CHAPTER – IV
RESULT AND DISCUSSION

4.1 Introduction

In this chapter all the data are statistically treated and are presented as per design of the study. The procedure of data collection has already been stated in Chapter–III. At first means were calculated for assessing central tendency and standard deviations were determined for assessing the variability of all the parameters. In order to assess the significance of difference between two means, i.e. pre-test and post-test data of middle aged male (age range about 45–55 years) t-test was conducted. For statistical interpretation of data level of significance for t-test has been set at 0.05 level and 0.01 level. The results and analysis of data are presented criteria, parameter wise, under three broad headings, (1) Physiological potentiality, (2) Motor ability variables and (3) Psychological parameters.

4.2 Personal Data

The mean, SD of age and height are presented in Table–5.

Table – 5 : Mean, SD of Age (years) and Height (cm.) of Pre-training

<table>
<thead>
<tr>
<th>Group</th>
<th>Age</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
</tr>
<tr>
<td>Experimental</td>
<td>51.46 ± 4.65</td>
<td>169.30 ± 8.21</td>
</tr>
<tr>
<td>Control Group</td>
<td>51.06 ± 4.21</td>
<td>169.70 ± 7.28</td>
</tr>
</tbody>
</table>

Table–5 reveals that the mean age was 51.46 years with a variation of ± 4.65 for experimental group and that of control group is 51.06 with a variation of ± 4.21. It also appears from the table that mean height was 169.30 cm. with a variation of ± 8.21 cm. for experimental group and that of control group is 169.70 with a variation of ± 7.28.
The mean, SD of weight are presented in Table – 6.

Table – 6 : Mean, SD of Weight (Kg) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>69.10 ± 2.87</td>
<td>68.53 ± 2.27</td>
<td>0.57</td>
<td>2.13*</td>
<td>0.04</td>
</tr>
<tr>
<td>Control</td>
<td>68.87 ± 2.67</td>
<td>68.97 ± 2.55</td>
<td>0.10</td>
<td>1.36NS</td>
<td>0.18</td>
</tr>
</tbody>
</table>

*Sig. at 0.05 level, NS is Not Significant

Table–6 showed that following 24 weeks participation in planned yogic training programme a significant decrement in body weight was observed among experimental subjects. The t-value of middle aged male group for experimental subjects was 2.13 which was significant at 0.05 level. There was almost no change in body weight in control subjects.

4.3 Result and Discussion on Physiological Parameter

Five specific tests were used for the assessment of this criterion. Result and discussion on each parameter of this criterion are presented separately. To measure physiological status of the subjects – Resting Heart Rate, Resting Blood Pressure (systolic and diastolic), Blood Sugar, Blood Cholesterol, Body Fat% were measured during pre and post tests. Procedure of data collection of all these variables was already discussed in Chapter – III. Mean and SD of such measurements are presented here and comparisons have been made parameter-wise.

4.3.1 Heart Rate at rest:

The heart rate is described as the number of beats per minute. Usually in resting condition the average heart of an untrained adult is 72 beats / minute. Heart rate is used as an indicator of cardio-vascular status of an individual. Sympathetic nervous system causes the heart to beat faster (tachycardia heart rate above 100 beats per minute). On the other hand para sympathetic nervous system slows the heart-rate (bradycardia heart rate below 60 beats / minute).
In the present study the resting heart rate of middle aged male has been measured. The mean, SD and t-value of experimental and control groups of Resting Heart Rate are presented in Table – 7 and in Fig. 5.

**Table – 7 : Mean, SD of Resting Heart Rate (beat / min.) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>74.60 ± 3.63</td>
<td>73.13 ± 1.36</td>
<td>1.47</td>
<td>5.61**</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>75.07 ± 2.39</td>
<td>75.20 ± 2.44</td>
<td>0.13</td>
<td>1.44NS</td>
<td>0.16</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not Significant

Fig. 5 : Graph Showing Resting Heart Rate Between Pre and Post-test Means of Experimental and Control Groups

Mean heart-rate (at rest) of experimental group was 74.60 beats / minute with a variation of 3.63 during pre test. During post tests mean heart rate was 73.13 beats / with a variation of 1.36. The t-value obtained was 5.61 which was significant at 0.01 level. It means following 24 weeks of yogic training programme the heart-rate (at rest) of experimental group reduced significantly.

In control group the pre test mean was 75.07 with a variation of 2.39 and post test mean was 75.20 with a variation of 2.44. The t-value obtained was 1.44 which showed no significant change.
4.3.1.1 Discussion on Heart-rate (at rest):

Resting Heart Rate varies due to age, sex, nature of activity, physical training, environmental conditions and other factors.

