4.1 Overview

The analysis of the data gathered from the study's sample populations is the subject of this chapter. This study looked at how certain physical and physiological factors in Kho-Kho players were affected by resistance circuit training and intense interval training.

The participants in this study were selected at random, but the groups were equalized in light of the factors that had already been looked at. Therefore, when analyzing the post-test difference between the means, it was necessary to take into consideration the difference between the means of the three groups in the pre-test. This was accomplished by using analysis of covariance (ANCOVA), where the adjusted mean and the find means adjusted for difference in the initial means were assessed for significance. The LSD post hoc test was used to determine the significance of the difference between the paired post-test means when the adjusted post-test means were significant.

4.2 Test of Significance

The test was usually called the test of significance since we test whether the differences between three groups or within many group's scores were significant or not. In this study, if they obtained F-value were $p<0.05$, the research hypothesis was accepted, if they obtained F value w ere $p>0.05$ the research hypothesis was rejected.

4.3 Level of Significance

The ($p<0.05$) level was chosen to test the level of significance and considered sufficient for this investigation.

4.4 Analysis of Data

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

4.4.1 Physical Variables

4.4.1.1 Speed

Table 4.1 : Analysis of Covariance on Speed among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	7.59	7.64	7.57	B	0.10	2	0.05	0.24	0.79
	0.55	0.40	0.44	W	19.02	87	0.22		
Post Test Mean	7.29	7.18	7.50	B	1.60	2	0.80	3.79*	0.02
	0.52	0.41	0.44	W	18.37	87	0.21		
Adjusted Post Test Mean	7.30	7.13	7.53	B	2.41	2	1.20	72.23*	0.00
				W	1.43	86	0.02		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.1, the speed pre-test means for the resistance circuit training, intensive interval training, and control groups were 7.59, 7.64, and 7.57 respectively. The obtained F ratio was 0.24 and had a significant value of 0.79 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pretest was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on speed.

Resistance circuit training, intensive interval training, and the control group all had post-test means on speed that were 7.29, 7.18, and 7.50, respectively. The obtained F ratio was 3.79 and significant value (0.02 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on speed of the subjects.

The adjusted post-test means for speed in the resistance circuit training, intensive interval training, and control groups were 7.30, 7.13, and 7.53, respectively. The

obtained F ratio was 72.23, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the findings, resistance circuit training, intense interval training, and the control group all had significantly different post-test means.

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.2.

Table 4.2 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means of Speed

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
7.30	7.13	-	0.17*	0.00
7.30	-	7.53	0.23*	0.00
-	7.13	7.53	0.40*	0.00

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

The paired adjusted post-test means for each group are shown in Table 4.2. The mean difference between resistance circuit training and intensive interval training (0.17, $p<0.05$), resistance circuit training and control group (0.23, $p<0.05$) and intensive interval training and control group (0.40, $p<0.05$) which were significant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' speeds significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase speed, with the intensive interval training group outperforming the resistance circuit training and control groups in this regard.

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

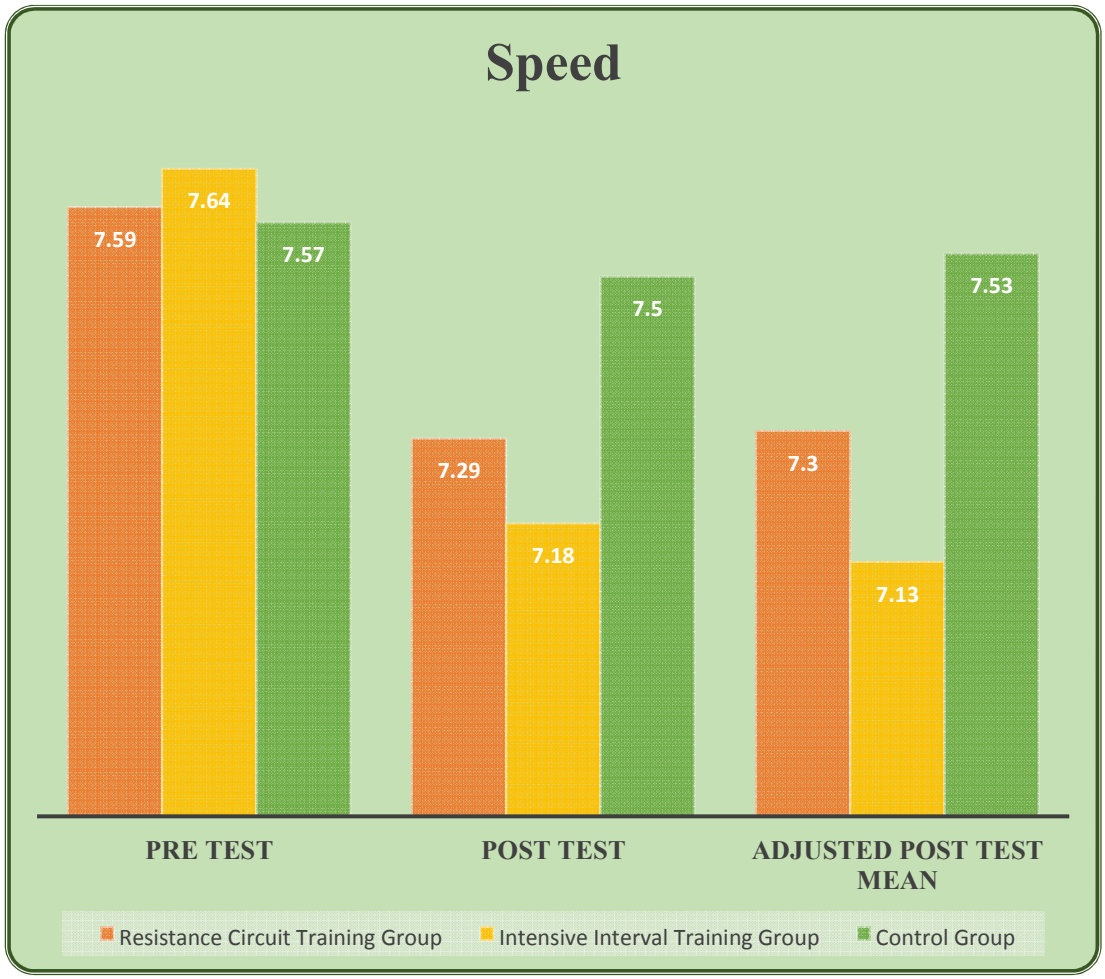

Fig. 4.1 : The Mean value of Speed are shown graphically

4.4.1.2 Endurance

Table 4.3 : Analysis of Covariance on Endurance among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	1902.67	1964.67	1913.00	B	66202.22	2	33101.11	2.31	0.11
	118.90	121.90	118.44	W	1247763.33	87	14342.11		
Post Test Mean	2099.67	2209.00	1919.33	B	1283806.67	2	641903.33	52.76*	0.00
	125.05	77.87	121.65	W	1058553.33	87	12167.28		
Adjusted Post Test Mean	2114.91	2185.05	1928.04	B	1040162.95	2	520081.47	79.87*	0.00
				W	559989.43	86	6511.51		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.3, the endurance pre-test means for the resistance circuit training, intensive interval training, and control groups were 1902.67, 1964.67, and 1913.00 respectively. The obtained F ratio was 2.31 and had a significant value of 0.11 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pre-test was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on endurance.

