CHAPTER - IV

RESULTS AND DISCUSSIONS

4.1 OVER VIEW

This chapter deals with the test of significance, level of significance, computation of 't' test, computation of ANCOVA, discussion on finding and discussion on hypothesis were presented. The three groups namely plyometric training, functional core training and control group were analysed for the differences in their measures of physical fitness components, body composition and skill performances in relation to pre test, post test and adjusted post test scores.

The purpose of the study was to find out the effect of plyometric and functional core training on selected physical fitness components, body composition and skill performances among basketball players. To achieve the purpose of the present study, forty five men basketball players from Ernakulam district, Kerala state, India were selected as subjects at random and their ages ranged from 18 to 25 years. The subjects were divided into three equal groups of fifteen subjects each. Group I acted as Experimental Group I (Plyometric Training), Group II acted as Experimental Group II (Functional Core Training) and Group III acted as Control Group. The requirement of the experiment procedures, testing as well as exercise schedule was explained to the subjects so as to get full co-operation of the effort required on their part and prior to the administration of the study.

Pre test was conducted for all the subjects on selected physical fitness components, body composition and skill performances. This initial test scores formed as pre test scores of the subjects. The groups were assigned as Experimental Group I, Experimental Group II and Control Group in an equivalent manner. Experimental Group I was underwent plyometric training, Experimental Group II was underwent functional core training and Control Group was not exposed to any experimental training other than their regular daily activities. The duration of experimental period was 12 weeks. After the experimental treatment, all the forty five subjects were tested on their physical fitness components, body composition and skill performance variables. This final test scores formed as post test scores of the subjects. The pre test and post test scores were subjected to statistical analysis using Analysis of Covariance (ANCOVA) to find out the significance among the mean differences, whenever the 'F' ratio for adjusted test was found to be significant, Scheffe's post hoc test was used. In all cases 0.05 level of significance was fixed to test hypotheses.

4.2 TEST OF SIGNIFICANCE

This is the crucial portion of the thesis, that of 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 0.05 level, was considered necessary for this study. The tests are usually called as 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, if the obtained F-ratio

was greater than the table F-ratio at 0.05 level, the hypothesis was accepted to the effect that there existed significant difference between the means of groups compared. And if the obtained, F-ratio was lesser than the table F-ratio at 0.05 level, then the hypothesis was rejected to the effect that there existed significant difference between the means of groups under study.

4.3 LEVEL OF SIGNIFICANCE

To test the obtained results on all the variables, level of significance 0.05 was chosen and considered as sufficient for the study.

4.4 COMPUTATION OF 't' TEST

The primary objective of the paired 't' ratio was to describe the differences between the pre-test and post-test means of basketball players.

Thus the obtained results were interpreted with earlier studies and presented in this chapter well along with graphical presentations.

TABLE - VI

SIGNIFICANCE OF MEAN GAINS & LOSSES BETWEEN PRE AND POST

TEST SCORES ON SELECTED VARIABLES

OF PLYOMETRIC TRAINING GROUP

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	't' Ratio
1	Explosive Strength	27.80	40.46	12.66	3.08	0.79	**15.89***
2	Muscular Endurance	35.40	39.86	4.46	1.99	0.51	**8.67***
3	Speed	7.80	7.10	0.69	0.10	0.02	**25.13***
4	Flexibility	24.33	30.66	6.33	1.44	0.37	**16.94***
5	BMI	24.80	22.26	2.54	1.35	0.35	**7.27***
6	Percent Body Fat	18.01	16.13	1.87	1.54	0.39	**4.70***
7	Shooting	28.80	32.53	3.73	1.38	0.35	**10.42***
8	Passing	28.73	33.33	4.60	1.95	0.50	**9.10***
9	Dribbling	11.03	10.12	0.90	0.34	0.08	**10.10***

* Significant at 0.05 level

An examination of table-VI indicates that the obtained 't' ratios were 15.89, 8.67, 25.13, 16.94, 7.27, 4.70, 10.42, 9.10 and 10.10 for explosive strength, muscular endurance, speed, flexibility, BMI, percent body fat, shooting, passing and dribbling respectively. The obtained 't' ratios on the selected variables were found to be greater than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be significant. The results of this study showed that statistically significant and explained its effects positively.

TABLE - VII

SIGNIFICANCE OF MEAN GAINS & LOSSES BETWEEN PRE AND POST

TEST SCORES ON SELECTED VARIABLES OF

FUNCTIONAL CORE TRAINING GROUP

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	't' Ratio
1	Explosive strength	28.06	36.46	8.40	6.37	1.64	**5.10***
2	Muscular endurance	35.26	42.66	7.40	3.69	9.44	**7.74***
3	Speed	7.82	7.34	0.47	0.05	0.01	**32.07***
4	Flexibility	24.00	33.46	9.46	2.19	0.56	**16.66***
5	BMI	24.91	22.11	2.80	1.86	0.48	**5.81***
6	Percent body fat	18.43	15.11	3.31	1.84	0.47	**6.95***
7	Shooting	29.13	32.33	3.20	2.07	0.53	**5.96***
8	Passing	28.00	32.60	4.60	1.80	0.46	**9.87***
9	Dribbling	11.12	9.98	1.14	0.26	0.06	**16.63***

* Significant at 0.05 level

An examination of table -VII indicates that the obtained 't' ratios were 5.10, 7.74, 32.07, 16.66, 5.81, 6.95, 5.96, 9.87 and 16.63 for explosive strength, muscular endurance, speed, flexibility, BMI, percent body fat, shooting, passing and dribbling respectively. The obtained 't' ratios on the selected variables were found to be greater than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be significant. The results of this study showed that statistically significant and explained its effects positively.

TABLE – VIII

SIGNIFICANCE OF MEAN GAINS & LOSSES BETWEEN PRE AND POST

TEST SCORES ON SELECTED VARIABLES

OF CONTROL GROUP

S.No	Variables	Pre-Test Mean	Post-Test Mean	Mean difference	Std. Dev (±)	σ DM	't' Ratio
1	Explosive Strength	27.26	27.33	0.06	2.57	0.66	0.10
2	Muscular Endurance	34.66	34.86	0.20	1.14	0.29	0.67
3	Speed	7.84	7.83	0.003	0.05	0.01	0.25
4	Flexibility	24.53	24.40	0.13	1.24	0.32	0.41
5	BMI	24.24	24.14	0.10	0.43	0.11	0.89
6	Percent Body Fat	18.39	18.03	0.35	0.80	0.20	1.70
7	Shooting	28.40	28.60	0.20	0.94	0.24	0.82
8	Passing	28.20	28.46	0.26	1.66	0.43	0.61
9	Dribbling	11.14	11.06	0.08	0.16	0.04	1.92

* Significant at 0.05 level

An examination of table-VIII indicates that the obtained 't' ratios were 0.10, 0.67, 0.25, 0.41, 0.89, 1.70, 0.82, 0.61 and 1.92 for explosive strength, muscular endurance, speed, flexibility, BMI, percent body fat, shooting, passing and dribbling respectively. The obtained 't' ratios on the selected variables were found to be lesser than the required table value of 2.14 at 0.05 level of significance for 14 degrees of freedom. So it was found to be insignificant.

