4.1 Overview

The analysis and interpretation of the data are presented in this chapter. Various statistical methods, including descriptive statistics, analysis of covariance (ANCOVA), and the post hoc pair-wise comparison utilizing the Scheffe's test analysis, were used to conduct the analysis.

This is the section of the thesis that is most important for drawing conclusions from the analysis of the hypothesis. For the study, it was deemed sufficient to follow a process of accepting or rejecting the hypothesis based on the findings in respect to the degree of significance. The significance level was set at ($p<0.05$) levels.

SPSS 21st version, a statistical tool for social sciences, was used to assemble and analyze the data.

4.2 Analysis of Data

The influence of the independent variables on each criterion variables were analysed and presented below.

4.2.1 Speed

The statistical analyses of the initial and final means of the physical variable speed to determine the effect of resistance training, bodyweight training and their combination on kabaddi players are presented in Table 4.1.

Table 4.1 : Analysis of Covariance of Pre-Test, Post-Test and Adjusted Post-Test Mean on Speed of Resistance Training, Bodyweight Training and Their Combination Training Group and Control Group

Test		Resistance Training	Bodyweight Training	Combination Training	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	ObtainF ratio	Sig. (2-tailed)
Pre-Test	M	7.03	7.01	6.99	6.99	B	0.03	3	0.01	0.13	0.94
	SD	0.21	0.36	0.27	0.23	W	7.38	96	0.08		
Post Test	M	6.81	6.77	6.69	6.92	B	0.69	3	0.23	3.04*	0.03
	SD	0.21	0.36	0.26	0.25	W	7.26	96	0.08		
Adjusted Post Test	M	6.79	6.76	6.71	6.94	B	0.72	3	0.24	35.65*	0.00
						W	0.64	95	0.01		

*Significant at 0.05 level of significance if ($p<0.05$).

Table 4.1 showed that the resistance training group had a pre-test mean and S.D value of 7.03 ± 0.21, followed by the bodyweight training group with a value of 7.01 ± 0.36, the combination training group with a value of 6.99 ± 0.27, and the control group with a value of 6.99 ± 0.23. Given that the obtained ($F = 0.13$, $p>0.05$) was less than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 96, ANCOVA clearly demonstrates that there is no significant difference in speed between the experimental group and control group prior to the start of training. It indicates that the random grouping of subjects was successful.

The post-test means and SD for speed for the resistance training group was 6.81 ± 0.21, for bodyweight training it was 6.77± 0.36, for combination training it was 6.69± 0.26, and for the control group it was 6.92± 0.25. There was a significant difference in speed during the post-test, as shown in Table 4.1. The obtained ($F = 3.04$, $p<0.05$). value was higher than the required table value of 2.70 and the DF of 3 and 96.It concludes that a twelve-week training program must have had a significant effect on the speed that was found to have changed.

Additionally, the means of speed for the resistance training group ($M = 6.79$), bodyweight training group ($M = 6.76$), combination training group ($M = 6.71$), and control group ($M = 6.94$) after adjusting for post-test variance. The table clearly shows that there was a significant difference in adjusted post-test speed scores between the groups after for pre-test scores, as shown by the fact that the obtained value ($F = 35.65$, $p<0.05$) was higher than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 95. As a result, it may be said that the experimental group's speed improved after twelve weeks of training.

Scheffe's post hoc test was used to determine which of the four paired means had a significant difference, and the findings are shown in Table 4.2.

Table 4.2 : The Scheffe's Post Hoc Test for Difference between the Adjusted Post Test PairedMeans on Speed

Resistance Training	Bodyweight Training	Combination Training	Control Group	Mean Difference	Sig.
6.79	6.76	-	-	0.03	0.21
6.79	-	6.71	-	0.08	0.00*
6.79	-	-	6.94	0.15	0.00*
-	6.76	6.71	-	0.05	0.03*
-	6.76	-	6.94	0.18	0.00*
-	-	6.71	6.94	0.23	0.00*

*Significant at 0.05 Level of Significance if $p<0.05$.

The post-test adjusted mean difference in speed shown in table - 4.3 demonstrates that there are significant differences between resistance training and combination training (0.08, $p<0.05$), resistance training and control group (0.15, $p<0.05$), bodyweight training and combination training (0.05, $p<0.05$), bodyweight training and control group (0.18, ($p<0.05$) and combination training and control group (0.23, $p<0.05$). The table also demonstrates that there is no difference between resistance training and bodyweight training (0.03, $p>0.05$).

The study's findings suggest that after completing their respective twelve- week training regimens, the resistance training, bodyweight training, and combination training groups all had significant improvements in speed. The study's findings also revealed a significant difference in the training groups' rates of speed, in this respect, the combination training group having better speed than the resistance training, bodyweight training, and control groups.

The pre, post and adjusted means on speed are illustrated through bar chart in figure - 4.1.

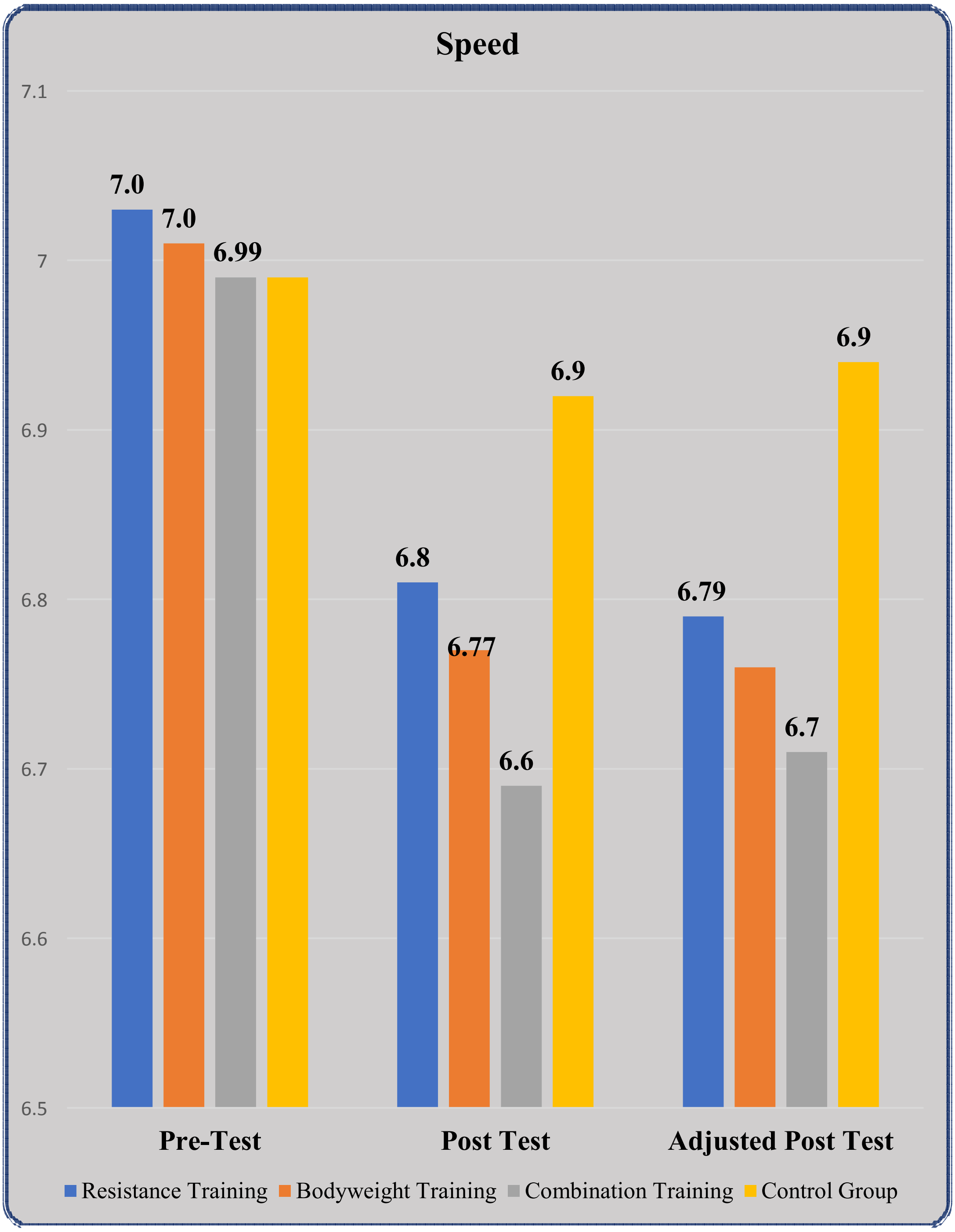

Fig. 4.1 : Pre, Post and Adjusted Post Test Differences of the Resistance Training, Bodyweight Training, Combination Training and Control Groups on Speed

