Chapter IV

ANALYSIS OF DATA AND RESULTS OF THE STUDY

The chapter deals with the analysis of data and the necessary results of the study are presented hereby in this chapter. The tables of the results are supported with the help of pictorial matter like graphs and their description. The statistical analysis of data collected on eighty subjects belonging to four different groups has been presented in this chapter.

The subjects were divided randomly into the four equal groups consisting of twenty subjects in each group, belonging to two experimental groups and two control groups. Experiment group I & Experimental group II were boys group and Girls group and group III and group IV served as a control group boys and girls. The data on selected criterion measure for all the four groups were collected under similar conditions.

The data was examined by applying analysis of covariance, analysis of covariance was applied with regards of two experimental groups and two control group and the random group design was employed in this study. The subjects for the two experimental groups and two control groups were divided randomly. Difference between initial means of the groups at pre test was taken into account during analysis of post-test difference between the means by the process of application of ANCOVA, where post test means were adjusted for difference in the pre test means and adjusted means were tested for significance at 0.05 levels.

Table – 5

Descriptive Statistics of Muscular Endurance of Two Experimental Groups (Boys Group& Girls Group) and Control Group in Pre-Test and Post-Test

		Mean	Std. Deviation	Std. Error	Minimum	Maximum
Pre Test	Experimental Boys group	33.4000	4.69490	1.04981	26.00	42.00
	Experimental Girls group	24.7000	4.54336	1.01593	17.00	33.00
	Control group boys	29.9000	3.95900	.88526	24.00	38.00
	Control group girls	25.6000	4.61576	1.03212	17.00	34.00

Post Test	Experimental Boys group	36.0500	5.20602	1.16410	29.00	47.00
	Experimental Girls group	26.5000	4.58258	1.02470	19.00	35.00
	Control group boys	31.2000	4.02100	.89912	25.00	40.00
	Control group girls	26.6500	4.28308	.95772	20.00	35.00

Table-5 clearly indicates the mean and standard deviations of different groups (Boys, Girls, and control group). The observed mean and standard deviation of pre test squat thrust Boys group 33.4000±4.69490, Girls group 24.7000±4.54336, Boys control group 29.9000±3.95900 Girls Control Group25.6000 ± 4.61576 ; and Post test squat thrust, Boys Group 36.0500±5.20602, Girls group 26.5000±4.58258, Boys Control group 31.2000±4.02100 and Girls Control group 26.6500±4.28308 were respectively.

Table – 5.1

Analysis of Variance of Comparison of Means of Two Experimental Groups and Control Group in Relation to Muscular Endurance

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Pre Test	Between Groups	975.600	3	325.200	16.329*	.000
	Within Groups	1513.600	76	19.916		
Post Test	Between Groups	1229.500	3	409.833	19.843*	.000
	Within Groups	1569.700	76	20.654		

*Significant at .05 level

F value required to be significant at 3, 76 df =2.72

In relation to pre test, table 5.1 revealed that the obtained 'F' value of 16.329 was found to be significant at 0.05 level, since this value was found higher than the tabulated value 2.72 at 3, 76 df.

In relation to post test, significant difference was found among experimental groups and control group pertaining to squat thrust, since F value of 19.843 was found significant at .05 level.

Table – 5.2

Analysis of Covariance of Comparison of Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Muscular Endurance

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	30.522	3	10.174	4.683*	.000
Error	162.945	75	2.173		

*Significant at .05 level

F value required to be significant at 3, 75 df = 2.73

Table 5.2 revealed that the obtained 'F' value of 4.683 was found to be significant at 0.05 level, since this value was found higher than the tabulated value 2.73 at 3, 75 df.

Table –5.3

Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Muscular Endurance

Groups	Mean	Std. Error
Experimental Boys Group	31.230	.380
Experimental Girls Group	30.067	.358
Control Group Boys	29.754	.334
Control Group Girls	29.349	.346

Table-5.4

LSD Post-hoc Test for the comparison of paired adjusted post test means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Muscular Endurance

Adjusted Mean Values				Mean Difference	Sig	Critical Difference
Experimental Boys Group	Experimental Girls Group	Control Group Boys	Control Group Girls			
31.230		29.754		1.476*	.003	**0.95**
	30.067		29.349	.718	.467	
31.230	30.067			1.163*	.045	

*Significant at 0.05 level.

It is evident from table- 5.4 that significant difference was found between adjusted final means of experimental Boys group and Boys control group, Experimental boys group and experimental girls group. The difference between means was high than critical difference for adjusted means.

On the other hand insignificant difference was found between the adjusted final means of Experimental Girls Group and Girls control group. The difference means was lower than critical difference for adjusted means.

Above statistical finding clearly signifies that the ten week duration of asana and Pranayama exercise had effected significant increase in Squat Thrust, And Boys group have shown better increase than Girls group.

Figure: 1 Graphical Representation of Adjustment Means of Experimental Boys Group, Girls Group and Control Groups in Relation to Muscular Endurance