4.5 COMPUTATION OF ANALYSIS OF COVARIANCE ON PHYSICAL FITNESS COMPONENTS

The following tables illustrate the statistical results of the plyometric training and functional core training on selected physical fitness components among basketball players.

TABLE - IX

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON EXPLOSIVE STRENGTH

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	27.80	28.06	27.26	BG	4.97	2	2.48	1.04
				WG	100.26	42	2.38	
Post-Test Means	40.46	36.46	27.33	BG	1359.51	2	679.75	38.96*
				WG	732.80	42	17.44	
Adjusted Post-Test Means	40.45	36.40	27.41	BG	1294.59	2	647.29	36.38*
				WG	729.35	41	17.78	

B- Between Group Means
W- Within Group Means
df- Degrees of Freedom

* - Significant
(Table Value for 0.05 Level for df 2 & 42 = 3.22)
(Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.5.1 RESULTS ON EXPLOSIVE STRENGTH

An examination of table - IX indicated that the pre test means of plyometric, functional core training and control groups were 27.80, 28.06 and 27.26 respectively. The obtained F-ratio for the pre-test was 1.04 and the required table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 40.46, 36.36 and 27.33 respectively. The obtained F-ratio for the post-test was 38.96 and the required table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 40.45, 36.40 and 27.41 respectively. The obtained F-ratio for the adjusted post-test means was 36.38 and the required table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on explosive strength.

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

TABLE - X

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN

THE ADJUSTED POST TEST PAIRED MEANS

ON EXPLOSIVE STRENGTH

Adjusted Post-test means			Mean Difference
Plyometric Training	**Functional Core Training**	**Control Group**	
40.45	36.40	---	**4.05***
40.45	---	27.41	**13.04***
---	36.40	27.41	**8.99***

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table X proved that there exist significant differences between the adjusted means of plyometric training and functional core training group was (4.05) and it shows that there was significant difference between the treatment groups. Plyometric training and control group (13.04), functional core training and control group (8.99) at 0.05 level of confidence with the confidence interval value of 3.90. Both the training has significant difference on explosive strength.

The pre, post and adjusted means on explosive strength were presented through bar diagram for better understanding of the results of this study in Figure-1.

FIGURE - 1

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE,

PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING AND

CONTROL GROUPS ON EXPLOSIVE STRENGTH
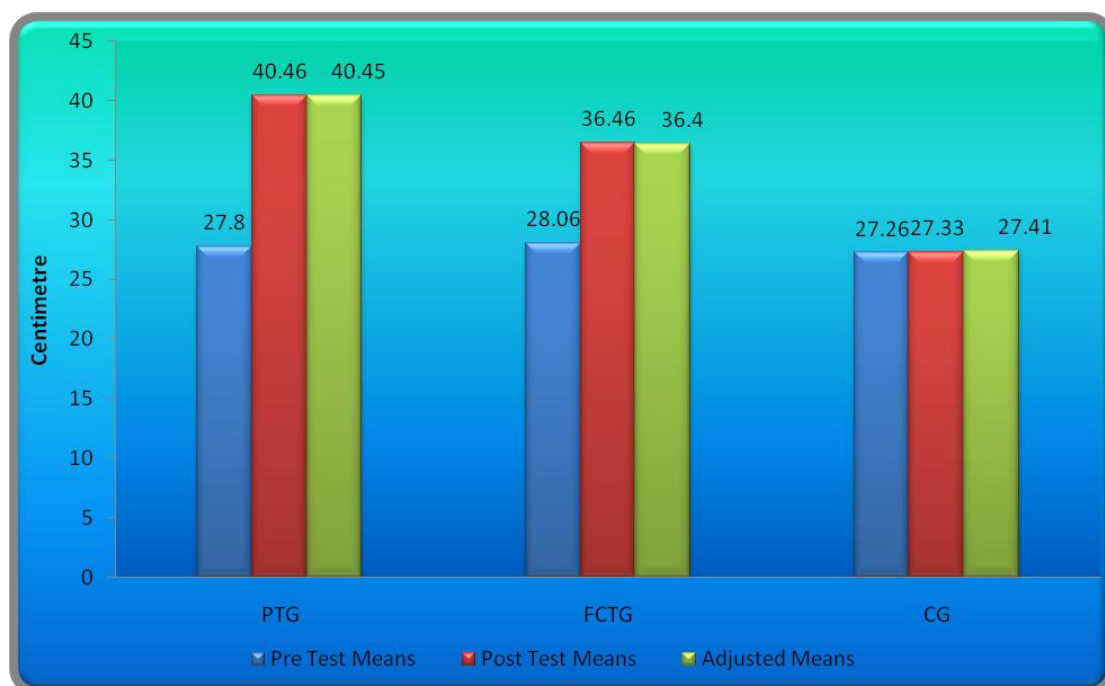
4.5.1.1 DISCUSSION ON EXPLOSIVE STRENGTH

The results presented in table IX showed that obtained adjusted means on explosive strength among plyometric training group was 40.45 followed by functional core training group with mean value of 36.40, and control group with mean value of 27.41. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.04, 38.96 and 36.38 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has improved explosive strength than the control group and the differences were significant at 0.05 level. Further, the post hoc analysis showed that there was significant differences exist between the experimental groups, clearly indicating that plyometric training was significantly better than functional core training in improving explosive strength of the basketball players.

The study conducted by Okazaki et al. (2015), Kalian & Bevinson (2015), Boccolini et al. (2013), Michal et al. (2013), Nahid et al. (2012), Eduardo et al. (2008) proved that there was an improvement in explosive strength.

TABLE-XI

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON MUSCULAR ENDURANCE

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	35.40	35.26	34.66	BG	4.57	2	2.28	1.09
				WG	87.86	42	2.09	
Post-Test Means	39.86	42.66	34.86	BG	468.40	2	234.20	53.22*
				WG	184.80	42	4.40	
Adjusted Post-Test Means	39.85	42.66	34.88	BG	448.22	2	224.11	49.75*
				WG	184.66	41	4.50	

B- Between Group Means
W- Within Group Means
df- Degrees of Freedom

* - Significant
(Table Value for 0.05 Level for df 2 & 42 = 3.22)
(Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.5.2 RESULTS ON MUSCULAR ENDURANCE

An examination of table - XI indicated that the pre test means of plyometric, functional core training and control groups were 35.40, 35.26 and 34.66 respectively. The obtained F-ratio for the pre-test was 1.09 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 39.86, 42.66 and 34.86 respectively. The obtained F-ratio for the post-test was 53.22 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 39.85, 42.66 and 34.88 respectively. The obtained F-ratio for the adjusted post-test means was 49.75 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on muscular endurance.