4.2.2 Endurance

The statistical analyses of the initial and final means of the physical variable endurance to determine the effect of resistance training, bodyweight training and their combination on kabaddi players are presented in Table 4.3.

Table 4.3 : Analysis of Covariance of Pre-Test, Post-Test and Adjusted Post-Test Mean on Endurance of Resistance Training, Bodyweight Training and Their Combination Training Group and Control Group

Test		Resistance Training	Bodyweight Training	Combination Training	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	ObtainF ratio	Sig. (2-tailed)
Pre-Test	M	2164.40	2099.20	2092.00	2113.20	B	80072.00	3	26690.67	0.40	0.75
	SD	303.62	247.86	152.32	300.02	W	64039944	96	66707.75		
Post Test	M	2286.00	2301.60	2330.80	2124.40	B	645115.00	3	215038.33	3.30*	0.02
	SD	301.61	218.62	131.30	323.70	W	6258736	96	65195.17		
Adjusted Post Test	M	2241.85	2318.44	2354.37	2128.14	B	749531.33	3	249843.78	36.27*	0.00
						W	654463.85	95	6889.09		

*Significant at 0.05 level of significance if ($p<0.05$).

Table 4.3 showed that the resistance training group had a pre-test mean and S.D value of 2164.40± 303.62, followed by the bodyweight training group with a value of 2099.20 ±247.56, the combination training group with a value of 2092.00± 152.32, and the control group with a value of 2113.20± 300.02. Given that the obtained ($F = 0.40$, $p>0.05$) was less than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 96, ANCOVA clearly demonstrates that there is no significant difference in endurance between the experimental group and control group prior to the start of training. It indicates that the random grouping of subjects was successful.

The post-test means and SD for endurance for the resistance training group was 2286.00±301.61, for bodyweight training it was 2301.60±218.60, for combination training it was 2330.80±131.30, and for the control group it was 2124.40±323.70. There was a significant difference in endurance during the post-test, as shown in Table 4.3. The obtained ($F = 3.30$, $p<0.05$). value was higher than the required table value of 2.70 and the DF of 3 and 96.It concludes that a twelve-week training program must have had a significant effect on the endurance that was found to have changed.

Additionally, the means of endurance for the resistance training group (M = 2241.85), bodyweight training group (M = 2318.44), combination training group (M = 2354.37), and control group (M = 2128.14) after adjusting for post-test variance. The table clearly shows that there was a significant difference in adjusted post-test endurance scores between the groups after for pre-test scores, as shown by the fact that the obtained value ($F = 36.27, p<0.05$) was higher than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 95. As a result, it may be said that the experimental group's endurance improved after twelve weeks of training.

Scheffe's post hoc test was used to determine which of the four paired means had a significant difference, and the findings are shown in Table 4.4.

Table 4.4 : The Scheffe's Post Hoc Test for Difference between the Adjusted Post Test PairedMeans on Endurance

Resistance Training	Bodyweight Training	Combination Training	Control Group	Mean Difference	Sig.
2241.85	2318.44	-	-	76.59*	0.00
2241.85	-	2354.37	-	112.52*	0.00
2241.85	-	-	2128.14	113.71*	0.00
-	2318.44	2354.37	-	35.93	0.13
-	2318.44	-	2128.14	190.30*	0.00
-	-	2354.37	2128.14	226.23*	0.00

*Significant at 0.05 Level of Significance if $p<0.05$.

The post-test adjusted mean difference in endurance shown in table - 4.4 demonstrates that there are significant differences between resistance training and bodyweight training (76.59, $p<0.05$), resistance training and combination training (112.52, $p<0.05$), resistance training and control group (113.71, $p<0.05$), bodyweight training and control group (190.30, $p<0.05$) and combination training and control group (226.23, $p<0.05$). The table also demonstrates that there is no difference between bodyweight training and combination training (35.93, $p>0.05$).

The study's findings suggest that after completing their respective twelve- week training regimens, the resistance training, bodyweight training, and combination training groups all had significant improvements in endurance. The study's findings also revealed a significant difference in the training groups' rates of endurance, in this respect, the combination training group having better endurance than the resistance training, bodyweight training, and control groups.

The pre, post and adjusted means on endurance are illustrated through bar chart in figure - 4.2.