Resistance circuit training, intensive interval training, and the control group all had post-test means on endurance that were 2099.67, 2209.00, and 1919.33, respectively. The obtained F ratio was 52.76 and significant value (0.00 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on endurance of the subjects.

The adjusted post-test means for endurance in the resistance circuit training, intensive interval training, and control groups were 2114.91, 2185.05, and 1928.04, respectively. The obtained F ratio was 79.87, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the findings, resistance circuit training, intense interval training, and the control group all had significantly different post-test means.

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.4.

Table 4.4 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means of Endurance

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
2114.91	2185.05	-	70.14*	0.00
2114.91	-	1928.04	186.87*	0.00
-	2185.05	1928.04	257.01*	0.00

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

The paired adjusted post-test means for each group are shown in table 4.4. The mean difference between resistance circuit training and intensive interval training (70.14, $p<0.05$), resistance circuit training and control group (186.87, $p<0.05$) and intensive interval training and control group (257.01, $p<0.05$) which were significant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' endurance significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase endurance, with the intensive interval training group outperforming the resistance circuit training and control groups in this regard.

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

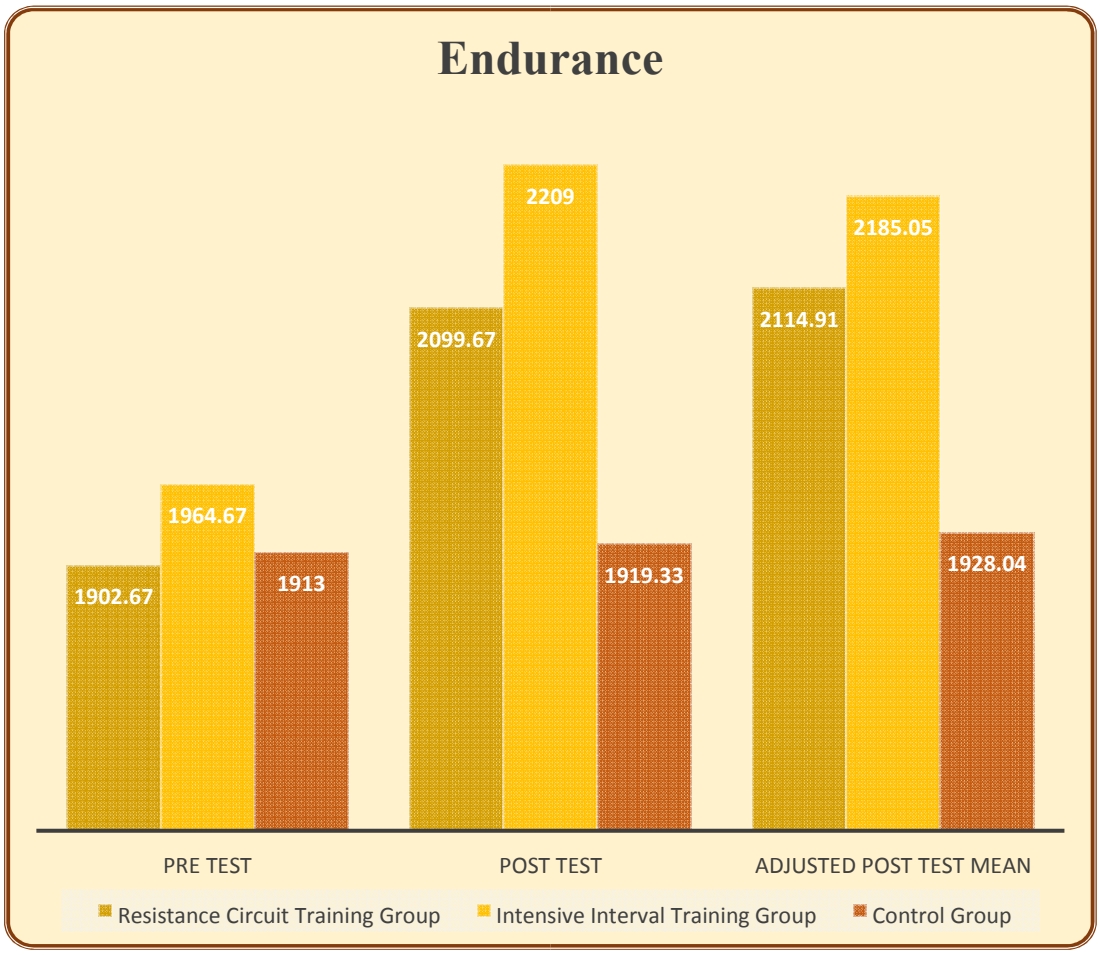

Fig .4.2 : The Mean value of Endurance are shown graphically

4.4.1.3 Agility

Table 4.5 : Analysis of Covariance on Agility among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	9.38	8.97	9.03	B	2.91	2	1.46	2.60	0.08
	0.78	0.82	0.62	W	48.83	87	0.56		
Post Test Mean	8.93	8.41	9.01	B	6.37	2	3.18	7.31*	0.00
	0.66	0.69	0.63	W	37.89	87	0.43		
Adjusted Post Test Mean	8.72	8.54	9.09	B	4.69	2	2.35	61.37*	0.00
				W	3.29	86	0.04		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.5, the agility pre-test means for the resistance circuit training, intensive interval training, and control groups were 9.38, 8.97, and 9.03 respectively. The obtained F ratio was 2.60 and had a significant value of 0.08 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pretest was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on agility.

Resistance circuit training, intensive interval training, and the control group all had post-test means on agility that were 8.93, 8.41, and 9.01, respectively. The obtained F ratio was 7.31 and significant value (0.00 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on agility of the subjects.

The adjusted post-test means for agility in the resistance circuit training, intensive interval training, and control groups were 8.72, 8.54, and 9.09, respectively. The obtained F ratio was 61.37, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the findings,

resistance circuit training, intense interval training, and the control group all had significantly different post-test means

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.6.