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

TABLE - XII

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE

ADJUSTED POST TEST PAIRED MEANS ON

MUSCULAR ENDURANCE

Adjusted Post-test means			Mean Difference
Plyometric Training	**Functional Core Training**	**Control Group**	
39.85	42.66	---	**2.81***
39.85	---	34.88	**4.97***
---	42.66	34.88	**7.78***

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table XII proved that there existed significant differences between the adjusted means of plyometric training and functional core training group was (2.81) and it shows that there was significant difference between the treatment groups. Plyometric training and control group (4.97), functional core training and control group (7.78) at 0.05 level of confidence with the confidence interval value of 1.96. Both the training has significant difference on muscular endurance.

The pre, post and adjusted means on muscular endurance were presented through bar diagram for better understanding of the results of this study in Figure-2.

FIGURE - 2

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE,

PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING AND

CONTROL GROUPS ON MUSCULAR ENDURANCE
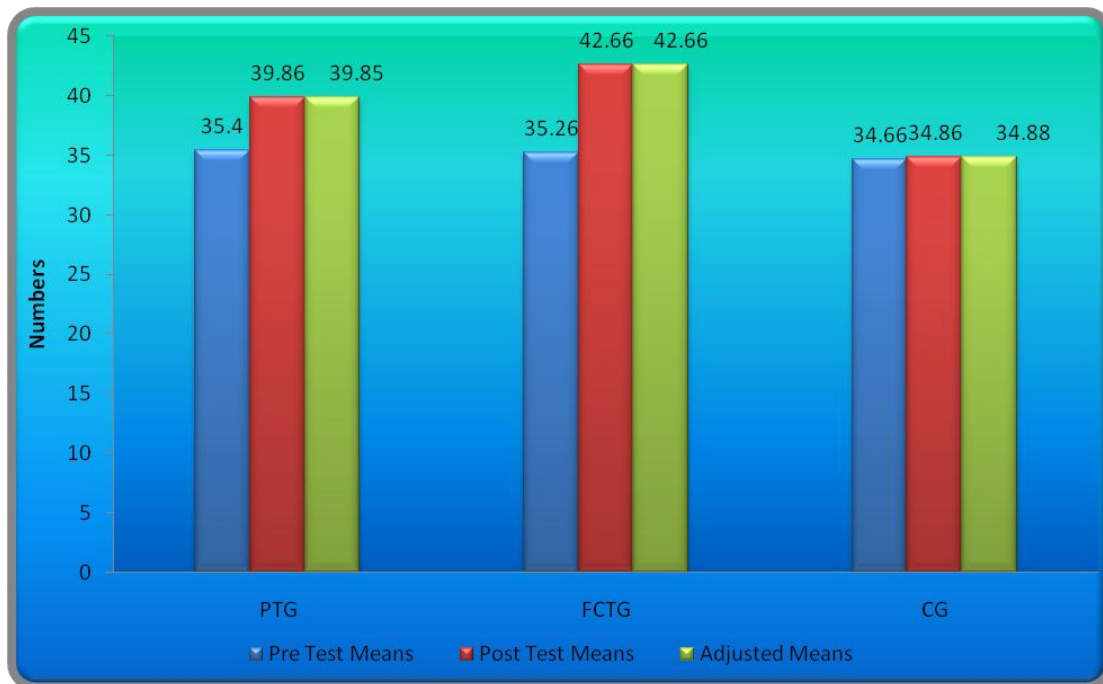
4.5.2.1 DISCUSSION ON MUSCULAR ENDURANCE

The results presented in table XI showed that obtained adjusted means on muscular endurance among functional core training group was 42.66 followed by plyometric training group with mean value of 39.85, and control group with mean value of 34.88. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.09, 53.22 and 49.75 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has increased muscular endurance than the control group and the differences were significant at 0.05 level. Further, the post hoc analysis showed that there was significant differences exist between the experimental groups, clearly indicating that functional core training was significantly better than plyometric training in increasing muscular endurance of the basketball players.

The study conducted by Bimal Kumar & Vikram (2013), Gnaneshwar & Gopinath (2013) proved that there was an improvement in muscular endurance.

TABLE - XIII

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON SPEED

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	7.80	7.82	7.84	BG	0.01	2	0.006	1.25
				WG	0.20	42	0.005	
Post-Test Means	7.10	7.34	7.83	BG	4.16	2	2.08	841.55*
				WG	0.10	42	0.002	
Adjusted Post-Test Means	7.11	7.34	7.83	BG	3.87	2	1.93	809.96*
				WG	0.09	41	0.002	

B- Between Group Means   * - Significant

W- Within Group Means   (Table Value for 0.05 Level for df 2 & 42 = 3.22)

df- Degrees of Freedom   (Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.5.3 RESULTS ON SPEED

An examination of table - XIII indicated that the pre test means of plyometric, functional core training and control groups were 7.80, 7.82 and 7.84 respectively. The obtained F-ratio for the pre-test was 1.25 and required the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 7.10, 7.34 and 7.83 respectively. The obtained F-ratio for the post-test was 841.55 and the required table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 7.11, 7.34 and 7.83 respectively. The obtained F-ratio for the adjusted post-test means was 809.96 and the required table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on speed.

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

TABLE - XIV

**THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON SPEED**

Adjusted Post-test means			Mean Difference
Plyometric Training	Functional Core Training	Control Group	
7.11	7.34	---	**0.23***
7.11	---	7.83	**0.72***
---	7.34	7.83	**0.49***

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table XIV proved that there existed significant differences between the adjusted means of plyometric training and functional core training group was (0.23) and it shows that there was significant difference between the treatment groups. Plyometric training and control group (0.72), functional core training and control group (0.49) at 0.05 level of confidence with the confidence interval value of 0.04. Both the training has significant difference on speed.

The pre, post and adjusted means on speed were presented through bar diagram for better understanding of the results of this study in Figure-3.