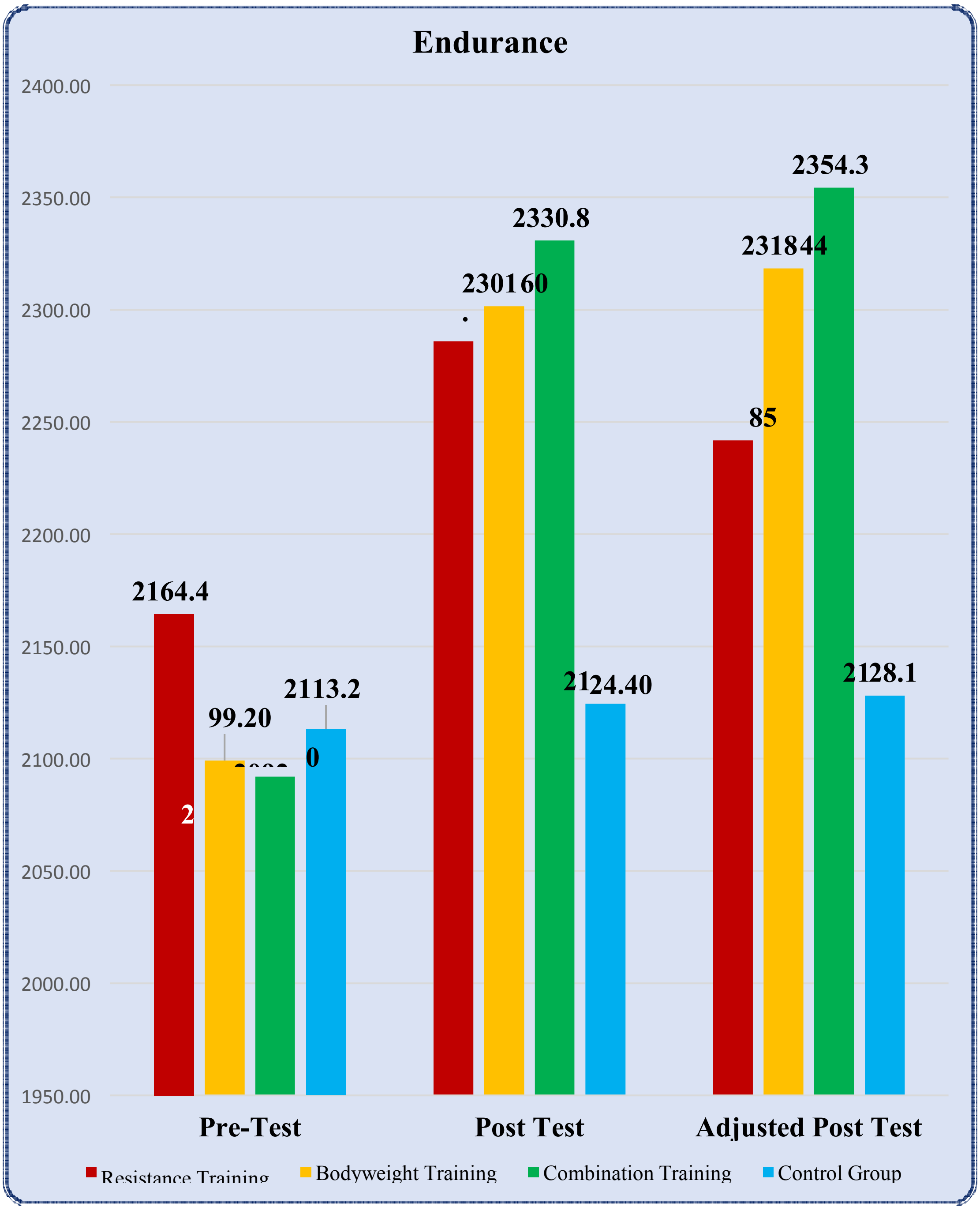

Fig. 4.2 : Pre, Post and Adjusted Post Test Differences of the Resistance Training, Bodyweight Training, Combination Training and Control Groupson Endurance

4.2.3 Agility

The statistical analyses of the initial and final means of the physical variable agility to determine the effect of resistance training, bodyweight training and their combination on kabaddi players are presented in Table 4.5.

Table 4.5 : Analysis of Covariance of Pre-Test, Post-Test and Adjusted Post-Test Mean on Agility of Resistance Training, Bodyweight Training and Their Combination Training Group and Control Group

Test		Resistance Training	Bodyweight Training	Combination Training	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	ObtainF ratio	Sig. (2-tailed)
Pre-Test	M	9.46	9.53	9.43	9.32	B	0.57	3	0.19	1.43	0.24
	SD	0.16	0.29	0.18	0.63	W	12.85	96	0.13		
Post Test	M	9.30	9.33	8.99	9.39	B	2.52	3	0.84	4.64*	0.00
	SD	0.18	0.30	0.76	0.15	W	17.35	96	0.18		
AdjustedPost Test	M	9.30	9.31	8.99	9.42	B	2.59	3	0.86	4.93*	0.00
						W	16.64	95	0.18		

*Significant at 0.05 level of significance if ($p<0.05$).

Table 4.5 showed that the resistance training group had a pre-test mean and S.D value of 9.46± 0.16, followed by the bodyweight training group with a value of 9.53 ±9.29, the combination training group with a value of 9.43± 0.18, and the control group with a value of 9.32± 0.63. Given that the obtained ($F = 1.43$, $p>0.05$) was less than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 96, ANCOVA clearly demonstrates that there is no significant difference in agility between the experimental group and control group prior to the start of training. It indicates that the random grouping of subjects was successful.

The post-test means and SD for agility for the resistance training group was 9.30 ±0.18, for bodyweight training it was 9.33 ±0.30, for combination training it was 8.99 ±0.76, and for the control group it was 9.39 ±0.15. There was a significant difference in agility during the post-test, as shown in Table 4.5. The obtained ($F = 4.64$, $p<0.05$). value was higher than the required table value of 2.70 and the DF of 3 and 96.It concludes that a twelve-week training program must have had a significant effect on the agility that was found to have changed.

Additionally, the means of agility for the resistance training group (M = 9.30), bodyweight training group (M = 9.31), combination training group (M = 8.99), and control group (M = 9.42) after adjusting for post-test variance. The table clearly shows that there was a significant difference in adjusted post-test agility scores between the groups after for pre-test scores, as shown by the fact that the obtained value ($F = 4.93$, $p<0.05$) was higher than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 95. As a result, it may be said that the experimental group's agility improved after twelve weeks of training.

Scheffe's post hoc test was used to determine which of the four paired means had a significant difference, and the findings are shown in Table 4.6.

Table 4.6 : The Scheffe's Post Hoc Test for Difference between the Adjusted Post Test PairedMeans on Agility

Resistance Training	Bodyweight Training	Combination Training	Control Group	Mean Difference	Sig.
9.30	9.31	-	-	0.01	0.90
9.30	-	8.99	-	0.31*	0.01
9.30	-	-	9.42	0.12	0.31
-	9.31	8.99	-	0.32*	0.01
-	9.31	-	9.42	0.11	0.37
-	-	8.99	9.42	0.43*	0.00

*Significant at 0.05 Level of Significance if $p<0.05$.

The post-test adjusted mean difference in agility shown in table - 4.6 demonstrates that there are significant differences between resistance training and combination training (0.31, $p<0.05$), bodyweight training and combination training (0.32, $p<0.05$) and combination training and control group (0.43, $p<0.05$). The table also demonstrates that there is no difference between resistance training and bodyweight training (0.01, $p>0.05$), resistance training and control group (0.12, $p>0.05$), bodyweight training and control group (0.11, $p>0.05$).

The study's findings suggest that after completing their respective twelve- week training regimens, the resistance training, bodyweight training, and combination training groups all had significant improvements in agility. The study's findings also revealed a significant difference in the training groups' rates of endurance, in this respect, the combination training group having better agility than the resistance training, bodyweight training, and control groups.

The pre, post and adjusted means on endurance are illustrated through bar chart in figure - 4.3.

