Chapter-IV

ANALYSIS AND INTERPRETATION OF DATA

The purpose of the study was to find out the effect of selected yogasans on Motor Abilities, Self Perception and Academic performance. To accomplish the purpose of the study the researcher collected the data from 60 subjects (30 Experimental and 30 Control group) of Jawahar Navodaya Vidyalaya, Doddaballapur, Bangalore Rural District. Yoga training was imparted to experimental group for 12 weeks. The data thus collected is analyzed and interpreted in the present chapter.

4.1 ANALYSIS OF DATA :

To find out the significant differences in the selected variables due to yoga training pre and post test data were compared among experimental and control group.

The data were analyzed statistically with simple statistics and ‘t’ test. Mean and Standard Deviation (SD) were also calculated. The hypotheses were tested at 0.05 and 0.01 levels of confidence.
SECTION-I

NATURE AND CHARACTERISTICS OF THE SAMPLE

The subjects were Residential High school boys of Jawahar Navodaya Vidyalaya, Doddaballapur, Bangalore Rural District. The following table shows the distribution of sample.

The subjects were selected randomly.

Table-1
Table showing the distribution of the sample over group.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variable</th>
<th>Groups</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Group</td>
<td>Control</td>
<td>30</td>
<td>50.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Experimental</td>
<td>30</td>
<td>50.00</td>
</tr>
</tbody>
</table>

Table-1 shows the total sample (N=60) of high school students studying in residential school (Jawahar Navodaya Vidyalaya, Doddaballapur, Bangalore Rural District), out of which 30 (50.00%) students were in control group and 30 (50.00%) students were in selected to experimental group.

The same is shown in graphical representation in Fig.1.
**Fig. 1**

Bar graph showing the distribution of the sample over group
SECTION-II

BASIC STATISTICAL DATA ON VARIABLES

This section presents the nature of distribution of scores obtained on the dependent and independent variables employed in the study.

The mean and standard deviation of pre and post test scores of selected Motor Abilities, Self Perception with facets and academic performance among experimental and control group subjects of the total sample.

Table-2

Table showing mean and standard deviation of pre and post test scores of selected Motor Abilities among experimental and control group.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test</th>
<th>Experimental Group (N=30)</th>
<th>Control Group (N=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Static Strength</td>
<td>Pre Test</td>
<td>18.733</td>
<td>6.822</td>
</tr>
<tr>
<td>Arm Explosive Power</td>
<td>Pre Test</td>
<td>26.466</td>
<td>6.207</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>29.933</td>
<td>6.533</td>
</tr>
<tr>
<td>Leg Explosive Power</td>
<td>Pre Test</td>
<td>2.066</td>
<td>0.303</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>2.245</td>
<td>0.302</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Pre Test</td>
<td>4.736</td>
<td>0.621</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>5.433</td>
<td>0.697</td>
</tr>
<tr>
<td>Speed</td>
<td>Pre Test</td>
<td>4.340</td>
<td>0.528</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>4.271</td>
<td>0.498</td>
</tr>
<tr>
<td>Cardiovascular Endurance</td>
<td>Pre Test</td>
<td>214.100</td>
<td>24.145</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>199.866</td>
<td>24.453</td>
</tr>
</tbody>
</table>
Table-2 shows mean and standard deviation of pre and post test scores of selected motor abilities among experimental and control group.

In experimental group the Static Strength mean scores of pre test is 18.733, which has increased to the mean score of 21.866 in post test, whereas among the control group the pre and post test mean scores of Static Strength are 16.266 and 16.700 respectively.

In experimental group the Arm Explosive Power mean scores of pre test is 26.466, which has increased to the mean score of 29.933 in post test, whereas among the control group the pre and post test mean scores of Arm Explosive Power are 23.133 and 23.700 respectively.

In experimental group the Leg Explosive Power mean scores of pre test is 2.066, which has increased to the mean score of 2.245 in post test, whereas among the control group the pre and post test mean scores of Leg Explosive Power are 1.991 and 2.045 respectively.

In experimental group the Flexibility mean scores of pre test is 4.736, which has increased to the mean score of 5.433 in post test, whereas among the control group the pre and post test mean scores of Flexibility are 4.930 and 5.110 respectively.