Table 4.6 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means Agility

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
8.72	8.54	-	0.18*	0.00
8.72	-	9.09	0.37*	0.00
-	8.54	9.09	0.55*	0.00

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

The paired adjusted post-test means for each group are shown in table 4.6. The mean difference between resistance circuit training and intensive interval training (0.18, $p<0.05$), resistance circuit training and control group (0.37, $p<0.05$) and intensive interval training and control group (0.55, $p<0.05$) which were significant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' agility significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase agility, with the intensive interval training group outperforming the resistance circuit training and control groups in this regard.

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

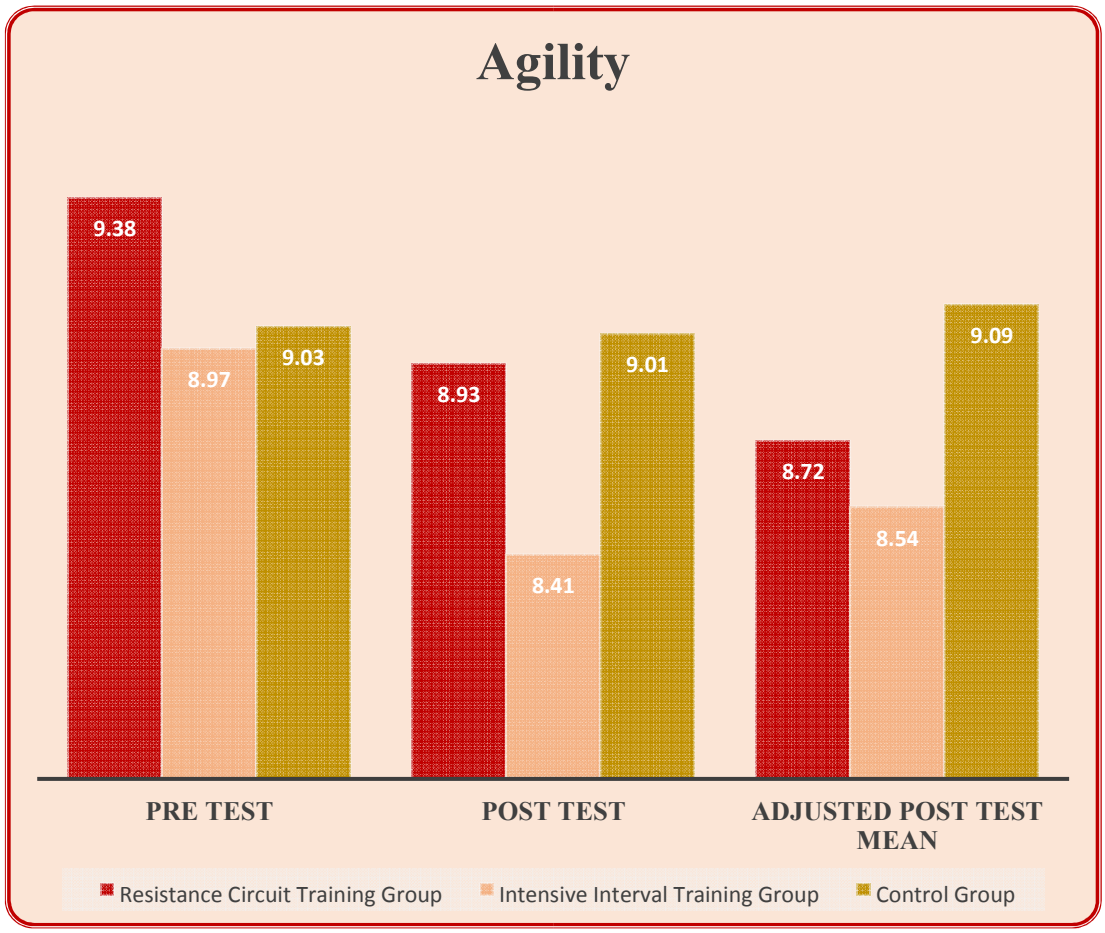

Fig .4.3 : The Mean value of Agility are shown graphically

4.4.1.4 Flexibility

Table 4.7 : Analysis of Covariance on Flexibility among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	19.85	19.40	19.31	B	4.94	2	2.47	0.87	0.42
	1.91	1.55	1.56	W	246.02	87	2.83		
Post Test Mean	21.57	22.07	19.47	B	114.20	2	57.10	25.32*	0.00
	1.68	1.17	1.61	W	196.20	87	2.25		
Adjusted Post Test Mean	21.31	22.16	19.63	B	99.51	2	49.76	100.17*	0.00
				W	42.72	86	0.50		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.7, the flexibility pre-test means for the resistance circuit training, intensive interval training, and control groups were 19.85, 19.40, and 19.31 respectively. The obtained F ratio was 0.87 and had a significant value of 0.42 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pre-test was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on flexibility.

Resistance circuit training, intensive interval training, and the control group all had post-test means on flexibility that were 21.57, 22.07, and 19.47, respectively. The obtained F ratio was 25.32 and significant value (0.00 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on flexibility of the subjects.

The adjusted post-test means for flexibility in the resistance circuit training, intensive interval training, and control groups were 21.31, 22.16, and 19.63, respectively. The obtained F ratio was 100.17, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the findings, resistance circuit training, intense interval training, and the control group all had significantly different post-test means.

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.8.

Table 4.8 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means Flexibility

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
21.31	22.16	-	0.85*	0.00
21.31	-	19.63	1.68*	0.00
-	22.16	19.63	2.53*	0.00

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

The paired adjusted post-test means for each group are shown in table 4.8. The mean difference between resistance circuit training and intensive interval training (0.85, $p<0.05$), resistance circuit training and control group (1.68, $p<0.05$) and intensive interval training and control group (2.53, $p<0.05$) which were significant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' flexibility significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase flexibility, with the intensive interval training group outperforming the resistance circuit training and control groups in this regard.

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

Fig .4.4 : The Mean value of Flexibility are shown graphically

4.4.1.5 Explosive Power

Table 4.9 : Analysis of Covariance on Explosive Power among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	1.85	1.86	1.88	B	0.01	2	0.01	0.34	0.71
	0.14	0.15	0.12	W	1.64	87	0.02		
Post Test Mean	2.02	1.97	1.89	B	0.25	2	0.13	8.68*	0.00
	0.11	0.14	0.11	W	1.25	87	0.01		
Adjusted Post Test Mean	2.03	1.97	1.88	B	0.34	2	0.17	64.64*	0.00
				W	0.23	86	0.003		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.9, the explosive power pre-test means for the resistance circuit training, intensive interval training, and control groups were 1.85, 1.86, and 1.88 respectively. The obtained F ratio was 0.34 and had a significant value of 0.71 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pre-test was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on explosive power.