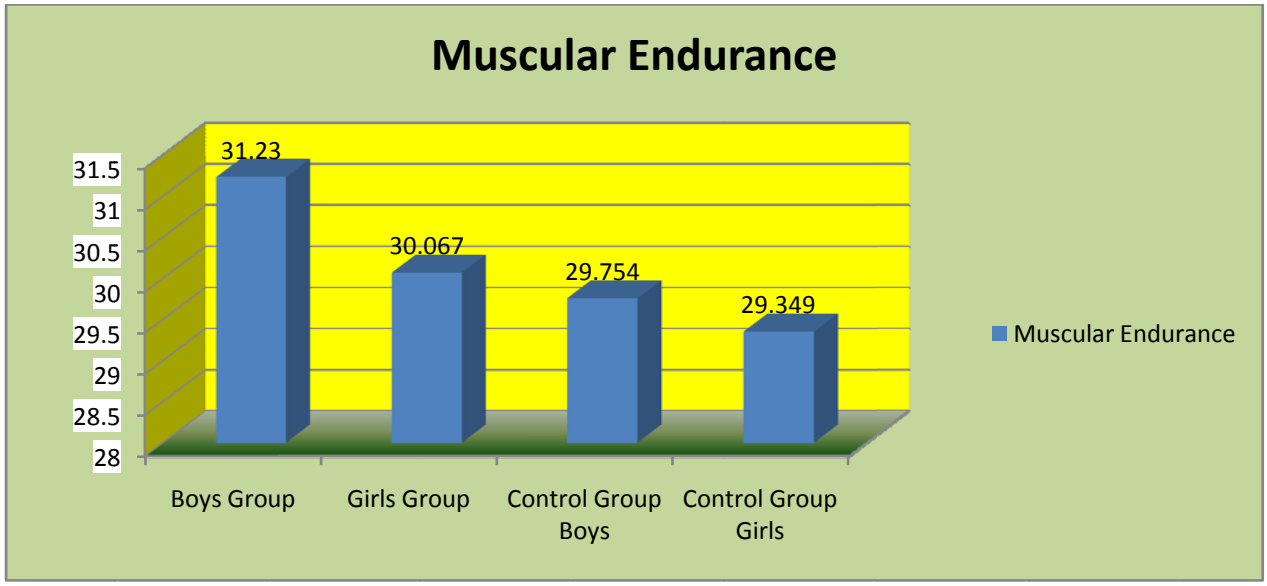


Table -6

Descriptive Statistics of Static Balance of Two Experimental Groups (Boys Group& Girls Group) and Control Group in Pre-Test and Post-Test

		Mean	Std. Deviation	Std. Error	Minimum	Maximum
Pre Test	Experimental Boys group	4.8667	1.77596	.32424	2.00	8.00
	Experimental Girls	4.4667	1.75643	.32068	2.00	8.00

	group					
	Control group boys	4.6667	1.76277	.22757	2.00	8.00
	Control group girls	4.8664	3.20488	.58513	7.00	20.00
Post Test	Experimental Boys group	11.7333	3.44146	.62832	5.00	18.00
	Experimental Girls group	10.4667	3.35827	.43355	5.00	20.00
	Control group boys	11.1000	1.77596	.32424	2.00	8.00
	Control group girls	11.0245	1.75643	.32068	2.00	8.00

Table-6 clearly indicates the mean and standard deviations of different groups (Boys, Girls, and control group). The observed mean and standard deviation of pre test static balance Boys group 4.8667±1.77596, Girls group 4.4667±1.75643, Boys control group 4.6667±1.76277 Girls Control Group 4.8664 ± 3.20488 ; and Post test static balance, Boys Group 11.7333±3.44146, Girls group 10.4667±3.35827, Boys Control group 11.1000±1.77596 and Girls Control group11.0245±1.75643 were respectively.

Table – 6.1

Analysis of Variance of Comparison of Means of Two Experimental Groups and Control Group in Relation to Static Balance

		Sum of Squares	**Df**	**Mean Square**	**F**	**Sig.**
Pre-Test	**Between Groups**	2.400	3	2.400	.769	.384
	Within Groups	180.933	76	3.120		
Post-Test	**Between Groups**	24.067	3	24.067	2.177	.146
	Within Groups	641.333	76	11.057		

*Significant at .05 level

F value required to be significant at 3, 76 df =2.72

In relation to pre test, table 6.1 revealed that the obtained 'F' value of .769 was found to be insignificant at 0.05 level, since this value was found less than the tabulated value 2.72 at 3, 76 df.

In relation to post test, significant difference was found among experimental groups and control group pertaining to static balance, since F value of 2.177 was also found insignificant at .05 level.

Table – 6.2

Analysis of Covariance of Comparison of Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to static Balance

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	24.554	3	24.554	2.184	.145
Error	640.824	76	11.243		

*Insignificant at .05 level**,** F value required to be significant at 3, 76 df =2.72

Table 6.2, revealed that the obtained 'F' value of 2.184 was found to be insignificant at 0.05 level, since this value was found lower than the tabulated value 2.72 at 3, 76 df.

Table –6.3

Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Static Balance

Groups	Mean	Std. Error
Experimental Boys Group	11.744	.356
Experimental Girls Group	10.456	.203
Control Group Boys	10.160	.310
Control Group Girls	11.540	.397

Figure: 2 Graphical Representations of Adjustment Means of Experimental Boys Group, Girls Group and Control Groups in Relation to Static Balance

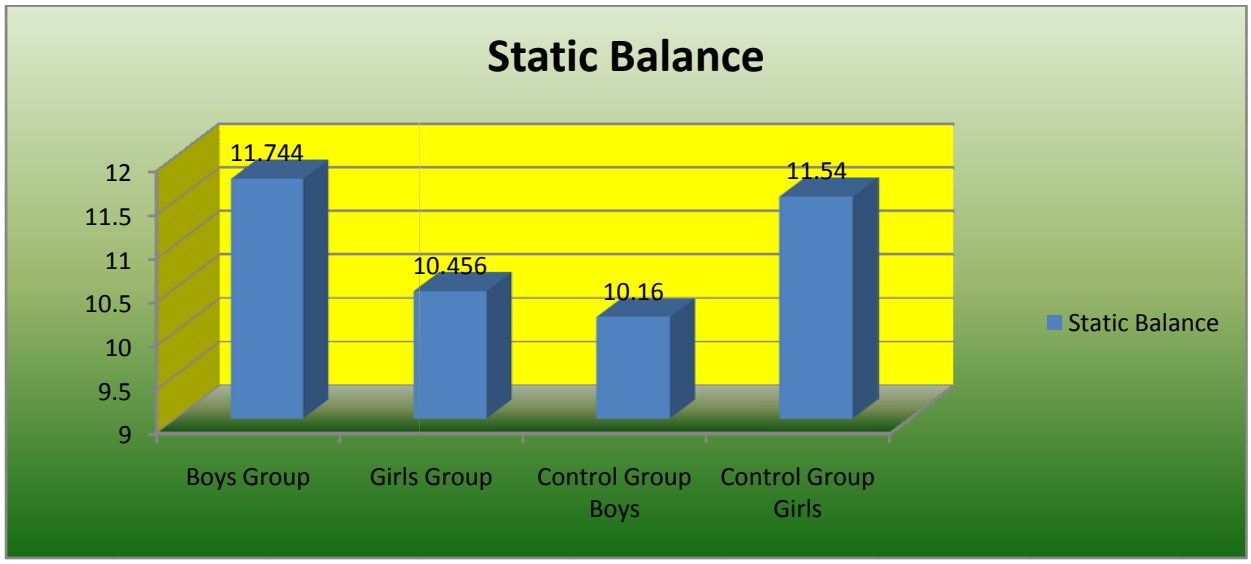


Table -7

Descriptive Statistics of Vital Capacity of Two Experimental Groups (Boys Group & Girls Group) and Control Group in Pre-Test and Post-Test