FIGURE - 3

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE,

PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING AND

CONTROL GROUPS ON SPEED
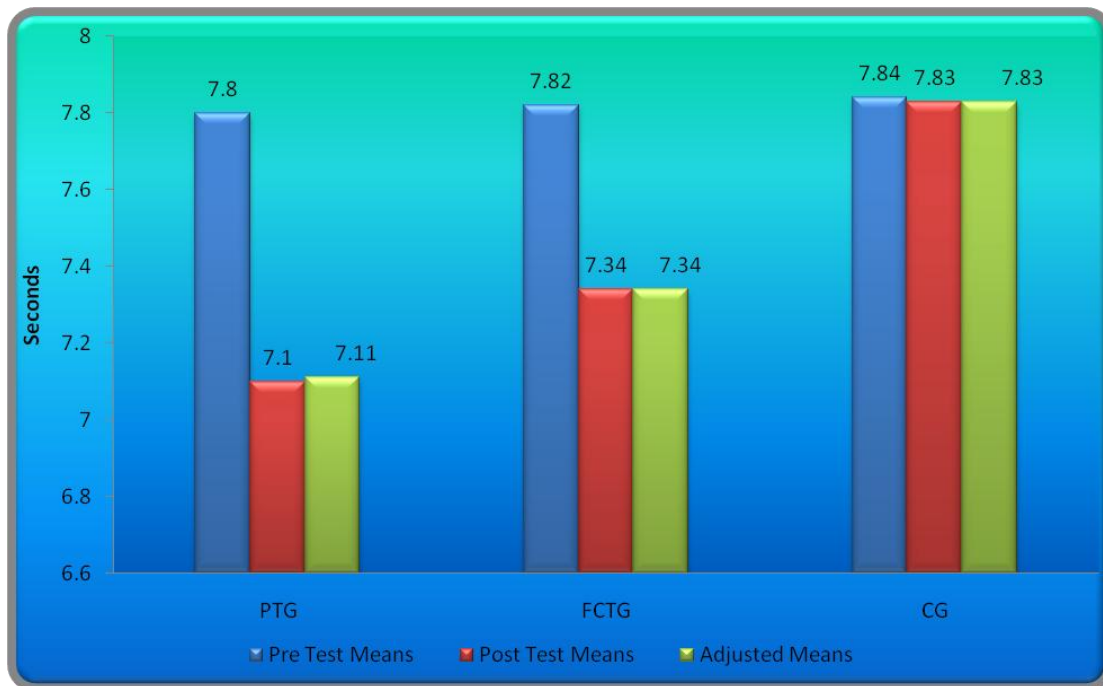
4.5.3.1 DISCUSSION ON SPEED

The results presented in table XIII showed that obtained adjusted means on speed among plyometric training group was 7.11 followed by functional core training group with mean value of 7.34, and control group with mean value of 7.83. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.25, 841.55 and 809.96 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has increased speed than the control group and the differences were significant at 0.05 level. Further, the post hoc analysis showed that there was significant differences exist between the experimental groups, clearly indicating that plyometric training was significantly better than functional core training in increasing speed of the basketball players.

The study conducted by Gnaneshwar & Gopinath (2013), Asad & Arazi (2012), Shalfawi et al. (2011), Mindaugas et al. (2006) proved that there was an improvement in speed.

TABLE - XV

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON FLEXIBILITY

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	24.33	24.00	24.53	BG	2.17	2	1.08	1.06
				WG	43.06	42	1.02	
Post-Test Means	30.66	33.46	24.40	BG	646.57	2	323.28	153.13*
				WG	88.66	42	2.11	
Adjusted Post-Test Means	30.66	33.51	24.36	BG	629.41	2	314.70	147.13*
				WG	87.69	41	2.13	

B- Between Group Means
W- Within Group Means
df- Degrees of Freedom

* - Significant
(Table Value for 0.05 Level for df 2 & 42 = 3.22)
(Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.5.4 RESULTS ON FLEXIBILITY

An examination of table - XV indicated that the pre test means of plyometric, functional core training and control groups were 24.33, 24.00 and 24.53 respectively. The obtained F-ratio for the pre-test was 1.06 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 30.66, 33.46 and 24.40 respectively. The obtained F-ratio for the post-test was 153.13 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 30.66, 33.51 and 24.36 respectively. The obtained F-ratio for the adjusted post-test means was 147.13 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on flexibility.

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

TABLE - XVI

**THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON FLEXIBILITY**

Adjusted Post-test means			Mean Difference
Plyometric Training	Functional Core Training	Control Group	
30.66	33.51	---	2.85*
30.66	---	24.36	6.30*
---	33.51	24.36	9.15*

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table XVI proved that there existed significant differences between the adjusted means of plyometric training and functional core training group was (2.85) and it shows that there was significant difference between the treatment groups. Plyometric training and control group (6.30), functional core training and control group (9.15) at 0.05 level of confidence with the confidence interval value of 1.35. Both the training has significant difference on explosive power.

The pre, post and adjusted means on flexibility were presented through bar diagram for better understanding of the results of this study in Figure-4.

FIGURE - 4

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE,

PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING AND

CONTROL GROUPS ON FLEXIBILITY
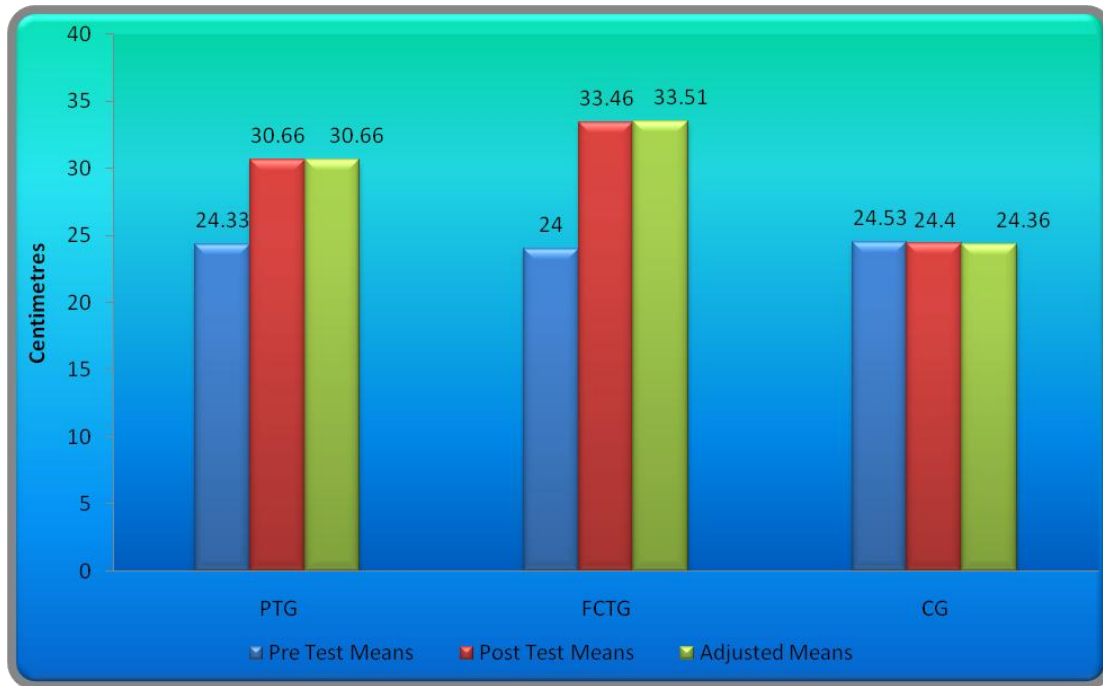
4.5.4.1 DISCUSSION ON FLEXIBILITY

The results presented in table XV showed that obtained adjusted means on flexibility among functional core training group was 33.51 followed by plyometric training group with mean value of 30.66, and control group with mean value of 24.36. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.06, 153.13 and 147.13 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has increased flexibility than the control group and the differences were significant at 0.05 level. Further, the post hoc analysis showed that there was significant differences exist between the experimental groups, clearly indicating that functional core training was significantly better than plyometric training in increasing flexibility of the basketball players.

The study conducted by Sam & Usharani (2013) proved that there was an improvement in flexibility.