In experimental group the Speed mean scores of pre test is 4.340, which has decreased to the mean score of 4.271 in post test, whereas among control group the pre and post test mean scores of Speed are 4.421 and 4.387 respectively.
In experimental group the Cardiovascular Endurance mean of pre test is 214.100, which has decreased to the mean score of 199.866 in post test, whereas among the control group the pre and post test mean scores of Cardiovascular Endurance are 216.033 and 214.433 respectively.
Table-3

Table showing mean and standard deviation of pre and post test scores of Self Perception with facets among experimental and control group.

<table>
<thead>
<tr>
<th>Variable : Self Perception</th>
<th>Test</th>
<th>Experimental Group (N=30)</th>
<th>Control Group (N=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
<td>Mean</td>
</tr>
<tr>
<td>Scholastic Competence</td>
<td>Pre Test</td>
<td>13.966</td>
<td>0.964</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>14.700</td>
<td>0.836</td>
</tr>
<tr>
<td>Social Acceptance</td>
<td>Pre Test</td>
<td>14.400</td>
<td>0.770</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>15.033</td>
<td>0.889</td>
</tr>
<tr>
<td>Athletic Competence</td>
<td>Pre Test</td>
<td>14.233</td>
<td>0.971</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>14.900</td>
<td>0.922</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>Pre Test</td>
<td>14.566</td>
<td>0.773</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>14.986</td>
<td>0.764</td>
</tr>
<tr>
<td>Behavioural Conduct</td>
<td>Pre Test</td>
<td>14.533</td>
<td>0.730</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>15.400</td>
<td>0.723</td>
</tr>
<tr>
<td>Global Self Worth</td>
<td>Pre Test</td>
<td>14.433</td>
<td>0.858</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>15.166</td>
<td>0.985</td>
</tr>
<tr>
<td>Self Perception</td>
<td>Pre Test</td>
<td>87.500</td>
<td>1.852</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>90.300</td>
<td>2.548</td>
</tr>
</tbody>
</table>

Table-3 shows mean and standard deviation of pre and post test scores of Self Perception among experimental and control group.

In experimental group the Scholastic Competence, component of Self Perception mean scores of pre test scores is 13.966, which has increased to the mean score of 14.700 in post test scores, whereas among control group the pre and post test mean scores of Scholastic Competence are 12.466 and 12.733 respectively.
In experimental group the social acceptance mean scores of pre test is 14.440, which has increased to the mean score of 15.033 in post test, whereas among control group the pre and post test mean scores of Social Acceptance are 11.400 and 11.766 respectively.

In experimental group the Athletic Competence mean scores of pre test scores is 14.233, which has increased to the mean score of 14.900 in post test scores, whereas control group the pre and post test mean scores of Athletic Competence are 11.466 and 11.900 respectively.

In experimental group the Physical Appearance mean scores of pre test is 14.566, which has increased to the mean score of 14.986 in post test scores, whereas among control group the pre and post test mean scores of Physical Appearance are 11.466 and 12.033 respectively.

In experimental group the Behavioural Conduct mean scores of pre test is 14.533, which has increased to the mean score of 15.400 in post test, whereas among control group the pre and post test mean scores of Behavioural Conduct are 12.100 and 12.400 respectively.

In experimental group the Global Self Worth mean scores of pre test is 14.433, which has increased to the mean score of 15.166 in post test scores, whereas among control group the pre and post test mean scores of Global Self Worth are 10.766 and 11.566 respectively.

In experimental group the Self Perception mean scores of pre test is 87.500, which has increased to the mean score of 90.300 in post test, whereas among the control group the pre and post test mean scores of Self Perception are 69.666 and 71.400 respectively.
Table-4

Table showing mean and standard deviation of pre and post test scores of selected Academic Performance among experimental and control group.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test</th>
<th>Experimental Group (N=30)</th>
<th>Control Group (N=30)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>Standard Deviation</td>
</tr>
<tr>
<td>Academic Performance</td>
<td>Pre Test</td>
<td>65.466</td>
<td>5.437</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>76.500</td>
<td>6.781</td>
</tr>
</tbody>
</table>

Table-4 shows mean and standard deviation of pre and post test scores of Self Perception among experimental and control group. In experimental group the Academic Performance mean scores of pre test is 65.466, which has increased to 76.500 in post test, whereas among the control group the pre and post test mean scores of Academic Performance are 62.866 and 63.766 respectively.
SECTION-III
EFFECT OF INDEPENDENT VARIABLES ON THE DEPENDENT VARIABLES (‘t’ TEST)

A. MOTOR ABILITIES

Hypothesis-1: After training in yogasanas there would be significant improvement in selected motor abilities.