		Mean	Std. Deviation	Std. Error	Minimum	Maximum
Pre Test	Experimental Boys Group	1.7545	300.359	67.162	1250.0	2250.0
	Experimental Girls Group	1.6820	296.623	66.326	1250.0	2100.0
	Control Group Boys	1.7925	137.415	30.726	1550.0	2000.0
	Control Group Girls	1.7215	300.548	67.204	1250.0	2100.0
Post Test	Experimental Boys Group	2.1290	342.650	76.619	1550.0	2600.0
	Experimental Girls Group	2.2305	310.508	69.431	1620.0	2600.0
	Control Group Boys	1.8520	165.739	37.060	1570.0	2100.0
	Control Group Girls	1.948	300.548	67.204	1450.0	2400.0

Table-7 clearly indicates the mean and standard deviations of vital capacity at different groups (boys group Girls group, and control groups). The observed mean and standard deviation of pre test Vital Capacity Boys group 1.7545±300.359, Girls group 1.6820±296.623, Boys control group 1.7925±137.415 Girls control group1.7215±300.548; and Post test Vital Capacity Boys group 2.1290±342.650, Girls group 2.2305±310.508, Boys Control group 1.8520±165.739 and Girls control group1.948 ± 300.548 were respectively.

Table – 7.1

Analysis of Variance of Comparison of Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Vital Capacity

		Sum of Squares	df	Mean Square	F	Sig.
Pre Test	Between Groups	133003.75	3	44334.58	.617	.606
	Within Groups	5460845.00	76	71853.22		
Post Test	Between Groups	1758550.00	3	586183.33	7.070*	.000
	Within Groups	6300850.00	76	82905.92		

*Significant at .05 level

F-value required to be significant at 3, 76 df = 2.72

In relation to pre test, table 7.1 revealed that the obtained 'F' value of .617 was found to be insignificant at 0.05 levels, since this value was found lower than the tabulated value 2.72 at 3, 76 degree of freedom. Which clear that the pre-test mean does not differ significantly and that the random assignment of subjects to the two experimental groups and two control groups was quite successful.

In relation to post test, significant difference was found among experimental groups and control group pertaining to Vital Capacity, since F value of 7.070 was found significant at .05 level.

Table – 7.2

Analysis of Covariance of Comparison of Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Groups in Relation to Vital Capacity

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	2202216.14	3	734072.05	12.694*	.000
Error	4337215.54	75	57829.54		

*Significant at .05 level

F value required to be significant at 3, 75 df = 2.73

Table 7.2 revealed that the obtained 'F' value of 12.694 was found to be significant at 0.05 level, since this value was found higher than the tabulated value 2.73 at 3, 75 df.

Table –7.3

Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Vital Capacity

Groups	Mean	Std. Error
Experimental Boys Group	211.9	53.80
Experimental Girls Group	226.4	54.07
Control Group Boys	181.9	54.06
Control Group Girls	195.8	53.79

Table-7.4

LSD Post-hoc Test for the comparison of paired adjusted post test means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Vital Capacity

Adjusted Mean Values				Mean Difference	Sig	Critical Difference
Experimental Boys Group	Experimental Girls Group	Control Group Boys	Control Group Girls			
211.9		181.9		29.978*	.000	**58.95**
	226.4		195.8	30.568*	.000	
211.9	226.4			14.497	.062	

*Significant at 0.05 level.

It is evident from table-7.4 that significant difference was found between adjusted final means of experimental Boys group and Boys control group, Girls Group and Girls control group. The difference between means was high than critical difference for adjusted means.

On the other hand insignificant difference was found between the adjusted final means of experimental boys group and experimental girls group. The difference means was lower than critical difference for adjusted means.

Above statistical finding clearly signifies that the ten week duration of asana and Pranayama exercise had effected significant increase in vital Capacity, And Girls group have shown better increase than Boys group.

Figure: 3 Graphical Representations of Adjustment Means of Experimental Boys Group, Girls Group and Control Groups in Relation to Vital Capacity