TABLE - XVII

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON BODY MASS INDEX (BMI)

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	24.80	24.91	24.24	BG	3.84	2	1.92	1.23
				WG	65.64	42	1.56	
Post-Test Means	22.26	22.11	24.14	BG	38.57	2	19.28	12.55*
				WG	64.53	42	1.53	
Adjusted Post-Test Means	22.19	22.00	24.31	BG	46.33	2	23.16	17.65*
				WG	53.78	41	1.31	

B- Between Group Means
W- Within Group Means
df- Degrees of Freedom

* - Significant
(Table Value for 0.05 Level for df 2 & 42 = 3.22)
(Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.6 COMPUTATION OF ANALYSIS OF COVARIANCE ON BODY COMPOSITION

The following tables illustrate the statistical results of the plyometric training and functional core training on selected Body composition among basketball players.

4.6.1 RESULTS ON BODY MASS INDEX (BMI)

An examination of table - XVII indicated that the pre test means of plyometric, functional core training and control groups were 24.80, 24.91 and 24.24 respectively. The obtained F-ratio for the pre-test was 1.23 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 22.26, 22.11 and 24.31 respectively. The obtained F-ratio for the post-test was 12.55 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 22.19, 22.00 and 24.31 respectively. The obtained F-ratio for the adjusted post-test means was 17.65 and the table F-ratio was

3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on Body Mass Index (BMI).

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

TABLE - XVIII

**THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON BODY MASS INDEX (BMI)**

Adjusted Post-test means			Mean Difference
Plyometric Training	Functional Core Training	Control Group	
22.19	22.00	---	0.19
22.19	---	24.31	**2.12***
---	22.00	24.31	**2.31***

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table XVIII proved that there existed significant differences between the adjusted means of plyometric training with control group (2.12), functional core training with control group (2.31). Both the training has significant difference on BMI. There was no significant difference between plyometric training and functional core training (0.19) at 0.05 level of confidence with the confidence interval value of 1.06.

The pre, post and adjusted means on BMI were presented through bar diagram for better understanding of the results of this study in Figure-5.

FIGURE - 5

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE,

PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON BODY MASS INDEX (BMI)
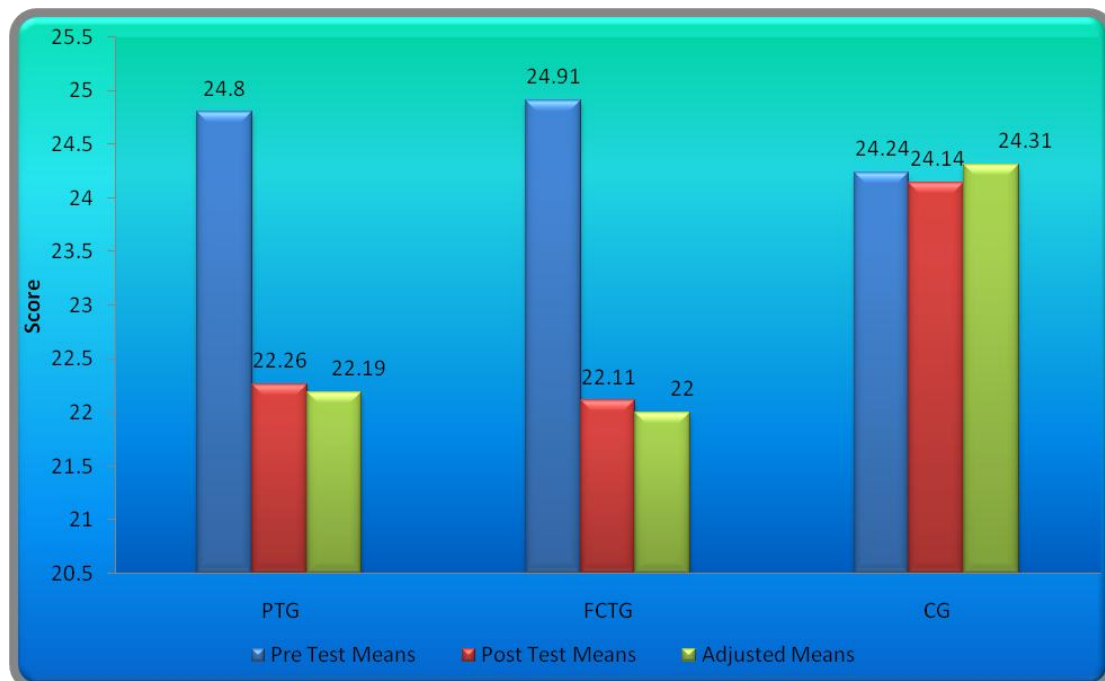
4.6.1.1 DISCUSSION ON BODY MASS INDEX (BMI)

The results presented in table XVII showed that obtained adjusted means on BMI among functional core training group was 22.00 followed by plyometric training group with mean value of 22.19, and control group with mean value of 24.31. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.23, 12.55 and 17.65 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has decreased BMI than the control group and the differences were significant at 0.05 level.

The study conducted by Alejandro et al. (2015) Ozhan (2012) proved that there was a decrease in BMI.

TABLE - XIX

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON PERCENT BODY FAT

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	18.01	18.43	18.39	BG	1.66	2	0.83	1.13
				WG	30.65	42	0.73	
Post-Test Means	16.13	15.11	18.03	BG	65.81	2	32.90	16.68*
				WG	82.82	42	1.97	
Adjusted Post-Test Means	16.23	15.06	17.99	BG	65.42	2	32.71	17.09*
				WG	78.43	41	1.91	

B- Between Group Means
W- Within Group Means
df- Degrees of Freedom

* - Significant
(Table Value for 0.05 Level for df 2 & 42 = 3.22)
(Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.6.2 RESULTS ON PERCENT BODY FAT

An examination of table - XIX indicated that the pre test means of plyometric, functional core training and control groups were 18.01, 18.43 and 18.39 respectively. The obtained F-ratio for the pre-test was 1.13 and the required table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 16.13, 15.11 and 18.03 respectively. The obtained F-ratio for the post-test was 16.68 and the required table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 16.23, 15.06 and 17.99 respectively. The obtained F-ratio for the adjusted post-test means was 17.09 and the required table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on percent body fat.

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

TABLE - XX

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE

ADJUSTED POST TEST PAIRED MEANS ON

PERCENT BODY FAT

Adjusted Post-test means			Mean Difference
Plyometric Training	**Functional Core Training**	**Control Group**	
16.23	15.06	---	1.17
16.23	---	17.99	**1.76***
---	15.06	17.99	**2.93***

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table XX proved that there existed significant differences between the adjusted means of plyometric training with control group (1.76), functional core training with control group (2.93). Both the training has significant difference on percent body fat. There was no significant difference between plyometric training and functional core training (1.17) at 0.05 level of confidence with the confidence interval value of 1.28.

The pre, post and adjusted means on percent body fat were presented through bar diagram for better understanding of the results of this study in Figure-6.