Resistance circuit training, intensive interval training, and the control group all had post-test means on explosive power that were 2.02, 1.97, and 1.89, respectively. The obtained F ratio was 8.68 and significant value (0.00 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on explosive power of the subjects.

The adjusted post-test means for explosive power in the resistance circuit training, intensive interval training, and control groups were 2.03, 1.97, and 1.88, respectively. The obtained F ratio was 64.64, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the findings,

resistance circuit training, intense interval training, and the control group all had significantly different post-test means.

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.10.

Table 4.10 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means Explosive Power

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
2.03	1.97	-	0.06*	0.00
2.03	-	1.88	0.15*	0.00
-	1.97	1.88	0.09*	0.00

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

The paired adjusted post-test means for each group are shown in table 4.10. The mean difference between resistance circuit training and intensive interval training (0.06, $p<0.05$), resistance circuit training and control group (0.15, $p<0.05$) and intensive interval training and control group (0.09, $p<0.05$) which were significant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' explosive power significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase explosive power, with the resistance circuit training outperforming the intensive interval training group and control groups in this regard.

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

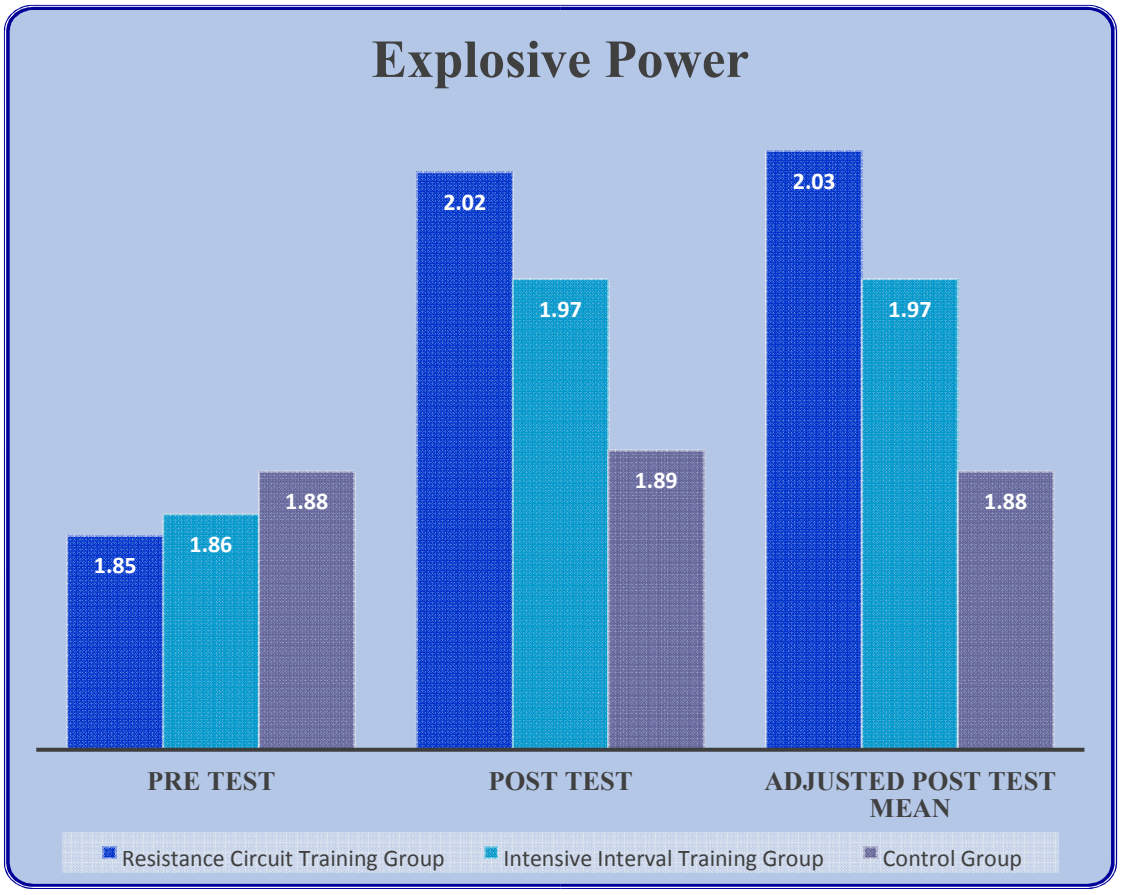

Fig. 4.5 : The Mean value of Explosive Power are shown graphically

4.4.2 Physiological Variables

4.4.2.1 Resting Pulse Rate

Table 4.11 : Analysis of Covariance on Resting Pulse Rate among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	70.87	70.93	71.33	B	3.82	2	1.91	0.30	0.74
	2.62	2.10	2.83	W	560.00	87	6.44		
Post Test Mean	68.10	67.70	70.43	B	130.76	2	65.38	15.78*	0.00
	1.72	1.76	2.51	W	360.37	87	4.14		
Adjusted Post Test Mean	68.21	67.77	70.26	B	105.03	2	52.52	30.42*	0.00
				W	148.48	86	1.73		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.11, the resting pulse rate pre-test means for the resistance circuit training, intensive interval training, and control groups were 70.87, 70.93, and 71.33 respectively. The obtained F ratio was 0.30 and had a significant value of 0.74 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pre-test was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on resting pulse rate.

Resistance circuit training, intensive interval training, and the control group all had post-test means on resting pulse rate that were 68.10, 67.70, and 70.43, respectively. The obtained F ratio was 15.78 and significant value (0.00 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on resting pulse rate of the subjects.

The adjusted post-test means for resting pulse rate in the resistance circuit training, intensive interval training, and control groups were 68.21, 67.77, and 70.26, respectively. The obtained F ratio was 30.42, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the findings, resistance circuit training, intense interval training, and the control group all had significantly different post-test means.

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.12.

Table 4.12 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means Resting Pulse Rate

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
68.21	67.77	-	0.44	0.20
68.21	-	70.26	2.05*	0.00
-	67.77	70.26	2.49*	0.00

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

The paired adjusted post-test means for each group are shown in table 4.12. The mean difference between resistance circuit training and control group (2.05, $p<0.05$) and intensive interval training and control group (2.49, $p<0.05$) which were significant at the 0.05 confidence level. And resistance circuit training and intensive interval training (0.44, $p>0.05$), which were insignificant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' resting pulse rate significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase resting pulse rate, with the intensive interval training outperforming the resistance circuit training group and control groups in this regard.

The pre, post and adjusted means on resting pulse rate are illustrated through bar chart in figure - 4.6.