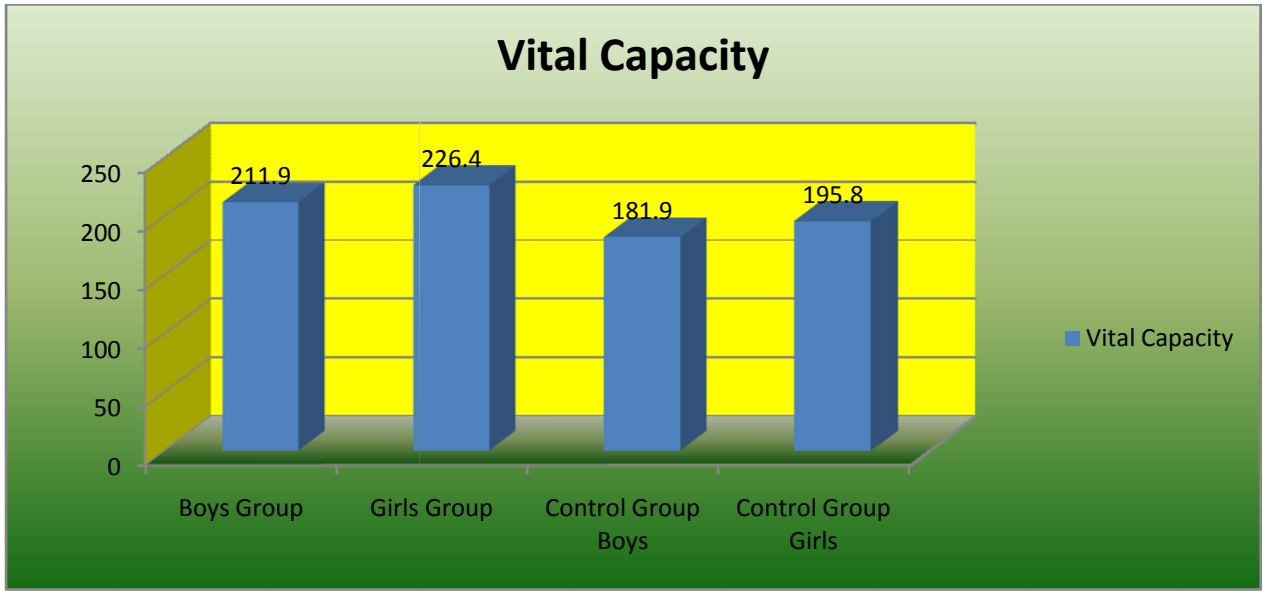


Table-8

Descriptive Statistics of Breathe Holding Capacity (Antara Kumbhak) of Two Experimental Groups (Boys & Girls) and Control Group in Pre-Test and Post-Test

		Mean	Std. Deviation	Std. Error	Minimum	Maximum
Pre Test	Experimental Boys Group	37.8000	4.67822	1.20791	25.00	45.00
	Experimental Girls Group	37.5333	2.58752	.66809	31.00	41.00
	Control Group Boys	37.4000	5.71714	1.47616	29.00	51.00
	Control Group Girls	30.4345	2.61628	.58502	24.27	33.41
Post Test	Experimental Boys Group	42.1333	7.02919	1.81493	19.00	49.00
	Experimental Girls Group	46.1333	3.54293	.91478	39.00	52.00
	Control Group Boys	38.8000	5.44059	1.40475	30.00	52.00
	Control Group Girls	31.5620	3.02162	.67566	24.32	34.87

Table-8 clearly indicates the mean and standard deviations of different groups (Boys, Girls, and control group). The observed mean and standard deviation of pre test Breathe Holding Capacity(Antara Kumbhak) Boys group 37.8000$\pm$4.67822, Girls group 37.5333$\pm$2.58752, Boys control group 37.4000$\pm$5.71714 Girls Control Group 30.4345 $\pm$ 2.61628 ; and Post test Breathing Holding Capacity, Boys group 42.1333$\pm$7.02919, Girls group 46.1333$\pm$ 3.54293, Boys Control group 38.8000 $\pm$ 5.44059 and Girls Control group 31.5620 $\pm$ 3.02162 were respectively.

Table – 8.1

Analysis of Variance of Comparison of Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Breathe Holding Capacity(Antara Kumbhak)

		Sum of Squares	df	Mean Square	F	Sig.
Pre Test	Between Groups	1.244	3	.622	.030	.970
	Within Groups	857.733	76	20.422		
Post Test	Between Groups	404.444	3	202.222	6.626*	.003
	Within Groups	1281.867	76	30.521		

*Significant at .05 level

F value required to be significant at 3, 76 df = 2.72

In relation to pre test, table 4.1 revealed that the obtained 'F' value of .030 was found to be insignificant at 0.05 level, since this value was found lower than the tabulated value 2.72 at 3, 76 df.

In relation to post test, significant difference was found among experimental groups and control group pertaining to Breathe Holding Capacity(Antara Kumbhak), since F value of 6.626 was found significant at .05 level.

Table – 8.2

Analysis of Covariance of Comparison of Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Breathe Holding Capacity(Antara Kumbhak)

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	396.709	3	198.354	8.986*	.001
Error	905.024	75	22.074		

*Significant at .05 level

F value required to be significant at 3, 75 df = 2.73

Table 8.2 revealed that the obtained 'F' value of 8.986 was found to be significant at 0.05 level, since this value was found higher than the tabulated value 2.73 at 3, 75 df.

Table –8.3

Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Breathe Holding Capacity (Antara Kumbhak)

Groups	Mean	Std. Error
Experimental Boys group	41.986	1.214
Experimental Girls group	46.163	1.213
Control group boys	38.918	1.213
Control group girls	31.5620	3.02162

Table-8.4

LSD Post-hoc Test for the comparison of paired adjusted post test means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Breathe Holding Capacity (Antara Kumbhak)

Adjusted Mean Values				Mean Difference	Sig	Critical Difference
Experimental Boys group	Experimental Girls group	Control Group Boys	Control Group Girls			
41.986		38.918		.790*	.002	**3.46**
	46.163		31.5620	.788*	.002	
41.986	33.2800			.157	.527	

*Significant at 0.05 level.

It is evident from table- 8.4 that significant difference was found between adjusted final means of experimental Boys group and Boys control group, Experimental Girls group and Control girls group. The difference between means was high than critical difference for adjusted means.

On the other hand insignificant difference was found between the adjusted final means of Experimental Boys Group and Experimental Girls group. The difference means was lower than critical difference for adjusted means.

Above statistical finding clearly signifies that the ten week duration of asana and Pranayama exercise had effected significant increase in Breathe Holding Capacity (Antara Kumbhak).