FIGURE – 6

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE,

PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON PERCENT BODY FAT
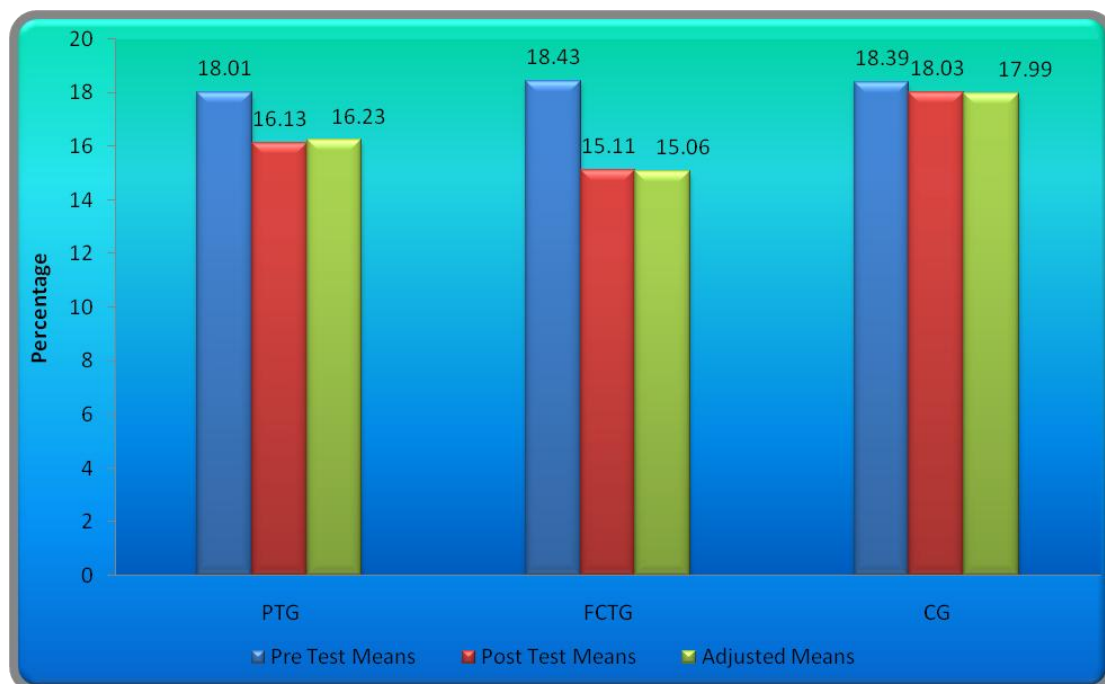
4.6.2.1 DISCUSSION ON PERCENT BODY FAT

The results presented in table XIX showed that obtained adjusted means on percent body fat among functional core training group was 15.06 followed by plyometric training group with mean value of 16.23, and control group with mean value of 17.99. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.13, 16.68 and 17.09 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has decreased percent body fat than the control group and the differences were significant at 0.05 level.

The study conducted by Alejandro et al. (2015) Ozhan (2012) proved that there was a decrease in percent body fat.

TABLE - XXI

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON SHOOTING

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	28.80	29.13	28.40	BG	4.04	2	2.02	1.01
				WG	83.73	42	1.99	
Post-Test Means	32.53	32.33	28.60	BG	147.24	2	73.62	**79.96***
				WG	38.66	42	0.92	
Adjusted Post-Test Means	32.53	32.28	28.65	BG	136.70	2	68.35	**75.47***
				WG	37.13	41	0.90	

B- Between Group Means * - Significant
W- Within Group Means (Table Value for 0.05 Level for df 2 & 42 = 3.22)
df- Degrees of Freedom (Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.7 COMPUTATION OF ANALYSIS OF COVARIANCE ON SKILL

    PERFORMANCE

The following tables illustrate the statistical results of the plyometric training and functional core training on selected skill performance among basketball players.

4.7.1 RESULTS ON SHOOTING

An examination of table - XXI indicated that the pre test means of plyometric, functional core training and control groups were 28.80, 29.13 and 28.40 respectively. The obtained F-ratio for the pre-test was 1.01 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 32.53, 32.33 and 28.60 respectively. The obtained F-ratio for the post-test was 79.96 and the table F-ratio was 3.22. Hence post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 32.53, 32.28 and 28.65 respectively. The obtained F-ratio for the adjusted post-test means was 75.47 and the table F-ratio was

3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on shooting.

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

TABLE - XXII

**THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON SHOOTING**

Adjusted Post-test means			Mean Difference
Plyometric Training	Functional Core Training	Control Group	
32.53	32.28	---	0.25
32.53	---	28.65	3.88*
---	32.28	28.65	3.63*

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table XXII proved that there existed significant differences between the adjusted means of plyometric training with control group (3.88), functional core training with control group (3.63). Both the training has significant difference on shooting. There was no significant difference between plyometric training and functional core training (0.25) at 0.05 level of confidence with the confidence interval value of 0.87.

The pre, post and adjusted means on shooting were presented through bar diagram for better understanding of the results of this study in Figure-7.

FIGURE - 7

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE, PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING AND CONTROL GROUPS ON SHOOTING
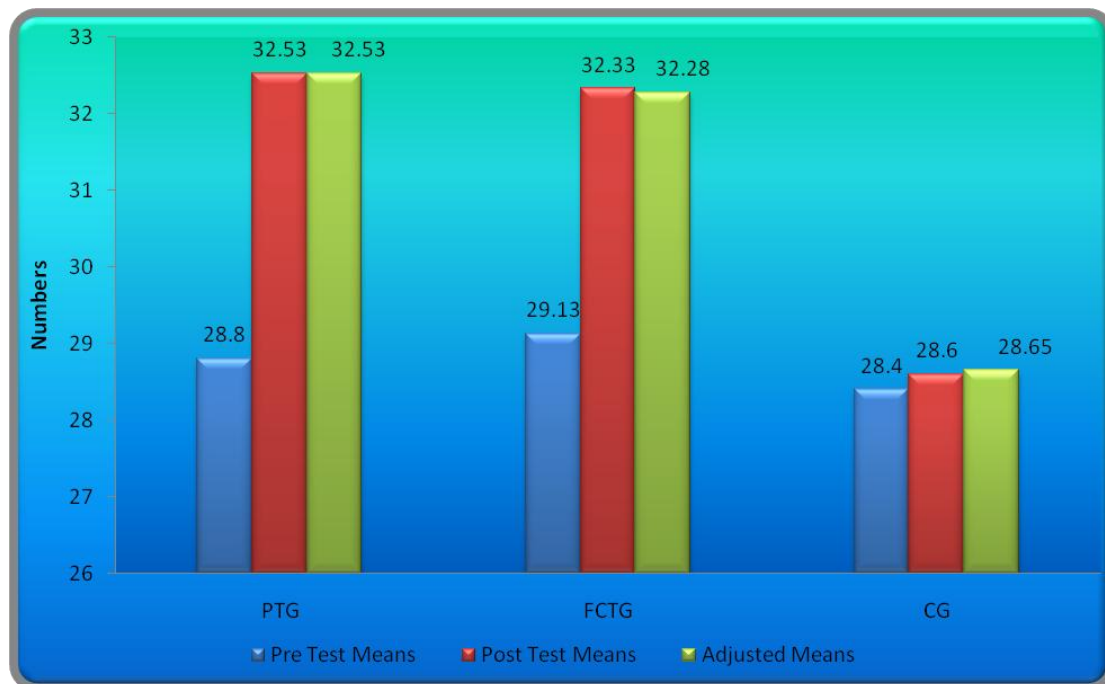
4.7.1.1 DISCUSSION ON SHOOTING

The results presented in table XXI showed that obtained adjusted means on shooting among plyometric training group was 32.53 followed by functional core training group with mean value of 32.28, and control group with mean value of 28.65. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.01, 79.96 and 75.47 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has improved shooting ability than the control group and the differences were significant at 0.05 level.