1. Static Strength:

The data on Static Strength before and after the yogic training of experimental and control groups are analyzed and presented in Table-5.

Hypothesis-1.1

It was hypothesized that there would be a significant difference in Static Strength of the subjects by practicing yoga among experimental group.

Table-5

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>18.733</td>
<td>6.822</td>
<td>1.725</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>21.866</td>
<td>7.238</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>16.266</td>
<td>4.354</td>
<td>0.384</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>16.700</td>
<td>4.395</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table, that in experimental group the Static Strength mean scores of pre test scores is 18.733, which has
increased to the mean score of 21.866 in post test, whereas among the control group the pre and post test mean scores of Static Strength are 16.266 and 16.700 respectively.

It is also evident from the above table that the obtained ‘t’ values 1.725 and 0.384 are less than Table value 2.05 even at 0.05 level of significance.

The mean difference between pre and post tests scores of subjects on Static Strength was not found to be significant either in experimental or control group.

It is evident from the above analysis that there was no significant effect of yoga on Static Strength among experimental group. Hence, the hypothesis is statistically not proved and stated **hypothesis rejected**.

The same is shown in graphical representation in Fig.2.
Fig. 2

The Bar graph showing comparison mean scores of Pre and Post test scores of Static Strength (Grip dynamo meter) among Control and Experimental groups.

![Bar graph showing comparison mean scores of Pre and Post test scores of Static Strength (Grip dynamo meter) among Control and Experimental groups.](image_url)
2. Arm Explosive Power:

The data on Arm Explosive Power before and after the yogic training of experimental and control groups are analyzed and presented in Table-6.

Hypothesis-1.2

It was hypothesized that there would be a significant difference in Arm Explosive Power of the subjects by practicing yoga among experimental group.

Table-6

Significance of differences between pre and post tests scores of subjects on Arm Explosive Power among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>26.466</td>
<td>6.207</td>
<td>2.107</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>29.933</td>
<td>6.533</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>23.133</td>
<td>4.240</td>
<td>0.509</td>
<td>Not Significant</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>23.700</td>
<td>4.387</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Arm Explosive Power mean scores of pre test is 26.466, which has increased to 29.933 in post test, whereas among control group the pre and post test mean scores of Arm Explosive Power are 23.700 and 23.133 respectively.

It is also evident from the above table that the obtained ‘t’ value 0.509 is less than Table value 2.05 even at 0.05 level of significance on Arm Explosive Power in control group and 2.107 is greater than Table value 2.05 at 0.05 level of significance on Arm Explosive Power in experimental group.
The mean difference between pre and post tests scores of subjects on Arm Explosive Power was found to be significant in experimental group. It is inferred that the Arm Explosive power in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that yoga training will enhance Arm Explosive Power. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted**.

The same is shown in graphical representation in Fig.3.
Fig. 3

The Bar graph showing comparison mean scores of Pre and Post test scores of Arm Explosive Power (Softball Throw Test) among Control and Experimental groups.
3. **Leg Explosive Power**

The data on Leg Explosive Power before and after the yogic training of experimental and control groups are analyzed and presented in Table-7.

**Hypothesis-1.3**

It was hypothesized that there would be a significant difference in Leg Explosive Power of the subjects by practicing yoga among experimental group.

**Table-7**

Significance of differences between pre and post tests scores of subjects on Leg Explosive Power among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>2.066</td>
<td>0.303</td>
<td>2.298</td>
<td><strong>Significant at 0.05 level</strong></td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>2.245</td>
<td>0.302</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>1.991</td>
<td>0.348</td>
<td>0.582</td>
<td><strong>Not Significant</strong></td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>2.045</td>
<td>0.369</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Leg Explosive Power mean scores of pre test is 2.066, which has increased to 2.245 in post test, whereas among the control group the pre and post test mean scores of Leg Explosive Power are 1.991 and 2.045 respectively.

It is also evident from the above table that the obtained ‘t’ value 0.582 is less than Table value 2.05 even at 0.05 level of significance in control group and 2.298 is greater than Table value 2.05 at 0.05 level of significance in experimental group.

The mean difference between pre and post tests scores of subjects on Leg Explosive Power was found to be a significant in experimental
group. It is inferred that the Leg Explosive Power in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training has helped in enhancing the Leg Explosive Power. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted**.