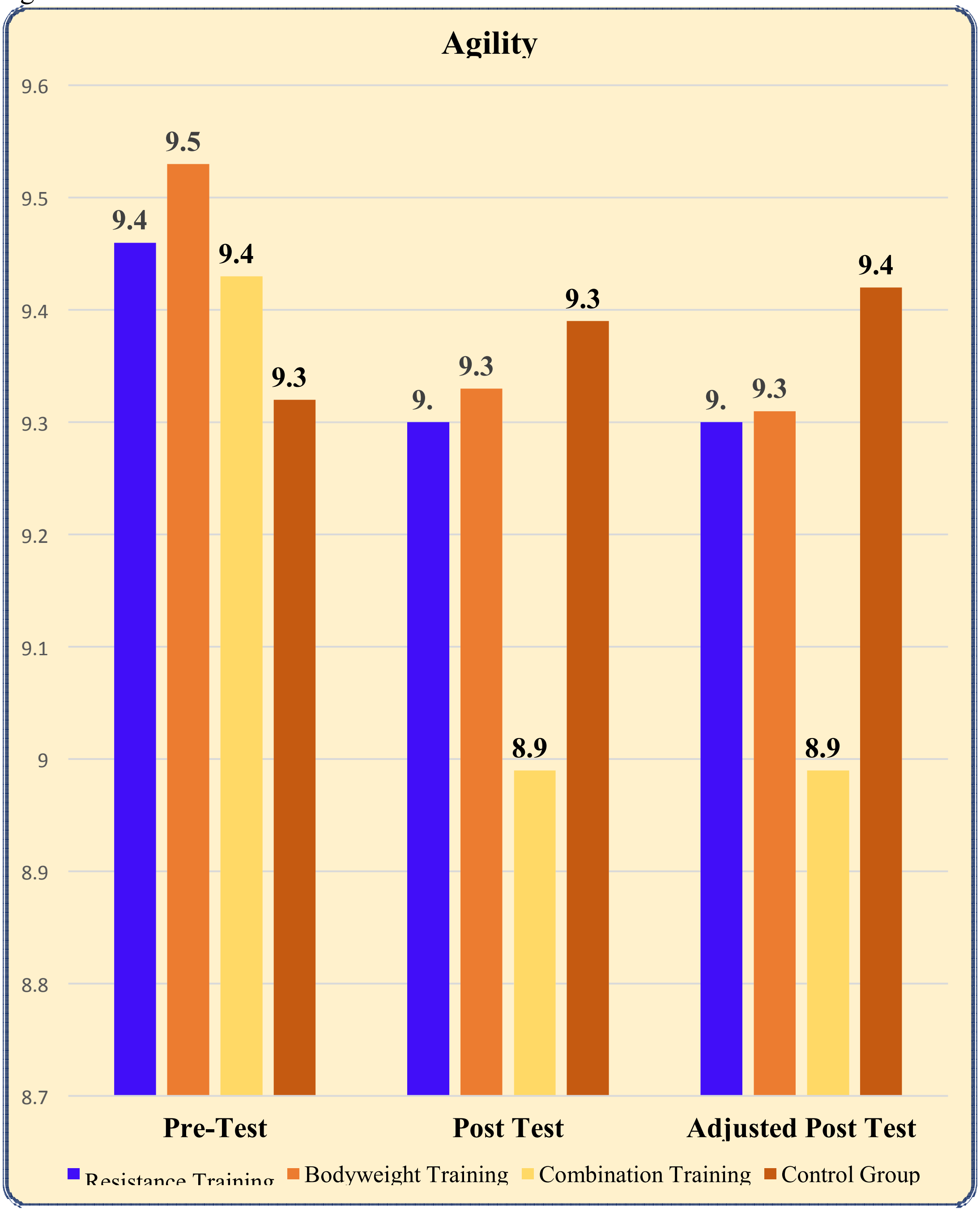

Fig 4.3 : Pre, Post and Adjusted Post Test Differences of the Resistance Training, Bodyweight Training, Combination Training and Control Groupson Agility

4.2.4 Flexibility

The statistical analyses of the initial and final means of the physical variable flexibility to determine the effect of resistance training, bodyweight training and their combination on kabaddi players are presented in Table 4.7.

Table 4.7 : Analysis of Covariance of Pre-Test, Post-Test and Adjusted Post-Test Mean on Flexibility of Resistance Training, Bodyweight Training and Their Combination Training Group and Control Group

Test		Resistance Training	Bodyweight Training	Combination Training	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	ObtainF ratio	Sig. (2-tailed)
Pre-Test	M	17.14	17.92	17.78	17.78	B	9.17	3	3.06	1.33	0.27
	SD	1.27	1.49	1.54	1.72	W	220.68	96	2.30		
Post Test	M	19.56	21.18	20.80	18.40	B	119.63	3	39.88	15.52*	0.00
	SD	1.36	1.35	1.39	2.17	W	246.60	96	2.57		
AdjustedPost Test	M	19.98	20.96	20.70	18.30	B	107.72	3	35.91	34.90*	0.00
						W	97.74	95	1.03		

*Significant at 0.05 level of significance if ($p<0.05$).

Table 4.7 showed that the resistance training group had a pre-test mean and S.D value of 17.14± 1.27, followed by the bodyweight training group with a value of 17.92 ±1.49, the combination training group with a value of 17.78± 1.54, and the control group with a value of 17.78± 1.72. Given that the obtained ($F = 1.33$, $p>0.05$) was less than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 96, ANCOVA clearly demonstrates that there is no significant difference in flexibility between the experimental group and control group prior to the start of training. It indicates that the random grouping of subjects was successful.

The post-test means and SD for flexibility for the resistance training group was 19.56±1.36, for bodyweight training it was 21.18±1.35, for combination training it was 20.80±1.39, and for the control group it was 18.40±2.17. There was a significant difference in f;exibility during the post-test, as shown in Table 4.7. The obtained ($F = 15.52$, $p<0.05$). value was higher than the required table value of 2.70 and the DF of 3 and 96.It concludes that a twelve-week training program must have had a significant effect on the flexibility that was found to have changed.

Additionally, the means of flexibility for the resistance training group (M =19.98), bodyweight training group (M = 20.96), combination training group (M = 20.70), and control group (M = 18.30) after adjusting for post-test variance. The table clearly shows that there was a significant difference in adjusted post-test flexibility scores between the groups after for pre-test scores, as shown by the fact that the obtained value ($F = 34.90$, $p<0.05$) was higher than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 95. As a result, it may be said that the experimental group's flexibility improved after twelve weeks of training.

Scheffe's post hoc test was used to determine which of the four paired means had a significant difference, and the findings are shown in Table 4.8.

Table 4.8 : The Scheffe's Post Hoc Test for Difference between the Adjusted Post Test PairedMeans on Flexibility

Resistance Training	Bodyweight Training	Combination Training	Control Group	Mean Difference	Sig.
19.98	20.96	-	-	0.98*	0.00
19.98	-	20.70	-	0.72*	0.02
19.98	-	-	18.30	1.68*	0.00
-	20.96	20.70	-	0.26	0.36
-	20.96	-	18.30	2.66*	0.00
-	-	20.70	18.30	2.40*	0.00

*Significant at 0.05 Level of Significance if $p<0.05$.

The post-test adjusted mean difference in flexibility shown in table - 4.8 demonstrates that there are significant differences between resistance training and bodyweight training (0.98, $p<0.05$), resistance training and combination training (0.72, $p<0.05$), resistance training and control group (1.68, $p<0.05$), bodyweight training and control group (2.66, $p<0.05$) and combination training and control group (2.40, $p<0.05$). The table also demonstrates that there is no difference between bodyweight training and combination training (0.26, $p>0.05$).

The study's findings suggest that after completing their respective twelve- week training regimens, the resistance training, bodyweight training, and combination training groups all had significant improvements in flexibility. The study's findings also revealed a significant difference in the training groups' rates of flexibility, in this respect, the bodyweight training group having better flexibility than the resistance training, combination training, and control groups.

The pre, post and adjusted means on flexibility are illustrated through bar chart in figure - 4.4