The study conducted by Conte et al. (2015), Skinner & Guy (2015), Okazaki (2015), Attene et al. (2014), Ahmed (2013), Arias (2012) proved that there was an improvement in shooting ability.

TABLE - XXIII

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON PASSING

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	28.73	28.00	28.20	BG	4.31	2	2.15	1.30
				WG	69.33	42	1.65	
Post-Test Means	33.33	32.60	28.46	BG	206.53	2	103.26	69.21*
				WG	62.66	42	1.49	
Adjusted Post-Test Means	33.35	32.58	28.46	BG	205.69	2	102.84	67.43*
				WG	62.53	41	1.52	

B- Between Group Means
W- Within Group Means
df- Degrees of Freedom

* - Significant
(Table Value for 0.05 Level for df 2 & 42 = 3.22)
(Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.7.2 RESULTS ON PASSING

An examination of table - XXIII indicated that the pre test means of plyometric, functional core training and control groups were 28.73, 28.00 and 28.20 respectively. The obtained F-ratio for the pre-test was 1.30 and the required table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 33.33, 32.60 and 28.46 respectively. The obtained F-ratio for the post-test was 69.21 and the required table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 33.35, 32.58 and 28.46 respectively. The obtained F-ratio for the adjusted post-test means was 67.43 and the required table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on passing.

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

TABLE - XXIV

THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON PASSING

| Adjusted Post-test means			Mean Difference
Plyometric Training	Functional Core Training	Control Group	
33.35	32.58	---	0.77
33.35	---	28.46	**4.89***
---	32.58	28.46	**4.12***

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table XXIV proved that there existed significant differences between the adjusted means of plyometric training with control group (4.89), functional core training with control group (4.12). Both the training has significant difference on passing. There was no significant difference between plyometric training and functional core training (0.77) at 0.05 level of confidence with the confidence interval value 1.14.

The pre, post and adjusted means on passing were presented through bar diagram for better understanding of the results of this study in Figure-8.

FIGURE - 8

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE,

PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING AND

CONTROL GROUPS ON PASSING
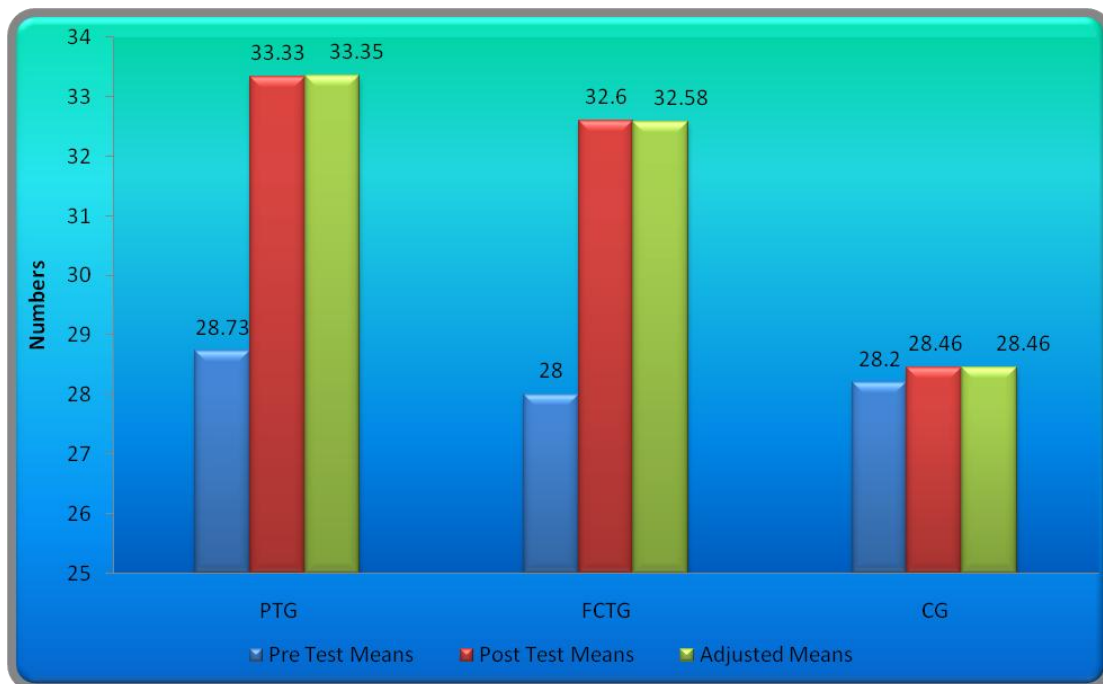
4.7.2.1 DISCUSSION ON PASSING

The results presented in table XXIII showed that obtained adjusted means on passing among plyometric training group was 33.35 followed by functional core training group with mean value of 32.58, and control group with mean value of 28.46. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.30, 69.21 and 67.43 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has improved passing ability than the control group and the differences were significant at 0.05 level.

The study conducted by Conte et al. (2015), Skinner & Guy (2015), Okazaki (2015), Attene et al. (2014), Ahmed (2013), Arias (2012) proved that there was an improvement in passing.

TABLE - XXV

COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF PLYOMETRIC AND FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON DRIBBLING

	Plyometric Training	Functional Core Training	Control Group	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	11.03	11.12	11.14	BG	0.11	2	0.05	1.25
				WG	1.84	42	0.04	
Post-Test Means	10.12	9.98	11.06	BG	10.43	2	5.21	162.64*
				WG	1.34	42	0.03	
Adjusted Post-Test Means	10.12	9.97	11.06	BG	10.21	2	5.10	155.57*
				WG	1.34	41	0.03	

B- Between Group Means
W- Within Group Means
df- Degrees of Freedom

* - Significant
(Table Value for 0.05 Level for df 2 & 42 = 3.22)
(Table Value for 0.05 Level for df 2 & 41 = 3.23)

4.7.3 RESULTS ON DRIBBLING

An examination of table - XXV indicated that the pre test means of plyometric, functional core training and control groups were 11.03, 11.12 and 11.14 respectively. The obtained F-ratio for the pre-test was 1.25 and the table F-ratio was 3.22. Hence the pre-test mean F-ratio was insignificant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that there were no significant difference between the experimental and control groups indicating that the process of randomization of the groups was perfect while assigning the subjects to groups.