The same is shown graphically in Fig.4.
Fig. 4

The Bar graph showing comparison mean scores of Pre and Post test scores of Leg Explosive Power (Standing Broad Jump Test) among Control and Experimental groups.
4. **Flexibility** :

The data on Flexibility before and after the yogic training of experimental and control groups are analyzed and presented in Table-8.

**Hypothesis-1.4**

It was hypothesized that there would be a significant difference in Flexibility of the subjects by practicing yoga among experimental group.

**Table-8**

Significance of differences between pre and post tests scores of subjects on Flexibility among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>4.736</td>
<td>0.621</td>
<td>4.086</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>5.433</td>
<td>0.697</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>4.930</td>
<td>0.863</td>
<td>0.810</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>5.110</td>
<td>0.858</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Flexibility mean scores of pre test is 4.736, which has increased to 5.433 in post test, whereas among the control group the pre and post test mean scores of Flexibility are 4.930 and 5.110 respectively.

It is also evident from the above table that the obtained ‘t’ value 0.810 is less than Table value 2.05 even at 0.05 level of significance in control group and 4.086 is greater than Table value 2.76 at 0.01 level of significance in experimental group.

The mean difference between pre and post tests scores of subjects on Flexibility was found to be significant in experimental group. It is inferred that the flexibility in experimental group is enhanced significantly
through yoga training. Therefore, it is statistically proved that the yoga training is helping in enhancing Flexibility. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted**.

The same is shown graphically in Fig.5.
**Fig. 5**

The Bar graph showing comparison mean scores of Pre and Post test scores of Flexibility (Sit and Reach Test) among Control and Experimental groups.
5. **Speed**

The data on Speed before and after the yogic training of experimental and control groups are analyzed and presented in Table-9.

**Hypothesis-1.5**

It was hypothesized that there would be a significant difference in Speed of the subjects by practicing yoga among experimental group.

**Table-9**

Significance of differences between pre and post tests scores of subjects on Speed among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>4.340</td>
<td>0.528</td>
<td>0.522</td>
<td>Not Significant</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>4.271</td>
<td>0.498</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>4.421</td>
<td>0.505</td>
<td>0.262</td>
<td>Not Significant</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>4.387</td>
<td>0.499</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Speed mean scores of pre test is 4.340, which has decreased to 4.271 in post test scores, whereas among the control group the pre and post test mean scores of Speed are 4.421 and 4.387 respectively.

It is also evident from the above table that the obtained ‘t’ values 0.522 and 0.262 are less than Table value 2.05 even at 0.05 level of significance.

The mean difference between pre and post tests scores of subjects on Speed was not found to be significant either in control or experimental group.
It is evident from the above analysis that there is no significant effect of yoga on Speed among experimental group. Hence, the hypothesis is statistically not proved and stated **hypothesis is rejected**.

The same is shown in graphical representation in Fig.6.
**Fig. 6**

The Bar graph showing comparison mean scores of Pre and Post test scores of Speed (30 mtrs. Dash Test) among Control and Experimental groups.
6. **Cardiovascular Endurance:**

The data on Cardiovascular Endurance before and after the yogic training of experimental and control groups are analyzed and presented in Table-10.

**Hypothesis-1.6**

It was hypothesized that there would be a significant difference in Cardiovascular Endurance of the subjects by practicing yoga among experimental group.

**Table-10**

Significance of differences between pre and post tests scores of subjects on Cardiovascular Endurance among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>214.100</td>
<td>24.145</td>
<td>2.269</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>199.866</td>
<td>24.453</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>216.033</td>
<td>26.151</td>
<td>0.238</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>214.433</td>
<td>25.953</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Cardiovascular Endurance mean scores of pre test is 214.100, which has decreased to 199.866 in post test, whereas among control group the post and pre test mean scores of Cardiovascular Endurance are 216.033 and 214.433 respectively.

It is also evident from the above table that the obtained ‘t’ value 0.238 is less than Table value 2.05 even at 0.05 level of significance in
control group and 2.269 is greater than Table value 2.05 at 0.05 level of significance in experimental group.

The mean difference between pre and post tests scores of subjects on Cardiovascular Endurance was found to be a significant in experimental group. It is inferred that the Cardiovascular Endurance in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training is significantly helping in enhancing the Cardiovascular Endurance. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted**.

The same is represented graphically in Fig.7.
Fig. 7

The Bar graph showing comparison mean scores of Pre and Post test scores of Cardiovascular Endurance (800 Meters Run Test) among Control and Experimental groups.
B. Self Perception with facets:

Hypothesis-2:

Yoga training will have positive effect on Self-Perception.