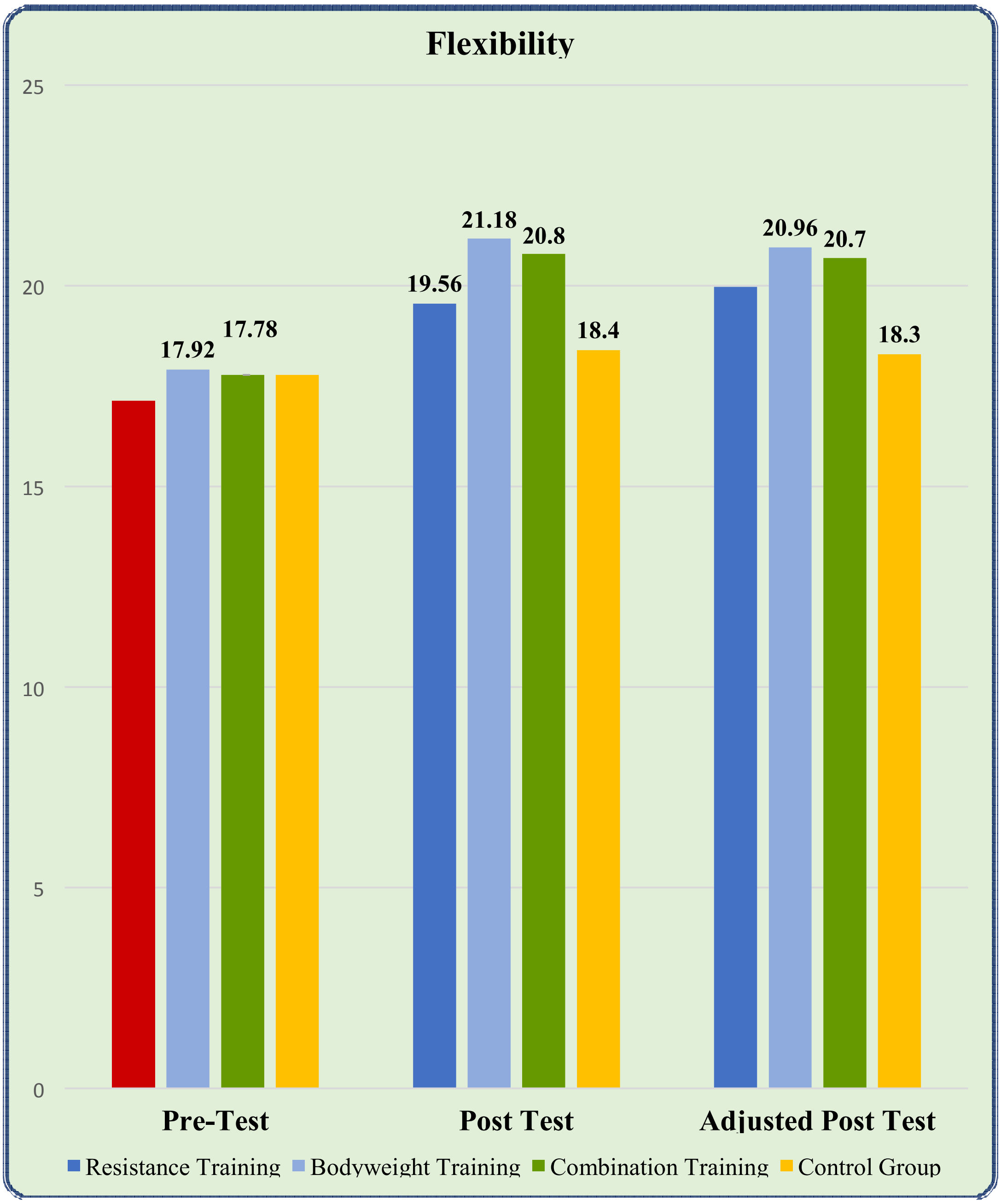

Figure 4.4 : Pre, Post and Adjusted Post Test Differences of the Resistance Training, Bodyweight Training, Combination Training and Control Groupson Flexibility

4.2.5 Muscular Endurance

The statistical analyses of the initial and final means of the physical variable muscular endurance to determine the effect of resistance training, bodyweight training and their combination on kabaddi players are presented in Table 4.9.

Table 4.9 : Analysis of Covariance of Pre-Test, Post-Test and Adjusted Post-Test Mean on Muscular Endurance of Resistance Training, Bodyweight Training and Their Combination Training Group and Control Group

Test		Resistance Training	Bodyweight Training	Combination Training	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	ObtainF ratio	Sig. (2-tailed)
Pre-Test	M	29.92	30.68	30.72	30.52	B	10.28	3	3.43	0.24	0.87
	SD	3.24	3.50	4.70	3.61	W	1386.56	96	14.44		
Post Test	M	33.44	34.08	34.56	31.00	B	187.55	3	62.52	5.63*	0.00
	SD	2.68	3.04	4.10	3.34	W	1066.16	96	11.11		
Adjusted Post Test	M	33.87	33.90	34.35	30.95	B	182.70	3	60.90	31.85*	0.00
						W	181.65	95	1.91		

*Significant at 0.05 level of significance if ($p<0.05$).

Table 4.9 showed that the resistance training group had a pre-test mean and S.D value of 29.92± 3.24, followed by the bodyweight training group with a value of 30.68 ±3.50, the combination training group with a value of 30.72± 4.70, and the control group with a value of 30.52± 3.61. Given that the obtained ($F = 0.24$, $p>0.05$) was less than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 96, ANCOVA clearly demonstrates that there is no significant difference in muscular endurance between the experimental group and control group prior to the start of training. It indicates that the random grouping of subjects was successful.

The post-test means and SD for muscular endurance for the resistance training group was 33.44 ±2.68, for bodyweight training it was 34.08 ±3.04, for combination training it was 34.56 ±4.10, and for the control group it was 31.00 ±3.34. There was a significant difference in muscular endurance during the post-test, as shown in Table 4.9. The obtained ($F = 5.63$, $p<0.05$). value was higher than the required table value of 2.70 and the DF of 3 and 96.It concludes that a twelve-week training program must have had a significant effect on the muscular endurance that was found to have changed.

Additionally, the means ofmuscular endurance for the resistance training group (M =33.87), bodyweight training group (M = 33.90), combination training group (M = 34.35), and control group (M = 30.95) after adjusting for post-test variance. The table clearly shows that there was a significant difference in adjusted post-test muscular endurance scores between the groups after for pre-test scores, as shown by the fact that the obtained value ($F = 31.85$, $p<0.05$) was higher than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 95. As a result, it may be said that the experimental group's muscular endurance improved after twelve weeksof training.

Scheffe's post hoc test was used to determine which of the four paired means had a significant difference, and the findings are shown in Table 4.10.

Table 4.10 : The Scheffe's Post Hoc Test for Difference between the Adjusted Post Test PairedMeans on Muscular Endurance

Resistance Training	Bodyweight Training	Combination Training	Control Group	Mean Difference	Sig.
33.87	33.90	-	-	0.03	0.93
33.87	-	34.35	-	0.48	0.22
33.87	-	-	30.95	2.92*	0.00
-	33.90	34.35	-	0.45	0.26
-	33.90	-	30.95	2.95*	0.00
-	-	34.35	30.95	3.40*	0.00

*Significant at 0.05 Level of Significance if $p<0.05$.

The post-test adjusted mean difference in muscular endurance shown in table - 4.10 demonstrates that there are significant differences between resistance training and control group (2.92, $p<0.05$), bodyweight training and control group (2.95, $p<0.05$) and combination training and control group (3.40, $p<0.05$). The table also demonstrates that there is no difference between resistance training and bodyweight training (0.03,$p>0.05$), resistance training and combination training (0.48, $p>0.05$)and bodyweight training and combination training (0.45, $p>0.05$).

The study's findings suggest that after completing their respective twelve- week training regimens, the resistance training, bodyweight training, and combination training groups all had significant improvements in muscular endurance. The study's findings also revealed a significant difference in the training groups' rates of muscular endurance, in this respect, the combination training group having better muscular endurance than the resistance training, bodyweight training, and control groups.

The pre, post and adjusted means on muscular endurance are illustrated through bar chart in figure - 4.5.