The post-test means of plyometric, functional core training and control groups were 10.12, 9.98 and 11.06 respectively. The obtained F-ratio for the post-test was 162.64 and the table F-ratio was 3.22. Hence the post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 42. This proved that the differences between the post test means of the subjects were significant.

The adjusted post-test means of plyometric, functional core training and control groups were 10.12, 9.97 and 11.06 respectively. The obtained F-ratio for the adjusted post-test means was 155.57 and the table F-ratio was 3.23. Hence the adjusted post-test mean F-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 41. This proved that there was a significant difference among the means due to the experimental trainings on dribbling.

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

TABLE - XXVI

**THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST TEST PAIRED MEANS ON DRIBBLING**

Adjusted Post-test means			Mean Difference
Plyometric Training	Functional Core Training	Control Group	
10.12	9.97	---	0.15
10.12	---	11.06	**0.94***
---	9.97	11.06	**1.09***

* Significant at 0.05 level of confidence

The multiple comparisons showed in Table XXVI proved that there existed significant differences between the adjusted means of plyometric training with control group (0.94), functional core training with control group (1.09). Both the training has significant difference on dribbling. There was no significant difference between plyometric training and functional core training (0.15) at 0.05 level of confidence with the confidence interval value of 0.16.

The pre, post and adjusted means on dribbling were presented through bar diagram for better understanding of the results of this study in Figure-9.

FIGURE - 9

PRE POST AND ADJUSTED POST TEST DIFFERENCES OF THE,

PLYOMETRIC TRAINING, FUNCTIONAL CORE TRAINING

AND CONTROL GROUPS ON DRIBBLING
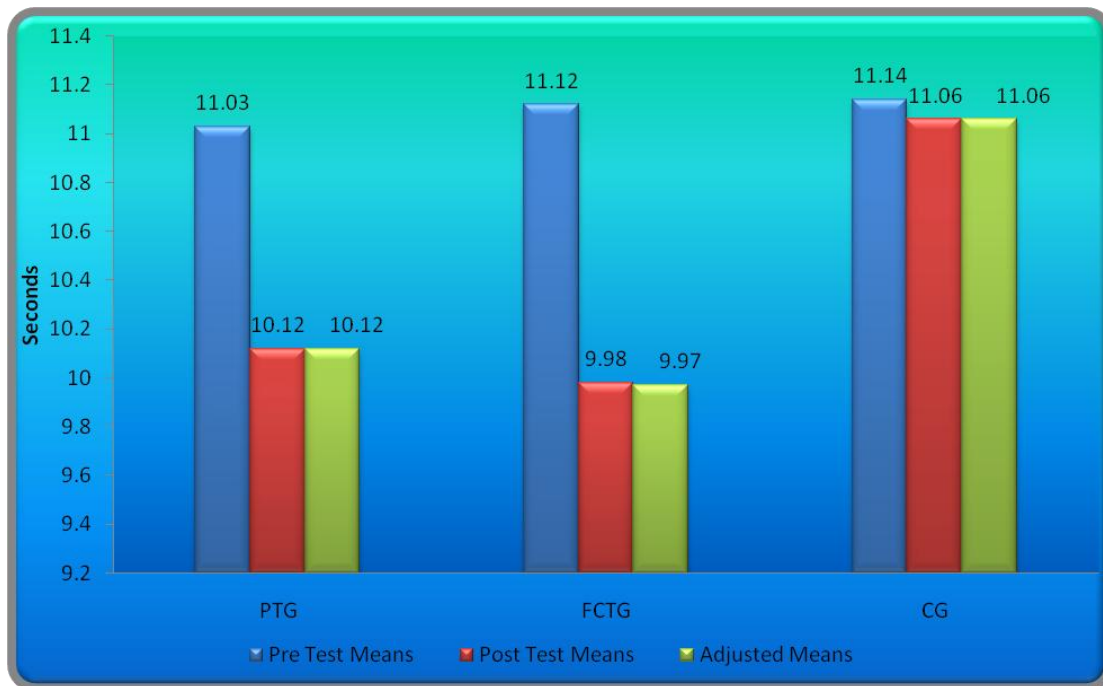
4.7.3.1 DISCUSSION ON DRIBBLING

The results presented in table XXV showed that obtained adjusted means on dribbling among functional core training group was 9.97 followed by plyometric training group with mean value of 10.12, and control group with mean value of 11.06. The differences among pretest scores, post test scores and adjusted mean scores of the subjects were statistically treated using ANCOVA and the obtained F values were 1.25, 162.64 and 155.57 respectively. It was found that obtained F value on pre test scores were not significant and the obtained F values on post test and adjusted means were significant at 0.05 level of confidence as these were greater than the required table F value of 3.22 and 3.23. The post hoc analysis through Scheffe's Confidence test proved that due to twelve weeks training of plyometric training and functional core training has improved dribbling ability than the control group and the differences were significant at 0.05 level.

The study conducted by Conte et al. (2015), Skinner & Guy (2015), Okazaki (2015), Attene et al. (2014), Ahmed (2013), Arias (2012) proved that there was an improvement in dribbling.

4.8 DISCUSSION ON THE HYPOTHESES

1. First hypothesis stated that there would be a significant improvement on selected physical fitness variables due to the influence of plyometric training and functional core training among the basketball players.

   The findings of the study showed that there were significant improvement in selected physical fitness variables such as Explosive Strength , Muscular Endurance, Speed and Flexibility of basketball players due to the influence of plyometric trainings and functional core training among the basketball players. Hence the first hypothesis was accepted on the above said variables.

2. Second hypothesis stated that there would be a significant improvement in selected body composition variables due to the influence of plyometric training and functional core training among the basketball players.

   The findings of the study showed that there were significant improvement in selected body composition variables such as body mass index and percent body fat of basketball players due to influence of plyometric trainings and functional core training among the basketball players. Hence the second hypothesis was accepted on the above said variables.

3. Third hypothesis stated that there would be a significant improvement in selected skill performances due to the influence of plyometric training and functional core training among the basketball players.

The findings of the study showed that there were significant differences in selected skill performances such as shooting, passing and dribbling of basketball players due to influence of plyometric trainings and functional core training among the basketball players. Hence the third research hypothesis was accepted on the above said variables.

4. Fourth hypothesis stated that plyometric training group would show significant improvement on physical fitness components than the functional core training group among the basketball players.

The findings of the study showed that the plyometric training group showed better improvement only on increasing explosive strength and speed than the functional core training group. The other variables muscular endurance and flexibility are failed to reach the significant level. Hence the fourth research hypothesis was partially accepted on the above said variable only.

5. Fifth hypothesis stated that functional core training group would show significant improvement on body composition than the plyometric training group among the basketball players.

The findings of the study showed that the functional core training group and plyometric training group produced similar effect on body composition variables. Hence the fifth research hypothesis was rejected on the above said variable only.