1. Scholastic Competence, Component of Self Perception

The data on Scholastic Competence component of Self Perception before and after the yoga training of experimental and control groups are analyzed and presented in Table-11.

Hypothesis-2.1

It was hypothesized that there would be a significant difference in Scholastic Competence component of Self Perception of the subjects by practicing yoga among experimental group.

Table-11

Significance of differences between pre and post tests scores of subjects on Scholastic Competence component of Self Perception among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>13.966</td>
<td>0.964</td>
<td>3.146</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>14.700</td>
<td>0.836</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>12.466</td>
<td>1.814</td>
<td>0.581</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>12.733</td>
<td>1.740</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Scholastic Competence mean scores of pre test is 13.966, which has increased to 14.700 in post test, whereas among the control group the pre
and post test mean scores of Scholastic Competence are 12.466 and 12.733 respectively.

It is also evident from the above that the obtained ‘t’ value 0.581 is less than Table value 2.05 even at 0.05 level of significance in control group and 3.146 is greater than Table value 2.76 at 0.01 level of significance on Scholastic Competence in experimental group.

The mean difference between pre and post tests scores of subjects on Scholastic Competence, component of Self Perception was found to be significant in experimental group. It is inferred that the scholastic competence, component of Self Perception in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training is significantly helping in enhancing the Scholastic Competence, component of Self Perception. Hence, the hypothesis is statistically proved and stated hypothesis is accepted.

The same is represented graphically in Fig.8.
**Fig. 8**

The Bar graph showing comparison mean scores of Pre and Post test scores of Scholastic Competence (Component of Self Perception) among Control and Experimental groups.
2. **Social Acceptance component of Self Perception:**

The data on Social Acceptance component of Self Perception before and after the yoga training of experimental and control groups are analyzed and presented in Table-12.

**Hypothesis-2.2**

It was hypothesized that there would be a significant difference in Social Acceptance component of Self Perception of the subjects by practicing in yoga among experimental group.

**Table-12**

Significance of differences between pre and post tests scores of subjects on Social Acceptance component of Self Perception among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>14.400</td>
<td>0.770</td>
<td>2.948</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>15.033</td>
<td>0.889</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group (N=30)</td>
<td>Pre Test</td>
<td>11.400</td>
<td>1.544</td>
<td>0.919</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>11.766</td>
<td>1.546</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table, that in experimental group the social acceptance, mean scores of pre test is 14.440, which has increased to 15.033 in post test, whereas among subjects the control group the pre and post tests mean scores of Social Acceptance, are 11.400 and 11.766 respectively.

It is also evident from the above table that the obtained ‘t’ value 0.919 is less than Table value 2.05 even at 0.05 level of significance in
control group and 2.948 is greater than Table value 2.76 at 0.01 level of significance in experimental group.

The mean difference between pre and post tests scores of subjects on Social Acceptance, component of Self Perception was found to be significant in experimental group. It is inferred that the Social Acceptance, component of Self Perception in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that yoga training is significantly helping in enhancing the Social Acceptance, component of Self Perception. Hence, the hypothesis is statistically proved and stated hypothesis is accepted.

The same is represented graphically in Fig.9.
Fig. 9

The Bar graph showing comparison mean scores of Pre and Post test scores of Social Acceptance (Component of Self Perception) among Control and Experimental groups.
3. **Athletic Competence, Component of Self Perception:**

The data on Athletic Competence component of Self Perception before and after the yoga training of experimental and control groups are analyzed and presented in Table-13.

**Hypothesis-2.3**

It was hypothesized that there would be a significant difference in Athletic Competence component of Self Perception of the subjects by practicing in yoga among experimental group.

**Table-13**

Significance of differences between pre and post tests scores of subjects on Athletic Competence component of Self Perception among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>14.233</td>
<td>0.971</td>
<td>2.725</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>14.900</td>
<td>0.922</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>11.466</td>
<td>1.795</td>
<td>0.952</td>
<td>Not Significant</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>11.900</td>
<td>1.729</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Athletic Competence mean scores of pre test is 14.233, which has increased to 14.900 in post test, whereas among the control group the pre and post test mean scores of Athletic Competence are 11.466 and 11.900 respectively.