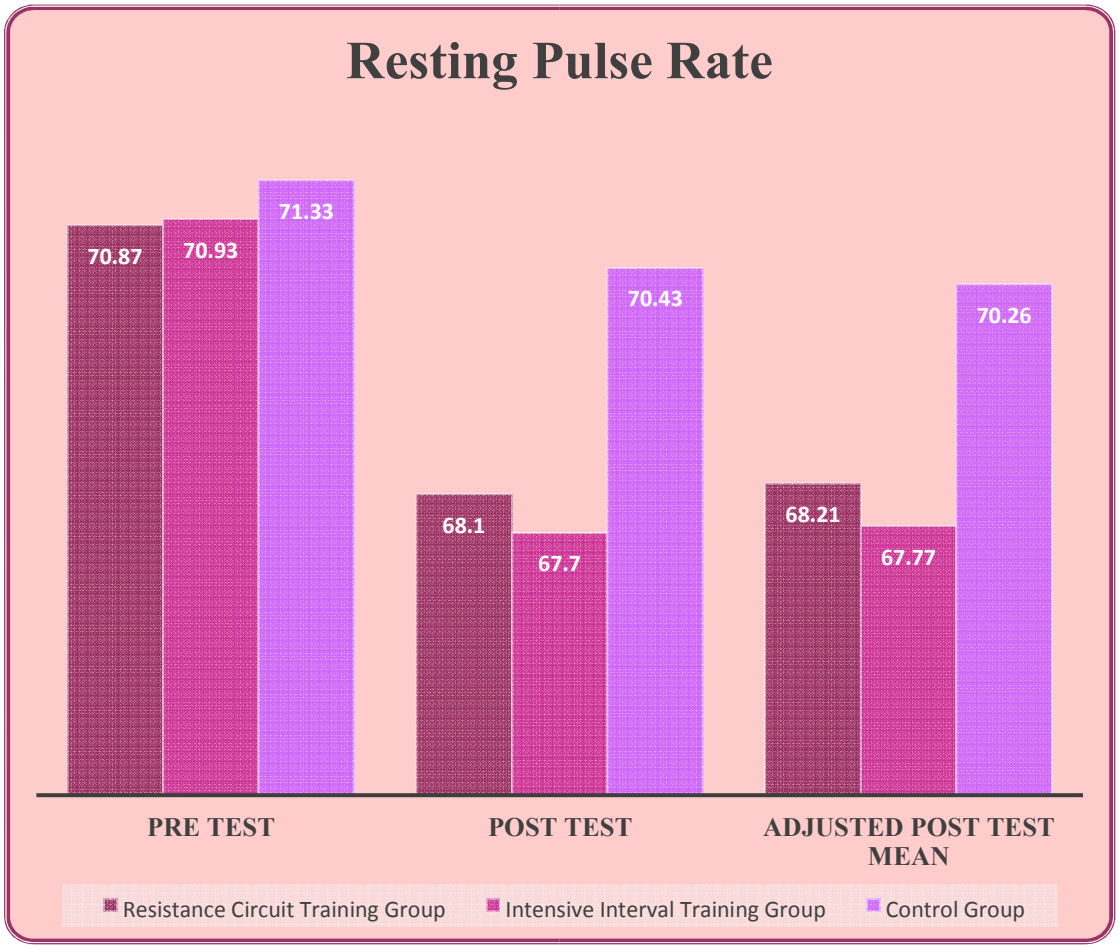

Fig .4.6 : The Mean value of Resting Pulse Rate are shown graphically

4.4.2.2 Vital capacity

Table 4.13 : Analysis of Covariance on Vital Capacity among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	3.84	3.96	3.82	B	0.33	2	0.17	0.52	0.60
	0.46	0.73	0.48	W	28.25	87	0.33		
Post Test Mean	4.20	4.47	3.87	B	5.44	2	2.72	9.70*	0.00
	0.40	0.68	0.46	W	24.38	87	0.28		
Adjusted Post Test Mean	4.22	4.40	3.92	B	3.46	2	1.73	68.53*	0.00
				W	2.17	86	0.03		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.13, the vital capacity pre-test means for the resistance circuit training, intensive interval training, and control groups were 3.84, 3.96, and 3.82 respectively. The obtained F ratio was 0.52 and had a significant value of 0.60 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pretest was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on vital capacity.

Resistance circuit training, intensive interval training, and the control group all had post-test means on vital capacity that were 4.20, 4.47, and 3.87, respectively. The obtained F ratio was 9.70 and significant value (0.00 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on vital capacity of the subjects.

The adjusted post-test means for vital capacity in the resistance circuit training, intensive interval training, and control groups were 4.22, 4.40, and 3.92, respectively. The obtained F ratio was 68.53, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the findings,

resistance circuit training, intense interval training, and the control group all had significantly different post-test means.

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.14.

Table 4.14 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means Vital Capacity

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
4.22	4.40	-	0.18*	0.00
4.22	-	3.92	0.30*	0.00
-	4.40	3.92	0.48*	0.00

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

The paired adjusted post-test means for each group are shown in table 4.14. The mean difference between resistance circuit training and intensive interval training (0.18, $p<0.05$), resistance circuit training and control group (0.30, $p<0.05$) and intensive interval training and control group (0.48, $p<0.05$) which were significant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' vital capacity significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase vital capacity, with the intensive interval training outperforming the resistance circuit training group and control groups in this regard.

The pre, post and adjusted means on vital capacity are illustrated through bar chart in figure - 4.7.