Figure: 4 Graphical Representations of Adjustment Means of Experimental Boys Group, Girls Group and Control Groups in Relation to Breathe Holding Capacity (Antara Kumbhak)

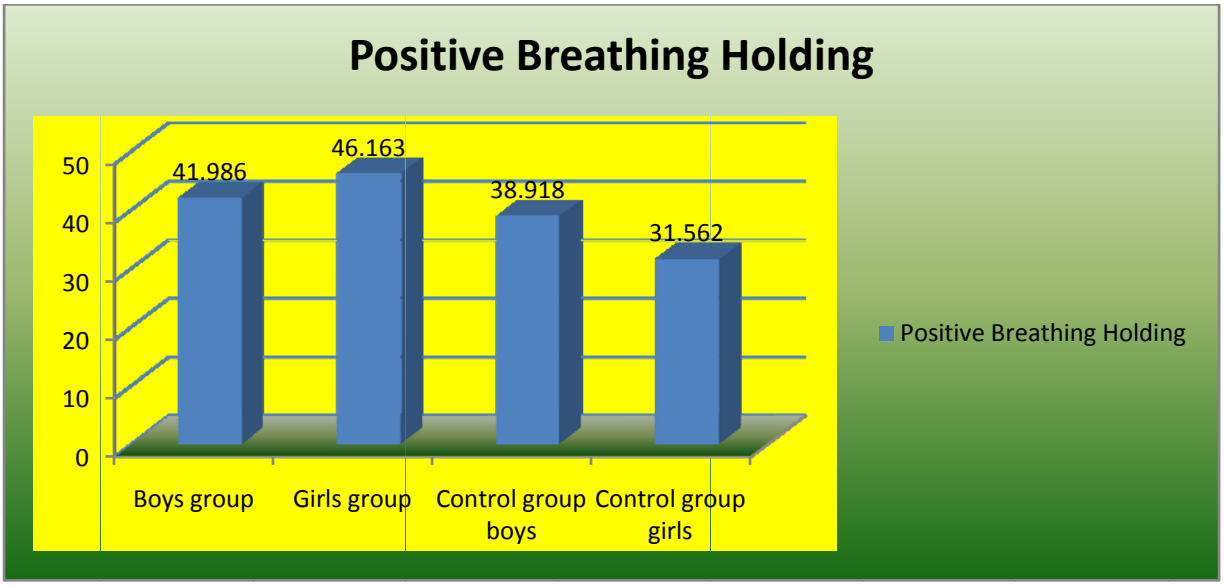


Table-9

Descriptive Statistics of pulse Rate of Two Experimental Groups (Boys & Girls)and Control Group in Pre-Test and Post-Test

		Mean	Std. Deviation	Std. Error	Minimum	Maximum
Pre Test	Experimental Boys group	90.2500	11.25716	2.51718	75.00	109.00
	Experimental Girls group	95.3000	11.02676	2.46566	72.00	113.00
	Control group boys	86.6000	12.79967	2.86209	65.00	111.00
	Control group girls	93.8000	8.73348	1.95287	74.00	112.00

Post Test	Experimental Boys group	86.2000	11.78134	2.63439	70.00	105.00
	Experimental Girls group	92.1500	10.67350	2.38667	70.00	109.00
	Control group boys	85.8000	12.75931	2.85307	65.00	110.00
	Control group girls	92.0000	8.86744	1.98282	72.00	110.00

Table-9 clearly indicates the mean and standard deviations of different groups (Boys Group, Girls Group, and control group). The observed mean and standard deviation of pre test pulse Rate, Boys group 90.2500±11.25716, Girls group 95.3000±11.02676, Boys control group 86.6000±12.79967 Girls Control group 93.8000 ±8.73348; and Post test pulse Rate, Boys group 86.2000±11.78134, Girls group 92.1500±10.67350, Boys Control group 85.8000±12.75931 and Girls Control group 92.0000 ±8.86744 were respectively.

Table – 9.1

Analysis of Variance of Comparison of Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Pulse Rate

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Pre Test	Between Groups	906.038	3	302.013	2.473	.068
	Within Groups	9279.950	76	122.105		
Post Test	Between Groups	739.938	3	246.646	1.997	.122
	Within Groups	9388.950	76	123.539		

*Significant at .05 level

F value required to be significant at 3, 76 df = 2.72

In relation to pre test, table 22 revealed that the obtained 'F' value of 2.473 was found to be insignificant at 0.05 level, since this value was found lower than the tabulated value 2.72 at 3, 76 df.

In relation to post test, insignificant difference was found among experimental groups and control group pertaining to pulse Rate, since F value of 1.997 was found insignificant at .05 level.

Table – 9.2

Analysis of Covariance of Comparison of Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Pulse Rate

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	121.286	3	40.429	20.507*	.000
Error	147.859	75	1.971		

*Significant at .05 level

F value required to be significant at 3, 75 df = 2.73

Table 9.2 revealed that the obtained 'F' value of 20.507 was found to be significant at 0.05 level, since this value was found higher than the tabulated value 2.73 at 3, 75 df.

Table –9.3

Adjusted Post Test Means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Pulse Rate

Groups	Mean	Std. Error
Experimental Boys Group	87.435	.314
Experimental Girls Group	88.345	.319
Control Group Boys	90.677	.322
Control Group Girls	89.692	.316

Table-9.4

LSD Post-hoc Test for the comparison of paired adjusted post test means of Two Experimental Groups (Boys &) and Control Group in Relation to Pulse Rate

Adjusted Mean Values				Mean Difference	Sig	Critical Difference
Experimental Boys Group	Experimental Girls Group	Control Group Boys	Control Group Girls			**0.56**
87.435		90.677		3.242*	.000	
	88.345		89.692	1.347*	.003	
87.435	88.345			.911	.047	

*Significant at 0.05 level.

It is evident from table- 9.4 that significant difference was found between adjusted final means of experimental Boys group and Boys control group, Experimental Girls group and Control girls group. The difference between means was high than critical difference for adjusted means.

On the other hand insignificant difference was found between the adjusted final means of Experimental Boys Group and Experimental Girls group. The difference means was lower than critical difference for adjusted means.

Above statistical finding clearly signifies that the ten week duration of asana and Pranayama exercise had effected significant increase in Pulse Rate, And Boys group have shown better increase than Girls group.