It is also evident from the above table that the obtained ‘t’ value 0.952 is less than Table value 2.05 even at 0.05 level of significance in
control group and 2.725 is greater than Table value 2.05 at 0.05 level of significance in experimental group.

The mean difference between pre and post tests scores of subjects on Athletic Competence, component of Self Perception was found to be significant in experimental group. It is inferred that the Athletic Competence, component of Self Perception in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training has helped in enhancing the Athletic Competence, component of Self Perception. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted**.

The same is represented graphically in Fig.10.
Fig. 10

The Bar graph showing comparison mean scores of Pre and Post test scores of Athletic Competence (Component of Self Perception) among Control and Experimental groups.
4. **Physical Appearance, Component of Self Perception:**

The data on Physical Appearance component of Self Perception before and after the yoga training of experimental and control groups are analyzed and presented in Table-14.

**Hypothesis-2.4**

It was hypothesized that there would be a significant difference in Physical Appearance component of Self Perception of the subjects by practicing yoga among experimental group.

**Table-14**

Significance of differences between pre and post tests scores of subjects on Physical Appearance component of Self Perception among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>'t' value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>14.566</td>
<td>0.773</td>
<td>2.116</td>
<td>Significant at 0.05 level</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>14.986</td>
<td>0.764</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>11.466</td>
<td>2.012</td>
<td>1.082</td>
<td>Not Significant</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>12.033</td>
<td>2.042</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Physical Appearance mean scores of pre test is 14.566, which has increased to of 14.986 in post test scores, whereas among the control group the pre and post test mean scores of Physical Appearance are 11.466 and 12.033 respectively.

It is also evident from the above table that the obtained ‘t’ value 1.082 is less than Table value 2.05 even at 0.05 level of significance in
control group and 2.116 is greater than Table value 2.05 at 0.05 level of significance in experimental group.

The mean difference between pre and post tests scores of subjects on Physical Appearance, component of Self Perception was found to be significant in experimental group. It is inferred that the Physical Appearance, component of Self Perception in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training has helped in enhancing the Physical Appearance, component of Self Perception. Hence, the hypothesis is statistically proved and stated hypothesis is accepted.

The same is represented in graphic presentation in Fig.11.
Fig. 11

The Bar graph showing comparison mean scores of Pre and Post test scores of Physical Appearance (Component of Self Perception) among Control and Experimental groups.
5. **Behavioural Conduct, Component of Self Perception:**

The data of Behavioural Conduct component of Self Perception before and after the yoga training of experimental and control groups are analyzed and presented in Table-15.

**Hypothesis-2.5**

It was hypothesized that there would be a significant difference in Behavioural Conduct component of Self Perception of the subjects by practicing yoga among experimental group.

**Table-15**

Significance of differences between pre and post tests scores of subjects on Behavioural Conduct component of Self Perception among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>14.533</td>
<td>0.730</td>
<td>4.616</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>15.400</td>
<td>0.723</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>12.100</td>
<td>1.398</td>
<td>0.770</td>
<td>Not Significant</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>12.400</td>
<td>1.610</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Behavioural Conduct scores of pre test is 14.533, which has increased to 15.400 in post test, whereas among the control group the pre and post test mean scores of Behavioural Conduct are 12.100 and 12.400 respectively.

It is also evident from the above table that the obtained ‘t’ value 0.770 is less than Table value 2.05 even at 0.05 level of significance in control group and 4.616 is greater than Table value 2.76 at 0.01 level of significance in experimental group.
The mean difference between pre and post tests scores of subjects on Behavioural Conduct, component of Self Perception was found to be significant in experimental group. It is inferred that the Behavioural Conduct, component of Self Perception in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training has helped in enhancing the Behavioural Conduct, component of Self Perception. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted**.

The same is represented in graphically in Fig.12.
Fig. 12

The Bar graph showing comparison mean scores of Pre and Post test scores of Behavioural Conduct (Component of Self Perception) among Control and Experimental groups.
6. **Global Self Worth, Component of Self Perception:**

The data of Global Self Worth component of Self Perception before and after the yoga training of experimental and control groups are analyzed and presented in Table-16.

**Hypothesis-2.6**

It was hypothesized that there would be a significant difference in Global Self Worth component of Self Perception of the subjects by practicing yoga among experimental group.