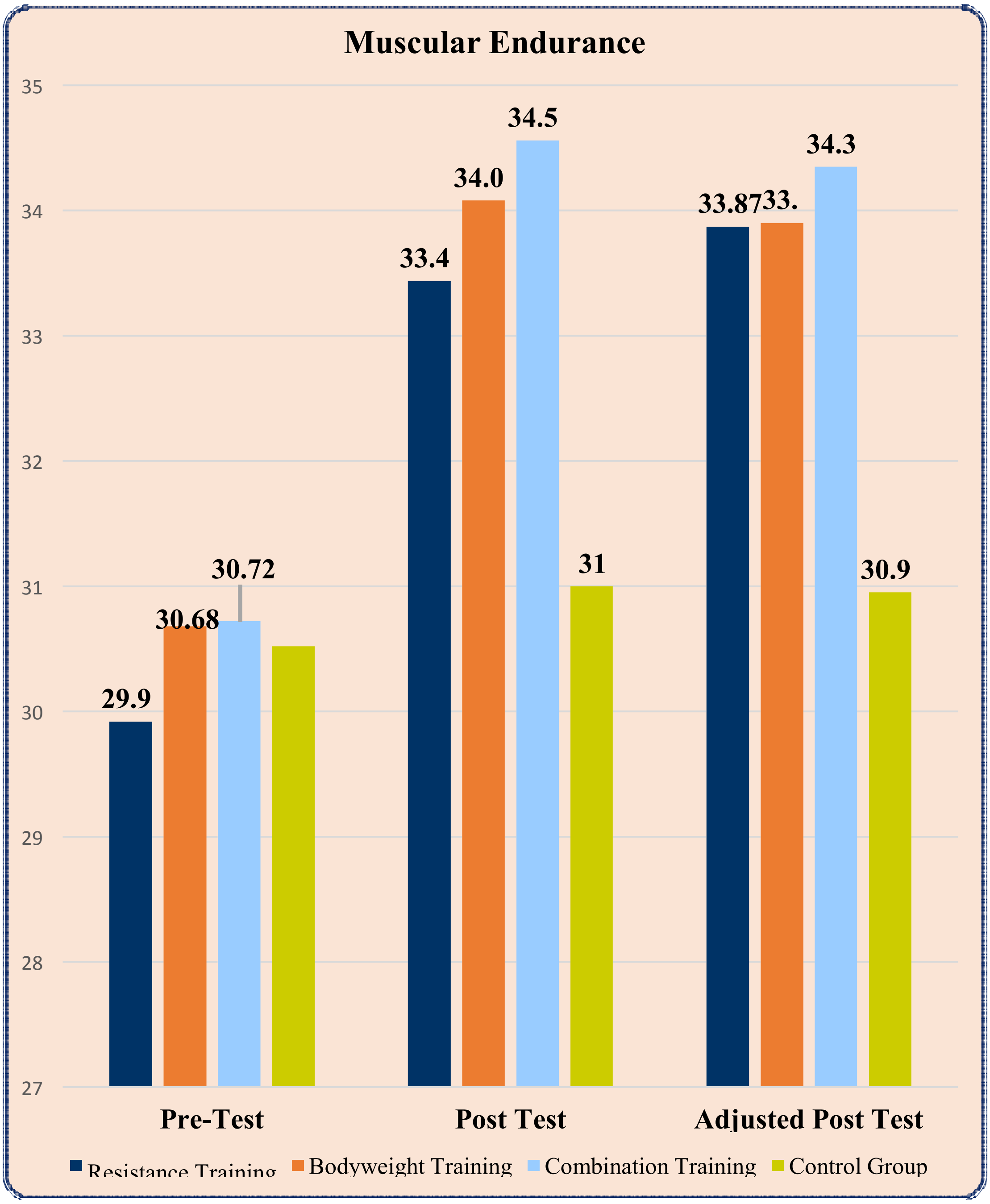

Fig. 4.5 : Pre, Post and Adjusted Post Test Differences of the Resistance Training, Bodyweight Training, Combination Training and Control Groupson Muscular Endurance

4.2.6 Upper Body Strength

The statistical analyses of the initial and final means of the physical variable Upper Body Strength to determine the effect of resistance training, bodyweight training and their combination on kabaddi players are presented in Table 4.11.

Table 4.11 : Analysis of Covariance of Pre-Test, Post-Test and Adjusted Post-Test Mean on Upper Body Strength of Resistance Training, Bodyweight Training and Their Combination Training Group and Control Group

Test		Resistance Training	Bodyweight Training	Combination Training	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	ObtainF ratio	Sig. (2-tailed)
Pre-Test	M	34.60	33.10	32.30	32.20	B	92.25	3	30.75	0.99	0.40
	SD	6.91	3.97	5.35	5.70	W	2990.00	96	31.15		
Post Test	M	38.80	36.60	36.10	33.10	B	413.25	3	137.75	5.28*	0.00
	SD	5.91	3.30	5.31	5.51	W	2504.50	96	26.09		
Adjusted Post Test	M	37.46	36.56	36.75	33.83	B	187.68	3	62.56	21.39*	0.00
						W	277.85	95	2.93		

*Significant at 0.05 level of significance if ($p<0.05$)

Table 4.11 showed that the resistance training group had a pre-test mean and S.D value of 34.60± 6.91, followed by the bodyweight training group with a value of33.10 ±3.97 the combination training group with a value of 32.30± 5.35, and the control group with a value of 32.20± 5.70. Given that the obtained ($F = 0.99, p>0.05$) was less than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 96, ANCOVA clearly demonstrates that there is no significant difference in upper body strength between the experimental group and control group prior to the start oftraining. It indicates that the random grouping of subjects was successful.

The post-test means and SD for upper body strength for the resistance training group was 38.80±5.91, for bodyweight training it was 36.60±3.30, for combination training it was 36.10±5.31, and for the control group it was 33.10±5.51. There was a significant difference in upper body strength during the post-test, as shown in Table 4.11. The obtained ($F = 5.28, p<0.05$). value was higher than the required table value of 2.70 and the DF of 3 and 96.It concludes that a twelve-week training program must have had a significant effect on the upper body strength that was found to have changed.

Additionally, the means ofupper body strength for the resistance training group (M =37.42), bodyweight training group (M = 36.56), combination training group (M = 36.75), and control group (M = 33.83) after adjusting for post-test variance. The table clearly shows that there was a significant difference in adjusted post-testupper body strength scores between the groups after for pre-test scores, as shown by the fact that the obtained value (F = 21.39, p<0.05) was higher than the required table value of 2.70 at α = 0.05 for the DF of 3 and 95. As a result, it may be said that the experimental group'supper body strength improved after twelve weeks of training.

Scheffe's post hoc test was used to determine which of the four paired means had a significant difference, and the findings are shown in Table 4.12.

Table 4.12 : The Scheffe's Post Hoc Test for Difference between the Adjusted Post Test PairedMeans on Upper Body Strength

Resistance Training	Bodyweight Training	Combination Training	Control Group	Mean Difference	Sig.
37.46	36.56	-	-	0.90	0.06
37.46	-	36.75	-	0.71	0.15
37.46	-	-	33.83	3.63*	0.00
-	36.56	36.75	-	0.19	0.70
-	36.56	-	33.83	2.73*	0.00
-	-	36.75	33.83	2.92*	0.00

*Significant at 0.05 Level of Significance if p<0.05.

The post-test adjusted mean difference in upper body strength shown in table - 4.12 demonstrates that there are significant differences between resistance training and control group (3.63, p<0.05), bodyweight training and control group (2.73, p<0.05) and combination training and control group (2.92, p<0.05). The table also demonstrates that there is no difference between resistance training and bodyweight training (0.90,p>0.05), resistance training and combination training (0.71, p>0.05)and bodyweight training and combination training (0.19, p>0.05).

The study's findings suggest that after completing their respective twelve- week training regimens, the resistance training, bodyweight training, and combination training groups all had significant improvements in upper body strength. The study's findings also revealed a significant difference in the training groups' rates of upper body strength, in this respect, the resistance training group having better upper body strength than the bodyweight training, combination training and control groups.

The pre, post and adjusted means on upper body strength are illustrated through bar chart in figure - 4.6.