Figure: 5 Graphical Representations of Adjustment Means of Experimental Boys Group, Girls Group and Control Groups in Relation to Pulse Rate

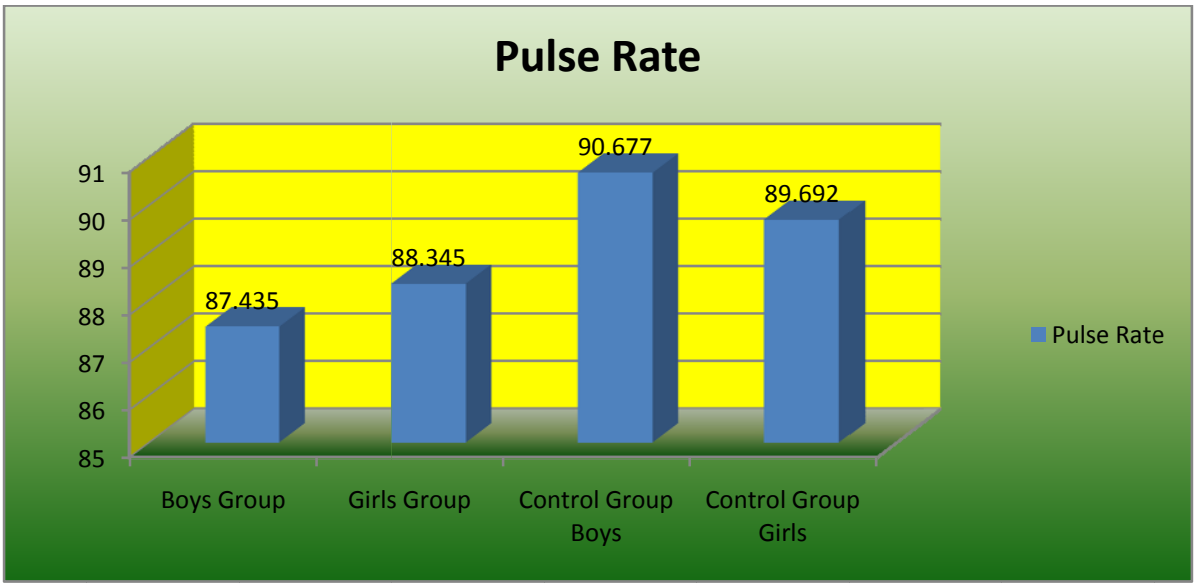


Table-10

Descriptive Statistics of Systolic Blood Pressure of Two Experimental Groups (Boys Group& Girls Group) and Control Group in Pre-Test and Post-Test

		Mean	Std. Deviation	Std. Error	Minimum	Maximum
Pre Test	Experimental Boys group	117.25	209.950	.46946	115.00	121.00
	Experimental Girls group	117.05	239.462	.53545	112.00	121.00
	Control group Boys	118.00	253.398	.56662	114.00	123.00
	Control group girls	123.20	272.609	.60957	119.00	129.00
Post Test	Experimental Boys group	115.50	184.961	.41359	112.00	119.00
	Experimental Girls group	115.15	208.440	.46609	111.00	118.00
	Control group Boys	116.95	243.818	.54519	112.00	121.00
	Control group Girls	122.35	142.441	.31851	120.00	124.00

Table-10 clearly indicates the mean and standard deviations of different groups (Boys group Girls group, and control groups). The observed mean and standard deviation of pre test Systolic Blood Pressure boys group 117.25±376.955, Girls group 117.05±360.555, Boys control group 118.00±253.398 Girls Control Group123.20±272.609; and Post test Systolic Blood Pressure, boys group 115.50±184.961, Girls group 115.15±208.440, Boys Control group116.95±243.818 and Girls control Group 122.35±142.441 were respectively.

Table –10.1

Analysis of Variance of Comparison of Means of Two Experimental Groups (Boys Group& Girls Group) and Control Groups in Relation to Systolic Blood Pressure

		Sum of Squares	df	Mean Square	F	Sig.
Pre Test	Between Groups	508.850	3	169.617	28.276*	.000
	Within Groups	455.900	76	5.999		
Post Test	Between Groups	666.937	3	222.312	56.498*	.000
	Within Groups	299.050	76	3.935		

*Significant at .05 level

F value required to be significant at 3, 76 df = 2.72

In relation to pre test, table 10.1 revealed that the obtained 'F' value of 28.276 was found to be significant at 0.05 level, since this value was found Higher than the tabulated value 2.72 at 3, 76 df. Which clear that the pre-test mean differ significantly.

In relation to post test, significant difference was found among experimental groups and control group pertaining to Systolic Blood Pressure, since F value of 56.498 was found significant at .05 level.

Table – 10.2

Analysis of Covariance of Comparison of Adjusted Post Test Means of Two Experimental Groups (Boys Group& Girls Group) and Control Group in Relation to Systolic Blood Pressure

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	124.945	3	41.648	14.718*	.000
Error	212.230	75	2.830		

*Significant at .05 level

F value required to be significant at 3, 75 df = 2.73

Table 10.2 revealed that the obtained 'F' value of 14.718 was found to be significant at 0.05 level, since this value was found higher than the tabulated value 2.73 at 3, 75 df.

Table –10.3

Adjusted Post Test Means of Two Experimental Groups (Boys Group& Girls Group) and Control Group in Relation to Systolic Blood Pressure

Groups	Mean	Std. Error
Experimental Boys Group	116.2	.397
Experimental Girls Group	115.9	.403
Control Group Boys	117.3	.382
Control Group Girls	120.5	.508

Table-10.4

LSD Post-hoc Test for the comparison of paired adjusted post test means of Two Experimental Groups (Boys & Girls) and Control Group in Relation to Systolic Blood Pressure

Adjusted Mean Values				Mean Difference	Sig	Critical Difference
Experimental Boys group	Experimental Girls group	Control group boys	Control group girls			
116.2		117.3		1.123*	.000	.261
	115.9		120.5	4.516*	.000	
116.2	115.9			.263	.623	

*Significant at 0.05 level.

It is evident from above table 10.4 that significant difference was found between adjusted final means of experimental Boys group and Boys control group, Girls Group and Girls control group. The difference between means was high than critical difference for adjusted means.

On the other hand insignificant difference was found between the adjusted final means of experimental boys group and experimental girls group. The difference means was lower than critical difference for adjusted means.

