 level of confidence.

The formulated hypothesis No. 2 stated that plyometric training and swiss ball training would significantly influence on selected biochemical variables, total cholesterol, triglycerides, low density lipoprotein and high density lipoprotein. The results presented in Tables 4.9, 4.10, 4.12, and 4.13 shows the results on ANCOVA on biochemical variables triglycerides, total cholesterol, HDL and LDL respectively. The obtained F ratios 28.68 and 8.69 on adjusted means of total cholesterol and LDL are significant at 0.05 level and the F ratios 0.66 and 0.36 on adjusted means of triglycerides and HDL are insignificant at 0.05 level. The paired mean comparisons for variables, total cholesterol and LDL are presented in Tables 4.11 and 4.14. The results proved that plyometric training and swiss ball training significantly lowered total cholesterol of the subjects and LDL was significantly lowered by plyometric training. Thus, the formulated hypothesis was practically accepted in the case of cholesterol and LDL and practically rejected for biochemical variables triglycerides and HDL.

The formulated hypothesis No. 3 state that the plyometric training would have significantly greater influence on the selected fitness variables, namely, explosive power, speed, agility and flexibility than swiss ball training among the university men basketball players. Based on the results obtained the formulated hypothesis was practically accepted in the case of explosive power speed and agility, however it was rejected in the case of flexibility.

The formulated hypothesis No. 4 stated that plyometric training would have significantly greater influence on the selected biochemical variables, namely, total cholesterol, triglycerides, high density lipoprotein, and low density lipoprotein than swiss ball training among university men basketball players. The results proved that plyometric training significantly influenced total cholesterol and LDL than swiss ball training and the hypothesis was accepted at 0.05 level. However, for biochemical variables, triglycerides and HDL there were no significant differences and hence, the formulated hypothesis was rejected at 0.05 level.

6. Based on the results of the study the formulated hypothesis no 5 was accepted.