**Table-16**

Significance of differences between pre and post tests scores of subjects on Global Self Worth component of Self Perception among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>'t' value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>14.433</td>
<td>0.858</td>
<td>3.073</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>15.166</td>
<td>0.985</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>10.766</td>
<td>2.750</td>
<td>1.374</td>
<td>Not Significant</td>
</tr>
<tr>
<td></td>
<td>Post Test</td>
<td>11.566</td>
<td>1.612</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Global Self Worth, mean scores of pre test is 14.433, which has increased to 15.166 in post test, whereas among the control group the pre and post test mean scores of Global Self Worth are 10.766 and 11.566 respectively.

It is also evident from the above table that the obtained 't' value 1.374 is less than Table value 2.05 even at 0.05 level of significance in control group and 3.073 is greater than Table value 2.76 at 0.01 level of significance in experimental group.
The mean difference between pre and post tests scores of subjects on Global Self Worth, component of Self Perception was found to be significant in experimental group. It is inferred that the Global Self Worth, component of Self Perception in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training is has helped in enhancing the Global Self Worth, component of Self Perception. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted**.

The same is represented graphically in Fig.13.
Fig. 13

The Bar graph showing comparison mean scores of Pre and Post test scores of Global Self Worth (Component of Self Perception) among Control and Experimental groups.
7. **Self Perception (Total Scores):**

The data on Self Perception before and after the yoga training of experimental and control groups are analyzed and presented in Table-17.

**Hypothesis**

It was hypothesized that there would be a significant difference in Self Perception of the subjects by practicing yoga among experimental group.

**Table-17**

Significance of differences between pre and post tests scores of subjects on Self Perception among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>87.500</td>
<td>1.852</td>
<td>4.868</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>90.300</td>
<td>2.548</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>69.666</td>
<td>4.543</td>
<td>1.586</td>
<td>Not Significant</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>71.400</td>
<td>3.900</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above table that in experimental group the Self Perception mean scores of pre test is 87.500, which has increased to 90.300 in post test, whereas among the control group the pre and post test mean scores of Self Perception are 69.666 and 71.400 respectively.

It is also evident from the above table that the obtained ‘t’ value 1.586 is less than Table value 2.05 even at 0.05 level of significance in control group and 4.868 is greater than Table value 2.76 at 0.01 level of significance in experimental group.
The mean difference between pre and post tests scores of subjects on Self Perception was found to be significant in experimental group. It is inferred that the Self Perception in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training has helped in enhancing the Self Perception. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted.**

The same is represented graphically in Fig.14.
Fig. 14

The Bar graph showing comparison mean scores of Pre and Post test scores of Self Perception among Control and Experimental groups.
C. **Academic Performance:**

**Hypothesis-3**

Since yoga improves concentration and mental peace it was hypothesized that yoga training will help the subjects in improving academic performance also.

The data of Academic Performance before and after the yogic training of experimental and control groups are analyzed and presented in Table-18.

**Table-18**

Significance of differences between pre and post tests scores of subjects on Academic Performance among experimental and control groups.

<table>
<thead>
<tr>
<th>Group</th>
<th>Test</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>‘t’ value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental (Yoga) Group</td>
<td>Pre Test</td>
<td>65.466</td>
<td>5.437</td>
<td>6.953</td>
<td>Significant at 0.01 level</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>76.500</td>
<td>6.781</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Control (Non-yoga) Group</td>
<td>Pre Test</td>
<td>62.866</td>
<td>7.166</td>
<td>0.569</td>
<td>Not Significant</td>
</tr>
<tr>
<td>(N=30)</td>
<td>Post Test</td>
<td>63.766</td>
<td>4.875</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

It is observed from the above Table-18 that in experimental group the Academic Performance mean scores of pre test is 65.466, which has increased to the 76.500 in post test, whereas among subjects of control group the pre and post test mean scores of Academic Performance are 62.866 and 63.766 respectively.

It is also evident from the above table that the obtained ‘t’ value 0.569 is less than Table value 2.05 even at 0.05 level of significance in
control group and 6.953 is greater than Table value 2.76 at 0.01 level of significance in experimental group.

The mean difference between pre and post tests scores of subjects on Academic Performance was found to be significant in experimental group. It is inferred that the Academic Performance in experimental group is enhanced significantly through yoga training. Therefore, it is statistically proved that the yoga training has helped in enhancing the Academic Performance. Hence, the hypothesis is statistically proved and stated **hypothesis is accepted**.