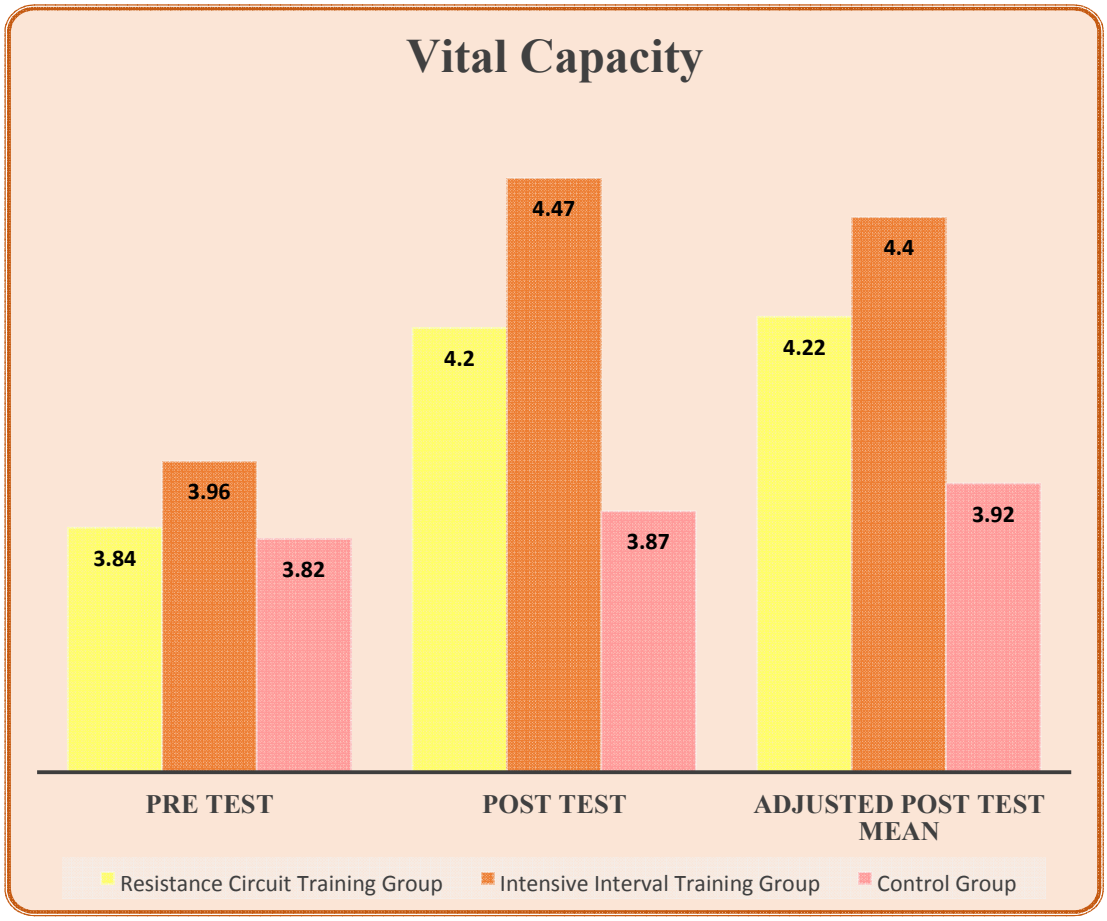

Fig .4.7 : The Mean value of Vital Capacity are shown graphically

4.4.2.3 Systolic Blood Pressure

Table 4.15 : Analysis of Covariance on Systolic Blood Pressure among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	125.17	124.80	124.67	B	4.02	2	2.01	0.14	0.87
	3.66	4.25	3.29	W	1225.63	87	14.09		
Post Test Mean	121.43	119.87	123.03	B	150.42	2	75.21	5.91*	0.00
	3.26	4.10	3.26	W	1107.80	87	12.73		
Adjusted Post Test Mean	121.17	119.94	123.23	B	165.59	2	82.80	91.09*	0.00
				W	78.17	86	0.91		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.15, the systolic blood pressure pre-test means for the resistance circuit training, intensive interval training, and control groups were 125.17, 124.80, and 124.67 respectively. The obtained F ratio was 0.14 and had a significant value of 0.87 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pre-test was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on systolic blood pressure.

Resistance circuit training, intensive interval training, and the control group all had post-test means on systolic blood pressure that were 121.43, 119.87, and 123.03, respectively. The obtained F ratio was 5.91 and significant value (0.00 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on systolic blood pressure of the subjects.

The adjusted post-test means for systolic blood pressure in the resistance circuit training, intensive interval training, and control groups were 121.17, 119.94, and 123.23, respectively. The obtained F ratio was 91.09, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the findings, resistance circuit training, intense interval training, and the control group all had significantly different post-test means.

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.16.

Table 4.16 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means Systolic Blood Pressure

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
121.17	119.94	-	1.23*	0.00
121.17	-	123.23	2.06*	0.00
-	119.94	123.23	3.29*	0.00

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

The paired adjusted post-test means for each group are shown in table 4.16. The mean difference between resistance circuit training and intensive interval training (1.23, $p<0.05$), resistance circuit training and control group (2.06, $p<0.05$) and intensive interval training and control group (3.29, $p<0.05$) which were significant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' systolic blood pressure significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase systolic blood pressure, with the intensive interval training outperforming the resistance circuit training group and control groups in this regard.

The pre, post and adjusted means on systolic blood pressure are illustrated through bar chart in figure - 4.8.