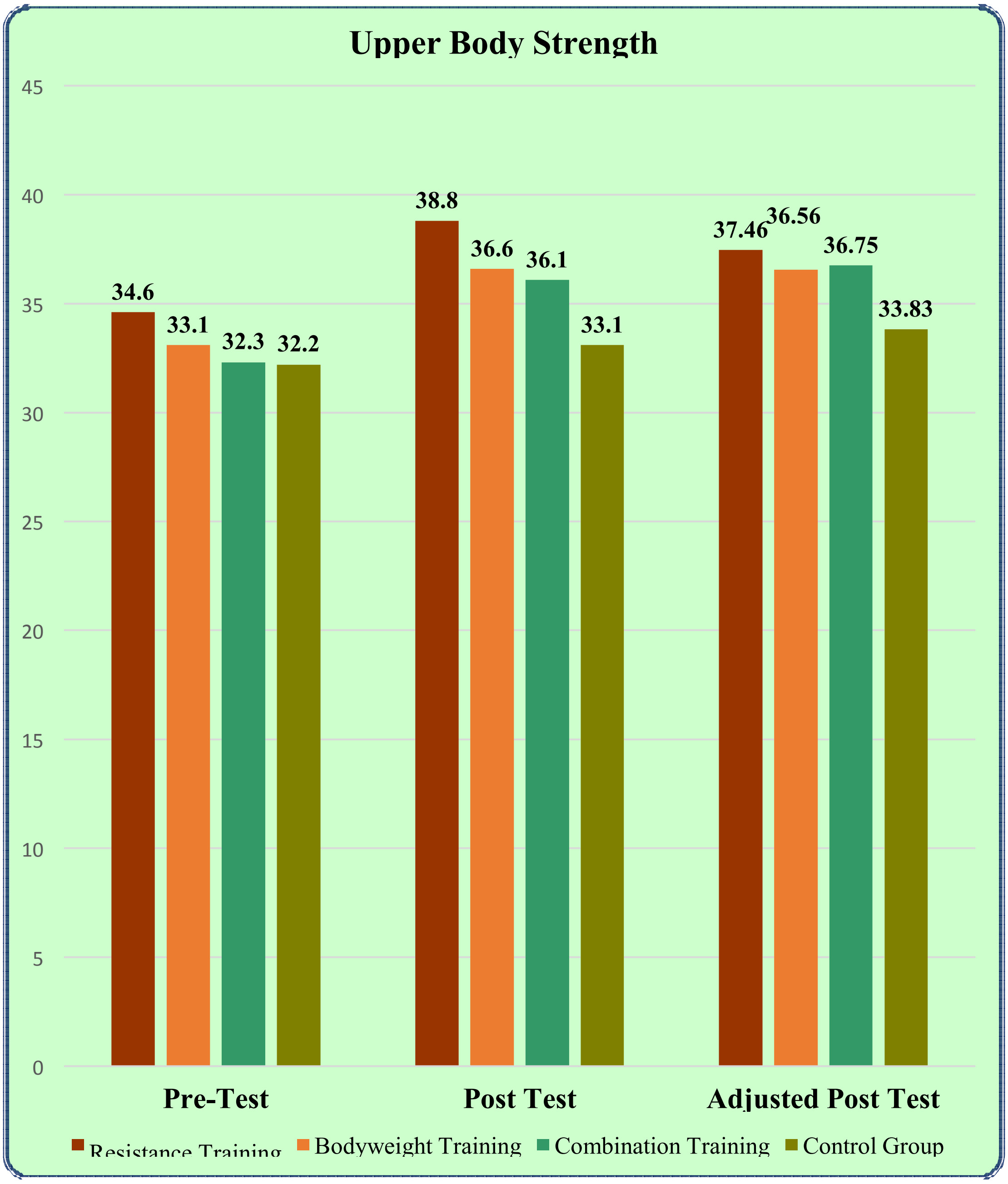

Fig. 4.6 : Pre, Post and Adjusted Post Test Differences of the Resistance Training, Bodyweight Training, Combination Training and Control Groupson Upper Body Strength

4.2.7 Lower Body Strength

The statistical analyses of the initial and final means of the physical variable Lower Body Strength to determine the effect of resistance training, bodyweight training and their combination on kabaddi players are presented in Table 4.13.

Table 4.13 : Analysis of Covariance of Pre-Test, Post-Test and Adjusted Post-Test Mean on Lower Body Strength of Resistance Training, Bodyweight Training and Their Combination Training Group and Control Group

Test		Resistance Training	Bodyweight Training	Combination Training	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	ObtainF ratio	Sig. (2-tailed)
Pre-Test	M	70.80	70.40	69.80	69.60	B	22.75	3	7.58	0.08	0.97
	SD	10.28	9.34	9.94	9.67	W	9250.00	96	96.35		
Post Test	M	78.60	76.80	78.00	70.40	B	1068.75	3	356.25	4.74*	0.00
	SD	9.07	7.48	8.16	9.78	W	7216.00	96	75.17		
Adjusted Post Test	M	78.07	76.60	78.29	70.85	B	909.21	3	303.07	26.47*	0.00
						W	1.87.80	95	11.45		

*Significant at 0.05 level of significance if (p<0.05)

Table 4.13 showed that the resistance training group had a pre-test mean and S.D value of 70.80± 10.28, followed by the bodyweight training group with a value of 70.40 ±9.34 the combination training group with a value of 69.80± 9.94, and the control group with a value of 69.60± 9.67. Given that the obtained (F = 0.08, p>0.05) was less than the required table value of 2.70 at α = 0.05 for the DF of 3 and 96, ANCOVA clearly demonstrates that there is no significant difference in lower body strength between the experimental group and control group prior to the start of training. It indicates that the random grouping of subjects was successful.

The post-test means and SD for lower body strength for the resistance training group was 78.60 ±9.07, for bodyweight training it was 76.80 ±7.48, for combination training it was 78.00 ±8.16, and for the control group it was 70.40 ±9.78. There was a significant difference in lower body strength during the post-test, as shown in Table 4.13. The obtained (F = 4.74, p<0.05). value was higher than the required table value of 2.70 and the DF of 3 and 96.It concludes that a twelve-week training program must have had a significant effect on the lower body strength that was found to have changed.

Additionally, the means of lower body strength for the resistance training group (M = 78.07), bodyweight training group (M = 76.60), combination training group (M = 78.29), and control group (M = 70.85) after adjusting for post-test variance. The table clearly shows that there was a significant difference in adjusted post-test lower body strength scores between the groups after for pre-test scores, as shown by the fact that the obtained value ($F = 26.47$, $p<0.05$) was higher than the required table value of 2.70 at $\alpha = 0.05$ for the DF of 3 and 95. As a result, it may be said that the experimental group's lower body strength improved after twelve weeks of training.

Scheffe's post hoc test was used to determine which of the four paired means had a significant difference, and the findings are shown in Table 4.14.

Table 4.12 : The Scheffe's Post Hoc Test for Difference between the Adjusted Post Test PairedMeans on Lower Body Strength

Resistance Training	Bodyweight Training	Combination Training	Control Group	Mean Difference	Sig.
78.07	76.60	-	-	1.47	0.13
78.07	-	78.29	-	0.22	0.82
78.07	-	-	70.85	7.22*	0.00
-	76.60	78.29	-	1.69	0.08
-	76.60	-	70.85	5.75*	0.00
-	-	78.29	70.85	7.44*	0.00

*Significant at 0.05 Level of Significance if $p<0.05$.

The post-test adjusted mean difference in lower body strength shown in table - 4.14 demonstrates that there are significant differences between resistance training and control group (7.22, $p<0.05$), bodyweight training and control group (5.75, $p<0.05$) and combination training and control group (7.44, $p<0.05$). The table also demonstrates that there is no difference between resistance training and bodyweight training (1.47, $p>0.05$), resistance training and combination training (0.22, $p>0.05$) and bodyweight training and combination training (1.69, $p>0.05$).

The study's findings suggest that after completing their respective twelve- week training regimens, the resistance training, bodyweight training, and combination training groups all had significant improvements in lower body strength. The study's findings also revealed a significant difference in the training groups' rates of lower body strength, in this respect, the resistance training group having better lower body strength than the bodyweight training, combination training and control groups.

The pre, post and adjusted means on lower body strength are illustrated through bar chart in figure - 4.7.