The same is represented graphically in Fig.15.
Fig. 15
The Bar graph showing comparison mean scores of Pre and Post test scores of Academic Performance among Control and Experimental groups.
4.2 DISCUSSION OF HYPOTHESES:

The t-test for the selected variables on selected Motor Abilities, Self Perception and Academic Performance to study the equality of the variables for the pre-test and post-test among experimental and the control group high school students were computed. Following are the discussions.

4.2.1 Discussion on Motor Abilities:

It was hypothesized that there would be significant improvement in the selected motor ability variables among the experimental group due to 12 weeks yoga training.

The present study produced similar results i.e., improvement in arm and leg explosive power, flexibility and cardiovascular endurance of the experimental group. Hence the hypotheses were accepted for the said variables.

The study revealed that there was no significant improvement in static strength and speed of experimental group.

The study also revealed that there was no significant improvement in motor ability variables among the control group.

4.2.2 Discussion on Self Perception:

It was hypothesized that yoga training would significantly improve self perception after 12 weeks.

The present study produced similar results. There was no significant improvement in the control group.
4.2.3 Discussion on Academic Performance :

It was hypothesized that 12 week’s yoga train would improve academic performance of experimental group.

The study produced the similar results. There was no significant improvement in control group in Academic performance.

4.3 FINDINGS OF THE STUDY :

1. After 12 weeks of yoga training there was a significant improvement on the selected motor ability variables viz., explosive power of arms and legs, flexibility and cardiovascular endurance of experimental group.

2. There was no significant improvement in static strength and speed of the experimental group.

3. There was a significant improvement in self perception of experimental group.

4. Significant improvement was found in the academic performance of experimental group after 12 weeks yoga training.

4.4 DISCUSSION ON FINDINGS :

The main findings of the study are discussed with reference to the hypotheses formulated for the present investigation.

MOTOR ABILITIES

Hypothesis-1 :

After training in yogasanas there would be significant improvement in selected motor abilities.
Explosive power of arms

Hypothesis is accepted since there was a significant improvement in explosive power of arms.

Explosive power of legs

Hypothesis is accepted since there was a significant improvement in explosive power after 12 weeks of yoga training among experimental group.

The study confirms with the findings of Shoba (2011) who found a significant improvement in explosive power of legs due to yoga training.

Flexibility:

Hypothesis is accepted since there was a significant difference in the experimental group after training.

The study confirms with the findings of Deepla (2008) who reported an improvement in flexibility along with some other variables due to yoga.

Yogic postures simultaneously work on strength and flexibility. The postures also work at the different layers of muscles by using a combination of intense pressure and stretch.

According to Gitananda and Bhavani (1989), Suryanamaskar serves the purpose of providing one of the best systematic scientific stretches possible for the human body. These carefully structured movements balance backward bending with forward bending. It increases the flexibility of the body.
**Cardio-Vascular Endurance:**

The hypothesis is accepted since there was a significant improvement in cardiovascular endurance of the experimental group after yoga training.

The study is in confirmation of the findings of Nandi and Adhikari (1999) who found a significant improvement in the cardio respiratory endurance of experimental group after 8 weeks of yoga training.

Pranayamas will help a long way in improving the cardiovascular endurance, also while practicing yogsanas lot of importance is given for breathing in each posture.

**Static Strength:**

The hypothesis is rejected since there was no significant improvement in grip strength of the experimental group after yoga training.

The study agrees with the findings of Bera et al (1999) who found a significant improvement after yoga training in flexibility, body balance and cardiovascular endurance. But no significant improvement was evident in grip strength.

**Speed:**

The hypothesis is rejected since there was no significant improvement in speed of the experimental group due to yoga training.

The study is in confirmation with the findings of Patil (2007) who found no significant improvement in speed of the experimental group after yoga training.

Speed requires specific training whereas yogasnas are static in nature.
SELF PERCEPTION :

Hypothesis-2 :

_Yoga training will have positive effect on self-perception._

Hypothesis is accepted since there was a significant improvement in self perception and all the sub-components of it.

The study agrees with Urs and Ashok (2011) who found that students engaged in sports have a favourable self perception than non-sports children. Of course, there was no difference between the two groups on the scholastic self and global self.

ACADEMIC PERFORMANCE :

Hypothesis-3 :

_It was hypothesized that yoga training will help the subjects in improving academic performance._

The hypothesis is accepted since there was a significant improvement in the academic performance of the experimental group due to 12 weeks of yoga training. This is in confirmation with the findings of Kauts and Sharma (2009) who found that those students who practiced yoga performed better in academics.