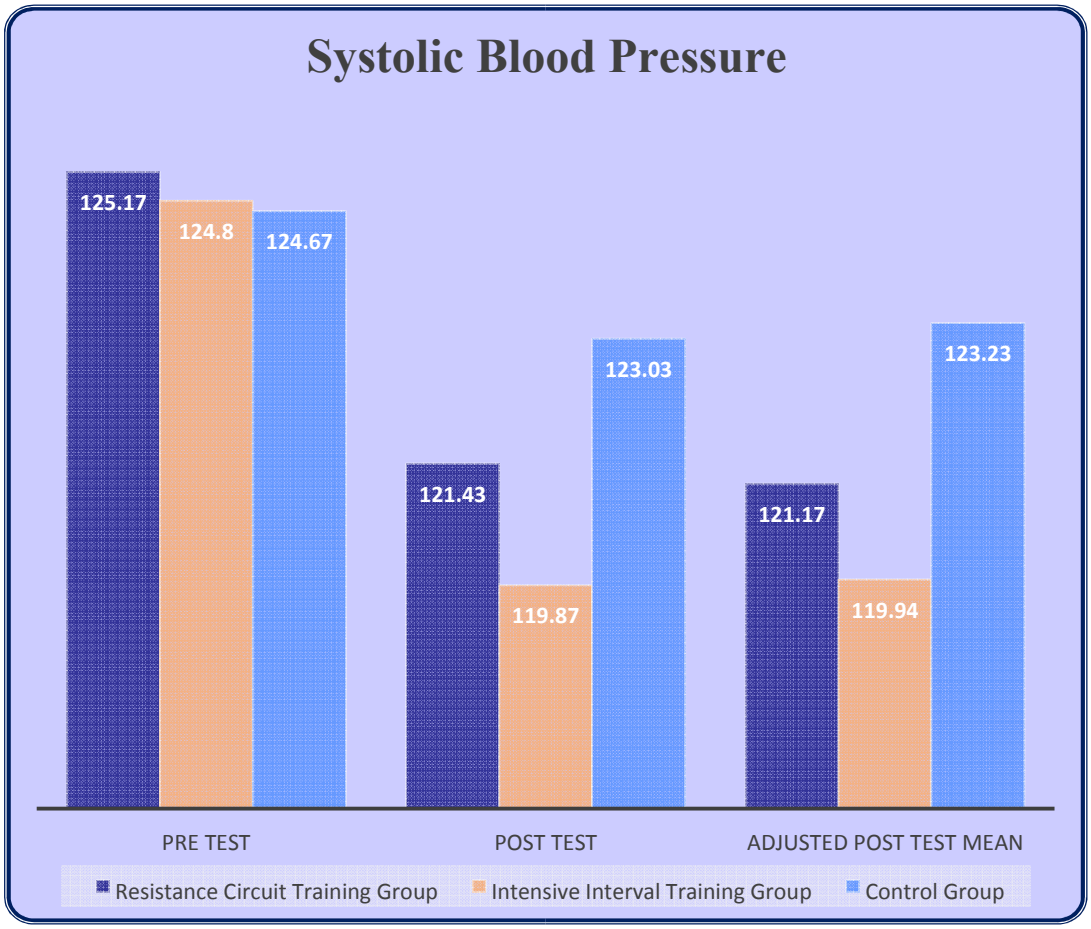

Fig .4.8 : The Mean value of Systolic Blood Pressure are shown graphically

4.4.2.3 Diastolic Blood Pressure

Table 4.17 : Analysis of Covariance on Diastolic Blood Pressure among Resistance Circuit Training Group, Intensive Interval Training Group and Control Group

Test	Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Sources of Variance	Sum of Square	DF	Mean of Square	Obtain F ratio	Sig.
Pre Test Mean	82.20	82.30	82.83	B	6.96	2	3.48	0.39	0.68
	3.11	2.61	3.16	W	769.27	87	8.84		
Post Test Mean	79.17	78.60	81.60	B	152.42	2	76.21	8.63*	0.00
	3.27	2.51	3.08	W	768.57	87	8.83		
Adjusted Post Test Mean	79.39	78.73	81.25	B	101.49	2	50.74	31.68*	0.00
				W	137.77	86	1.60		

***Significant at 0.05 level of significance if p-value is < 0.05.**

In accordance with table 4.15, the diastolic blood pressure pre-test means for the resistance circuit training, intensive interval training, and control groups were 82.20, 82.30, and 82.83 respectively. The obtained F ratio was 0.39 and had a significant value of 0.39 > 0.05. Therefore, at a 0.05 level of confidence and with 2 and 87 degrees of freedom, the pre-test was determined to be insignificant. This demonstrated that there were no significant differences between the resistance circuit training, intensive interval training and control group on diastolic blood pressure.

Resistance circuit training, intensive interval training, and the control group all had post-test means on diastolic blood pressure that were 79.17, 78.60, and 81.60, respectively. The obtained F ratio was 8.63 and significant value (0.00 < 0.05) was obtained, meaning that the post-test was significant at the 0.05 level of confidence for 2 and 87 degrees of freedom. This demonstrates that there was a significant difference in the post-test means on diastolic blood pressure of the subjects.

The adjusted post-test means for diastolic blood pressure in the resistance circuit training, intensive interval training, and control groups were 79.39, 78.73, and 81.25, respectively. The obtained F ratio was 31.68, and the significant value (0.00 < 0.05) was at a level of 0.05 confidence with 2 and 86 degrees of freedom. According to the

findings, resistance circuit training, intense interval training, and the control group all had significantly different post-test means.

To determine which of the paired means had a significant difference, the LSD lest was used as post-hoe test and the results are presented in the table 4.18.

Table 4.18 : LSD Post Hoc Test for the Differences between the Paired Adjusted Post-Test Means Diastolic Blood Pressure

Resistance Circuit Training Group	Intensive Interval Training Group	Control Group	Mean Difference	Sig.
79.39	78.73	-	0.66*	0.04
79.39	-	81.25	1.86*	0.00
-	78.73	81.25	2.52*	0.00

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

The paired adjusted post-test means for each group are shown in table 4.18. The mean difference between resistance circuit training and intensive interval training (0.66, $p<0.05$), resistance circuit training and control group (1.86, $p<0.05$) and intensive interval training and control group (2.52, $p<0.05$) which were significant at the 0.05 confidence level.

The study's findings indicated that after completing their respective training regimens, the resistance circuit training and intensive interval training groups' diastolic blood pressure significantly increased. The study's findings also indicated that there was a significant difference in the training groups' ability to increase diastolic blood pressure, with the intensive interval training outperforming the resistance circuit training group and control groups in this regard.

The pre, post and adjusted means on diastolic blood pressure are illustrated through bar chart in figure - 4.9.