Above statistical finding clearly signifies that the Ten week duration of asana and Pranayama exercise had effected significant increase in Systolic Blood Pressure, And Girls group have shown better increase than Boys group.

Figure: 6 Graphical Representations of Adjustment Means of Experimental Boys Group, Girls Group and Control Groups in Relation to Systolic Blood Pressure

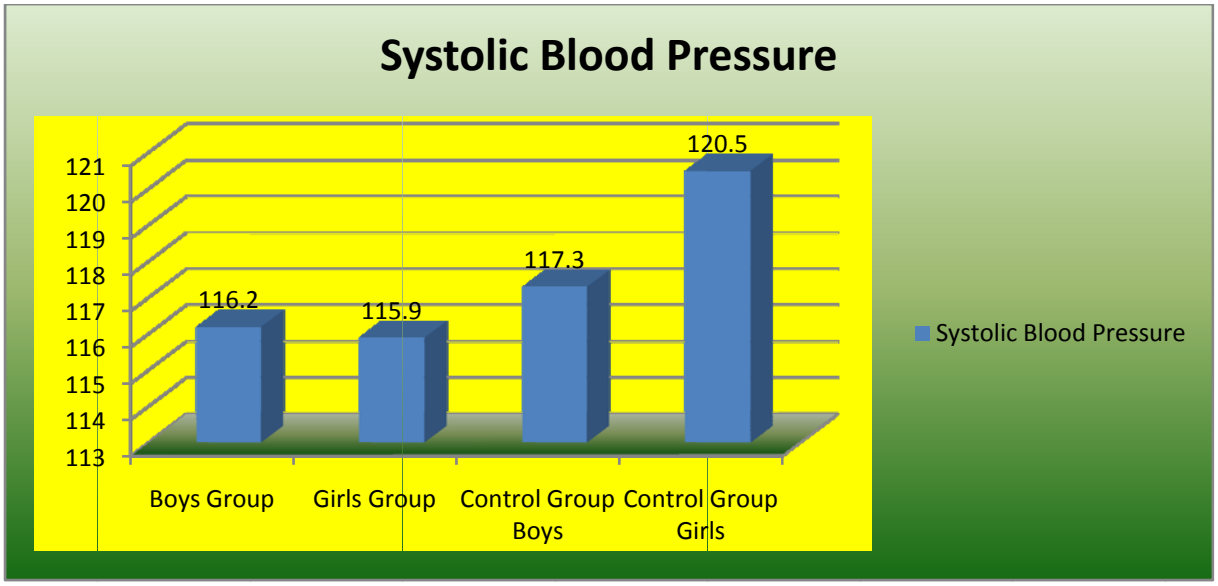


Table – 11

Descriptive Statistics of Diastolic Blood Pressure of Two Experimental Groups (Boys Group& Girls Group) and Control Groups in Pre-Test and Post-Test

		Mean	Std. Deviation	Std. Error	Minimum	Maximum
Pre Test	Experimental Boys group	79.7500	1.61815	.36183	77.00	82.00
	Experimental Girls group	80.6500	1.34849	.30153	78.00	82.00
	Control group boys	80.4000	1.23117	.27530	79.00	84.00
	Control group girls	82.0000	5.60075	1.25237	74.00	92.00
Post Test	Experimental Boys group	78.6000	1.87504	.41927	76.00	81.00
	Experimental	79.1500	1.56525	.35000	76.00	81.00

	Girls group					
	Control group boys	79.0500	1.50350	.33619	77.00	82.00
	Control group girls	80.0500	4.47772	1.00125	73.00	90.00

Table-11 clearly indicates the mean and standard deviations of different groups (Boys, Girls, and control group). The observed mean and standard deviation of pre test Diastolic Blood Pressure Boys group 79.7500±1.61815, Girls group 80.6500±1.34849, Boys control group 80.4000±1.23117 Girls Control Group 82.0000±5.60075; and Post test Diastolic Blood Pressure, Boys group 78.6000±1.87504, Girls group 79.1500±1.56525,Boys Control group79.0500±1.50350 Girls Control Group80.0500 ± 4.47772 were respectively.

Table – 11.1

Analysis of Variance of Comparison of Means of Two Experimental Groups (Boys Group& Girls Group) and Control Group in Relation to Diastolic Blood Pressure

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Pre Test	Between Groups	53.700	3	17.900	1.918	.134
	Within Groups	709.100	76	9.330		
Post Test	Between Groups	22.138	3	7.379	1.044	.378
	Within Groups	537.250	76	7.069		

*Significant at .05 level

F value required to be significant at 3, 76 df = 2.72

In relation to pre test, table 11.1 revealed that the obtained 'F' value of 1.918 was found to be insignificant at 0.05 level, since this value was found lower than the tabulated value 2.72 at 3, 76 df.

In relation to post test, insignificant difference was found among experimental groups and control group pertaining to Diastolic Blood Pressure, since F value of 1.044 was found significant at .05 level.

Table –11.2

Analysis of Covariance of Comparison of Adjusted Post Test Means of Two Experimental Group1s (Boys Group& Girls Group) and Control Group in Relation to Diastolic Blood Pressure

	Sum of Squares	df	Mean Square	F	Sig.
Contrast	.784	3	.261	.159	.924
Error	123.508	75	1.647		