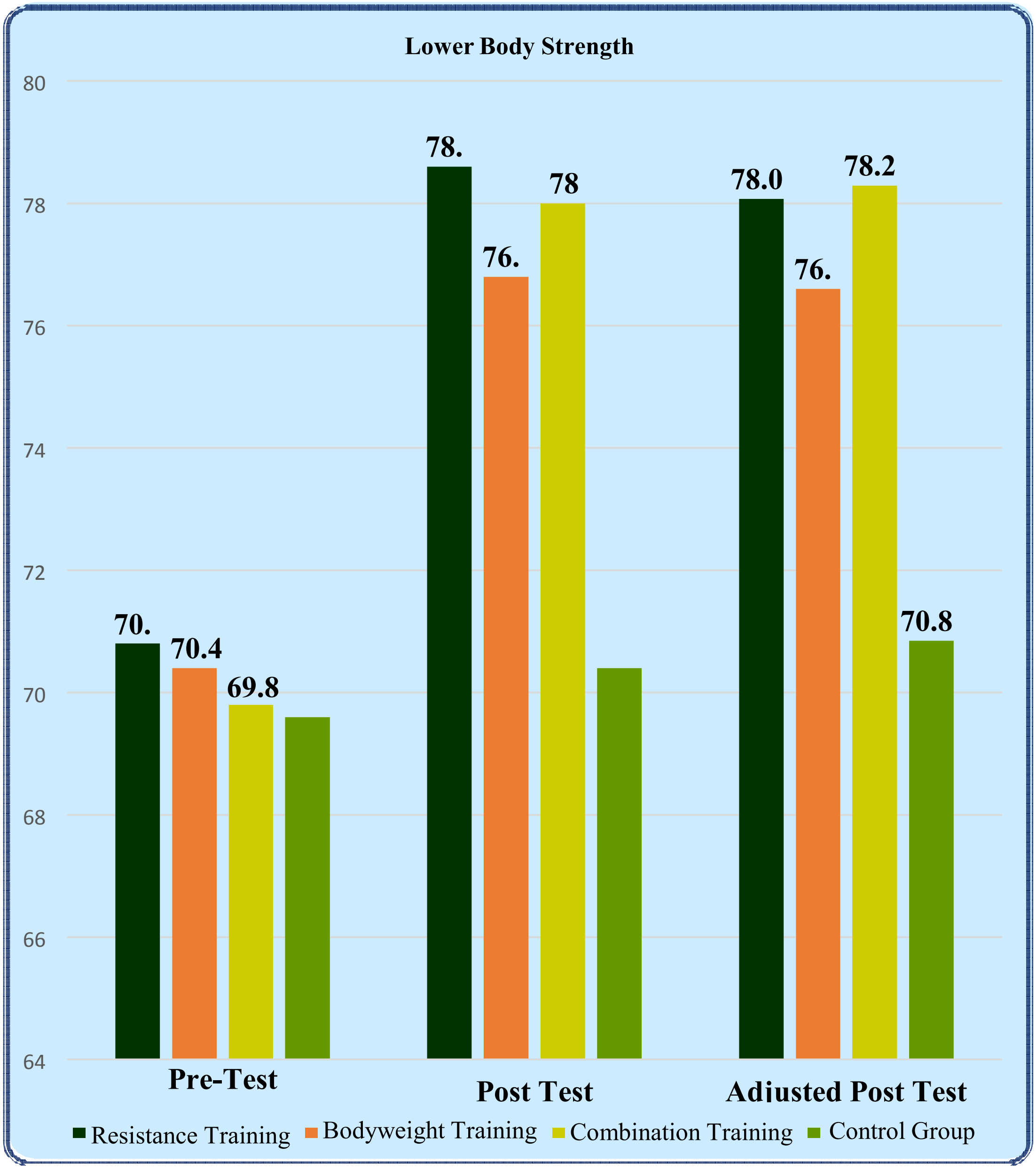

Fig. 4.7 : Pre, Post and Adjusted Post Test Differences of the Resistance Training, Bodyweight Training, Combination Training and Control Groupson Lower Body Strength

4.3 Results of the Study

The study's findings showed that all the experimental groups namely resistance training group, bodyweight Training group and their combination (Bodyweight and resistance) training group have significantly improved in the selected physical fitness components namely speed, endurance, agility, flexibility, muscular endurance, upper body strength and lower body strength. The study's findings also indicated that the control group did not significantly improve on the above-mentioned variables.

It was also found that the improvement effected on speed, endurance, agility, muscular endurance and lower body strength by the combination training group was superior when compared to the effects of resistance training group, bodyweight training group and control group. Additionally, bodyweight training. However, the bodyweight training group improved flexibility and the resistance training group improved upper body strength compared to the other training groups. The research findings supported the conclusions of the current investigation.

The goal of the **Chanderasear (2021)** study was to determine whether college-level handball players' muscular endurance, flexibility, and balance had significantly improved.

According to **Marwat et al. (2021),** traditional training regimens and instructional training significantly improved the physical fitness traits of Pakistani Kabaddi players, such as agility, leg explosive power, muscular strength endurance, and overall playing ability. The study's results confirmed its objectives, but neither hypothesis was confirmed, hence both were found to be false.

The participants in the traditional kabaddi training with plyometric training group showed a considerable improvement in their explosive power, flexibility, balance, agility, and aerobic capacity, according to **Dharod et al.** study (2020).

In terms of shoulder strength and explosive power, it was found that the resistance training group did significantly better than the control group, and that there were also notable variations between the experimental and control groups. In **Alagudurai and Sivagnanam (2019).**

Arumugam (2019), the study's findings showed that flywheel training has a positive impact on kabaddi players' shoulder and leg strength. However, none of the selected characteristics had significantly improved for the control group. As a result, it is advised that, depending on the situation, physical educators and coaches apply the best pranav pranayama techniques to improve the performance of kabaddi players.

In their 2019 study, **Lakshmanan and Jayakumar** explored the effects of eight weeks of resistance training on the chosen metrics for intercollegiate men's kabaddi players. The findings of this study suggested that weight training is more effective at producing desired improvements in male kabaddi players than agility and flexibility.

After participating in the Strength training group for a total of eight training sessions, the intercollegiate volleyball players in **Vivekanth and Vallimurugan's (2019)** study showed a substantial improvement in all the chosen physical fitness metrics.

When plyometric exercise and specialized training were combined, **Muniraju et al. (2017)** found that flexibility, and explosive leg power all considerably increased.

Karuppiah and Palanisamy (2017), the influence weight and ladder training groups both performed much better than the control group in terms of agility and abdominal strength.

Chaudhari (2014) can be inferred that ten weeks of strength training enhances male kabaddi players' upper and lower body strength.

The combined strength and plyometric training, the male intercollegiate kabaddi players' speed and power are said to have significantly increased, according to **Rao and Kishore's (2014)** study, which sought to determine the combined impact of strength and plyometric training on specific motor fitness domains in male kabaddi players.

According to **Kagitha and Kumar (2013),** complex training increases the players' motor fitness in terms of speed, agility, flexibility, explosive power, muscular endurance, and coordination.

4.4 Discussion on Hypothesis

- In the first hypothesis, it was hypothesized that there would be a significant improvement on selected physical fitness components such as speed, endurance, agility, flexibility, muscular endurance, upper body strength and lower body strength due to the effect of resistance training programme. The finding of the study showed significant improvement. Hence the researcher first hypothesis was accepted.

- In the second hypothesis, it was hypothesized that there would be a significant improvement on selected physical fitness components such as speed, endurance, agility, flexibility, muscular endurance, upper body strength and lower body strength due to the effect of bodyweight training programme. The finding of the study showed significant improvement. Hence the researcher second hypothesis was accepted.
- In the third hypothesis, it was hypothesized that there would be a significant improvement on selected physical fitness components such as speed, endurance, agility, flexibility, muscular endurance, upper body strength and lower body strength due to the effect of combined effect of resistance and bodyweight training programme. The finding of the study showed significant improvement. Hence the researcher third hypothesis was accepted.
- In the fourth hypothesis, it was hypothesized that there would be significant difference on selected physical fitness components such as speed, endurance, agility, flexibility, muscular endurance, upper body strength and lower body strength among resistance training, bodyweight training and combined training (resistance and bodyweight training) groups and control group. The finding of the study were similar to this hypothesis. Hence the research fourth hypothesis was also accepted.