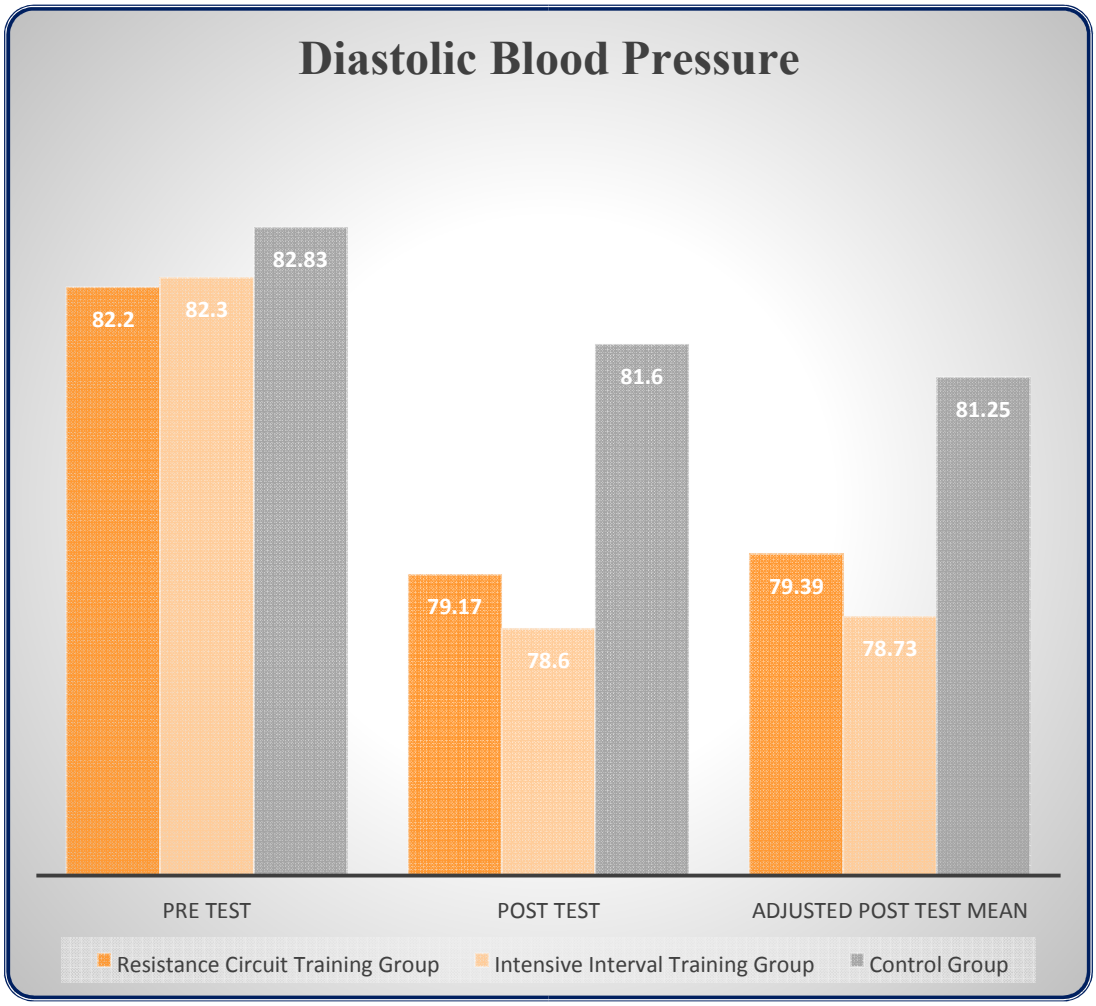

Fig. 4.9 : The Mean value of Diastolic Blood Pressure are shown graphically

4.5 Discussion on Findings

The statistical study led to the following findings.

4.5.1 Physical Variable

Due to resistance circuit training and intense interval training, there was significant improvement in selected physical fitness variables, including speed, endurance, agility, flexibility, and explosive power among male kho-kho players. With the exception of explosive power, however, the development of a selected physical fitness variables was noticeably better with intensive interval training than resistance circuit training. Due to the different training intensities used by both groups, both the resistance circuit training and intensive interval training groups improved on selected physical fitness measures.

The findings of this research are consistent with those of earlier investigations; After two weeks of the intervention, **Kumar et al. (2022)** shown a significant improvement with close observation and dynamic for both feet for single foot comparison. Agility also underwent significant adjustments. Exam in Illinois, 40-meter run. High and moderate intensity interval training significantly improved the anaerobic capacity of male state level Kho-Kho players over the course of a six-week 50-meter drill, according to **Das and Chatterjee (2019),** but high intensity interval training (HIIT) tended to do so more so than moderate intensity interval training. In their 2019 study, **Murugavel and Nirendan** examined how a speed training regimen affected the intercollegiate men's kho-kho players' speed, agility, and cardiorespiratory endurance. According to the study's findings, endurance training increased physical endurance, strength, and speed. According to **Kodgire's (2018)** findings, the explosive power of the leg was measured using standing broad leaps, with meters serving as the measurement's measurement unit. Bent knee setups with counts as the measuring unit were utilized to evaluate the muscular strength endurance. **Sumathi, S. (2017)** after six weeks of circuit training, it was discovered that the kho-kho players' chosen strength measures had significantly increased. The standing broad jump speed-endurance, shuttle run, sit-ups, and 50-meter dash scores of Kho-Kho players were all significantly different, according to **Singh (2017).** According to **Raju and Babu's (2016)** research, circuit training benefits the experimental group's endurance performance while having the opposite effect on the controlled group. It has been established that circuit training will boost the endurance of football players. Plyometric training significantly improved the performance-related aspects of female university-level Kho-Kho players, according to research by **Ali and Cherappurath (2015). Kumar (2016)** study found that the subjects' speed, leg power, arm power, and agility were all significantly improved by circuit training. The results of **Meeravali et al. (2015)** show that the experimental group has improved in terms of speed, agility, and endurance after receiving specialized training. This may be due to the effects of certain training.

4.5.2 Physiological Variable

Male kho-kho players' resting pulse rates, vital capacities, and blood pressure all significantly improved as a result of resistance circuit training and intense interval

training. However, intensive interval training significantly outperformed resistance circuit training in terms of the improvement of a few physiological indicators. Due to the different training intensities used by both groups, resistance circuit training and rigorous interval training showed improvements in a number of physiological indicators.

The study's conclusions are consistent with those of earlier investigations; According to research by **Bhomik (2023),** using specific training greatly reduces the amount of time spent holding your breath while also raising resting heart rate. Circuit training was found to be superior to interval training in the **Taufik et al. (2021)** study that compared the two modes of exercise for increasing VO2max. Interval training has been demonstrated to have a significant impact on the outcomes of VO2max (increase). **Mane (2021)** in the experimental group, systolic blood pressure dramatically dropped whereas diastolic blood pressure did not change appreciably. Both the heart rate and the rate of breathing significantly lowered. The Control Group did not show any notable differences across all variables. **Vyas's (2019)** research, schoolboy male athletes had significantly higher blood pressure, pulse rates, and levels of vitality of action. According to the study, players' physiological measures, including their systolic and diastolic blood pressure, resting heart rate, and vital capacity, all improved. Male khokho and kabaddi players had lower resting heart rates than women. 2019's **Velmurugan** It was also shown that there was a significant difference in vital capacity, resting heart rate, and breath holding time between the experimental and control groups as a result of the twelve weeks of resistance training. In contrast to the control group, the interval training and circuit training groups significantly improved their VO_2 max, according to **Balasing and Night's (2018)** study. Additionally, there are no discernible differences between the circuit training and interval training groups; however, the interval training group experienced a greater increase in VO2 max. The results of the **Meeravali et al. (2015)** study show that the experimental group had improved in physiological parameter, namely vital capacity, and had received specialized education. In contrast to pole diving and covering, stress is a psychological variable. This may be due to the effects of certain training.

The main outcome of this study is that resistance circuit training and intense interval training increase physiological variables and physical fitness the most. Resistance circuit training and intense interval training can therefore be incorporated into a training program to enhance the performance of kho-kho players by having an impact on neuromuscular parameters related to the effectiveness of the stretchshortening cycle.

4.6 Discussion on Hypotheses

- According to the first hypothesis, there would be significant improvement on selected physical variables due to the effect of resistance circuit training and intensive interval training on Kho-Kho players. The results showed that resistance circuit training and intense interval training significantly improved on physical variables, including speed, endurance, agility, flexibility, and explosive power. As a result, the researcher's first hypothesis is accepted.
- In the second hypothesis, there would be significant improvement on selected physiological variables due to the effect of resistance circuit training and intensive interval training on Kho-Kho players. The outcomes demonstrated a considerable improvement in physiological parameters such as resting heart rate, vital capacity, and blood pressure with resistance circuit training and severe interval training. The second hypothesis of the researcher is accepted.
- In the third hypothesis, there would be significant differences on selected physical and psychological variables due to the effect of resistance circuit training and intensive interval training. The study's findings revealed a significant difference between the groups, and the formulated hypothesis was therefore accepted.