*Significant at .05 level

F value required to be significant at 3, 75 df = 2.73

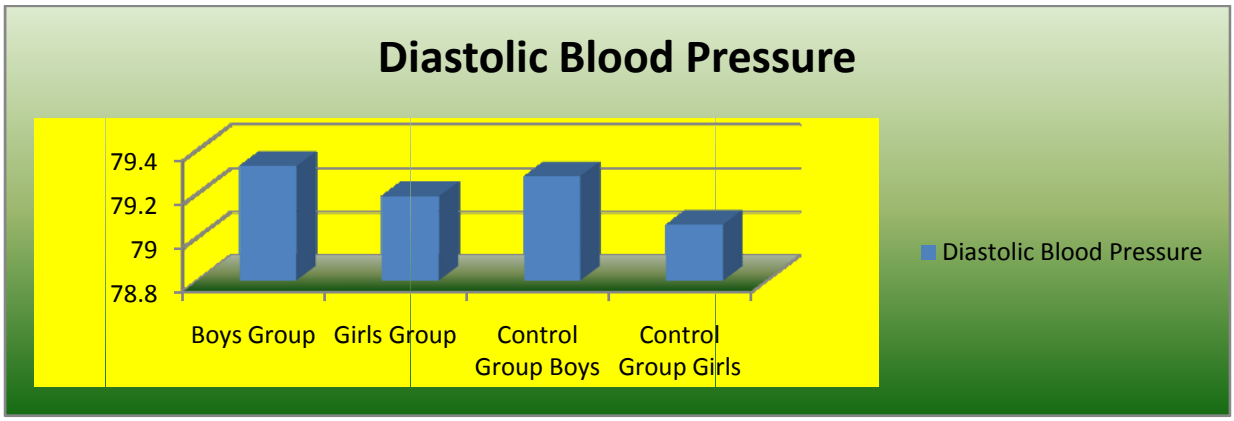
Table 11.2 revealed that the obtained 'F' value of .159 was found to be insignificant at 0.05 level, since this value was found lower than the tabulated value 2.73 at 3, 75 df.

Table –11.3

Adjusted Post Test Means of Two Experimental Groups (Boys Group& Girls Group) and Control Group in Relation to Diastolic Blood Pressure

Groups	Mean	Std. Error
Experimental Boys Group	79.326	.291
Experimental Girls Group	79.188	.287
Control Group Boys	79.279	.287
Control Group Girls	79.057	.294

Figure: 7 Graphical Representations of Adjustment Means of Experimental Boys Group, Girls Group and Control Groups in Relation to Diastolic Blood Pressure



Conclusions

Following conclusions were made:

1) Significant difference was found between Experimental and Control group in relation to **Muscular Endurance.**
2) Insignificant difference was found between Experimental and Control group in relation to **Static balance.**
3) Significant difference was found between Experimental and Control group in relation to **Vital Capacity.**
4) Significant difference was found between Experimental and Control group in relation to **Breathe holding capacity (Antara Kumbhak).**
5) Significant difference was found between Experimental and Control group in relation to **Pulse Rate.**
6) Significant difference was found between Experimental and Control group in relation to **Systolic Blood Pressure**.
7) Insignificant difference was found between Experimental and Control group in relation to **Diastolic Blood Pressure.**
8)

DISSCUSION ON FINDINGS

In the present study significant deference was found in case of Muscular Endurance, Vital Capacity, Systolic Blood Pressure, pulse rate, and Breathe holding capacity (Antara Kumbhak), on the other hand insignificant difference was found in Static Balance and Diastolic Blood Pressure of subjects.

Vital Capacity was improved by asana and pranayam practices. This may be due to the reason that pranayama is related to the breathing exercise. So it will have significant effects on the lungs volume of an individual. Therefore proposed hypothesis has been accepted in case of Vital Capacity.

The study revealed that asana and pranayam resulted into significant improvement in Pulse Rate of the subjects. These practices produce physiological balance in different system of

the body for their harmonious working. This provides the best organic vigour to the individual. Therefore proposed hypothesis has been accepted in case of Pulse Rate.

The term Breath Holding Time generally represents to some extent the aerobic and anaerobic potentiality of an individual. The study revealed that asana and pranayam group resulted into significant improvement in Breath Holding Time that pranayama is specially meant to make control over breathing capacity. Therefore proposed hypothesis has been accepted in case of Maximum Breath Holding Time.

In the undertaken research study the Static Balance and **Diastolic Blood Pressure**, was not improved by asana and pranayam groups because it may be due to the fact that for static balancing enough asanas were not included in the study. Therefore proposed hypothesis has been rejected in case of **Diastolic Blood Pressure**. Systolic Pressure was Insignificant in the present study because of consistency remains in the both test. Similar study of Muzumdar & Suryavanshi (2010) conducted a study on the topic "Effect of Ujjayi and Bhastrika pranayarna on selected physiological variables of physically challenged students and not found any significant difference in relation to systolic pressure.

Based on available evidence a prudent recommendation is to include exercise in most therapeutic program to manage hypertension. Both systolic and Diastolic Blood Pressure can be significantly lowered with a regular programme of exercise. The study shows the changes in the Blood Pressure as a result of asana and pranayam practices. Effect on Blood Pressure was due to training been performed more frequently and for longer duration of time.

Therefore proposed hypothesis has been accepted in case of Blood Pressure.

Study was supported by the findings of Thakur[62] who studied to see the effect of kapalbhati on cardio-respiratory variables. He found that there were significant increase in Maximum positive breath holding capacity, Resting pulse rate, Resting respiratory rate. Further, Upadhyay et al.[63] studied and found a significant increment in Peak expiratory flow rate (PEFR L/min) and Pulse pressure (PP). Although Systolic blood pressure (SBP) was decreased insignificantly, the decreases in pulse rate (PR), respiratory rate (RR), diastolic blood pressure

[62] B.C. Thakur. "The effect of kapalbhati on cardio-respiratory variables", An Unpublished Thesis of Master's of Physical Education, Jiwaji University, (1995):75-76.

[63] D. K. Upadhyay and et.al. "Effect of alternate nostril breathing exercise on cardiorespiratory functions", **Nepal Medical College Journal**, *10(1)*, (2008):25-27.

(DBP) were significant. Bhole[64] has mentioned the pranayama plays an important role in the development of the respiratory rate, and out of much automatic function in the body.

Pranayamas not only purifies the body but also purifies the mind. If we look in broader perspective our views, then it would be clear that the proper supply of oxygen, the nerves cells in the brains works very properly and effectively. All the tissues and nerves get proper supply of blood and oxygen and this ensures proper supply of nerve-energy for the different functions of the body.

[64] M.V. Bhole, "Pranayam and its Rationale" Yoga Mimansa VIII (Jan 1966): p 10-12.