The number of ventricular beats per minute is the heart rate. The heart rate is usually determined from pulse rate, which is the number of pressure waves per minute along the cardio artery at the neck or the radial artery at the wrist. The resting value of heart rate for an adult individual is 70–75 beats / minute. Yoga is also associated with a decrease in the heart rate (Baride et al., 1994). The cardiovascular system is controlled by the ANS. Yogic procedures differentially affect the ANS. Some of the asanas routinely recommended for improvement in cardiovascular function include Halasana, Paschimottanasana, Virasana, Siddhasana, Shavasana and nadi shodana, Ujjayi pranayama (without breath holding). Yoga accompanied by breath control increased cardiac output by 17% while heart rate decreased by b\% (Reader, 1993).

In the present study significant reduction in Heart Rate (at rest) has been observed in experimental group following 24 weeks of planned yogic training programme. But in control subjects t-value was found insignificant. Similar result was observed by Roy et al. (2001). He conducted yogic practices for 5 months on 25 males and 5 females. At the end of the course the heart rate of Yoga trainees were significantly decreased. Bowman et al. (1997) found a significant decrement in heart-rate among 26 elderly subjects who completed 6 weeks of yoga programme. Harinath et al. (2004) reported that three months practices of Hatha Yoga decreased heart rate significantly. Rai et al. (1983) conducted a study among trained (n = 7) and untrained (n = 7) volunteers to determine the effect of savitri pranayam and shavasan. In trained subject it was found that heart rate reduced significantly (p < 0.001). In untrained subjects, no significant change has been observed. A significant decline in heart rate was observed by Sridharan et al. (1981) who investigated the immediate effect of daily one hour yogic training on heart function among the male. Bhargava (1988) found a significant reduction in heart-rate following Hatha Yoga on 20 young men. In all probability this reduction was due to biological adaptation. Findings on this parameter is therefore, in close proximity with the other leading researchers.
4.3.2 Blood Pressure (Systolic and Diastolic at Rest):

Blood pressure is the lateral pressure exerted by the blood on the vessels wall while flowing through the vessels. Systolic pressure is the maximum pressure during systole of heart. Diastolic pressure is the minimum pressure during diastole of heart. An optimum blood pressure is necessary to maintain the blood flow throughout the body so that oxygen and other important nutrients and chemicals may find easy passage to flow. The arterial pressure is receptor reflex and other mechanisms. Longitudinal and cross-sectional studies showed that an increase in systolic pressure with age, also results with a lesser rate of increase with diastolic pressure. It may well be stated that the age-related pressure is more a consequence of environmental factors including diet and social-stresses. If systolic pressure of a person is persistently above 150 mm of Hg and diastolic pressure is also persistently above 90 mm of Hg, then it is called hypertension and systolic pressure below 100 mm of Hg and diastolic pressure is below 60 mm Hg then the subject is called hypotensive subject.

In the present study the blood pressure (at rest) has been measured and the result is presented below:

The mean, SD and t-value of experimental and control groups of Systolic Blood Pressure are presented in Table – 8(a) and in Fig. 6.

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>132.17 ± 10.69</td>
<td>131.03 ± 10.61</td>
<td>1.13</td>
<td>9.87**</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>129.20 ± 9.67</td>
<td>128.57 ± 7.59</td>
<td>0.63</td>
<td>0.62NS</td>
<td>0.54</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not Significant.
Fig. 6: Graph Showing Systolic Blood Pressure Between Pre and Post-test Means of Experimental and Control Groups

Table-8(a) reveals that for experimental group the mean systolic blood pressure of pretest was 132.17 mm. Hg with a variation of 10.69 and that of post test was 131.03 mm. Hg with a variation of 10.61. The t-value in experimental group obtained was 9.87 which was significant at 0.01 level. It depicts that there was significant decrease in the systolic blood pressure.

In control group the mean systolic blood pressure for pre test was 129.20 mm. Hg with a variation of 9.67 and for post test was 128.57 mm. Hg with a variation of 7.59. The t value was 0.62 which showed no significant change.

The mean, SD and t-value of experimental and control groups of diastolic blood pressure are presented in Table – 8(b) and in Fig. 7.

Table – 8(b): Mean, SD of Blood Pressure (DBP) (mm. Hg) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>84.27 ± 3.96</td>
<td>83.13 ± 3.79</td>
<td>1.14</td>
<td>3.85**</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>82.37 ± 3.49</td>
<td>82.47 ± 3.48</td>
<td>0.10</td>
<td>1.80NS</td>
<td>0.08</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not Significant.
Table-8(b) reveals that for experimental group the mean diastolic blood pressure of pretest was 84.27 mm. Hg with a variation of 3.96 and that of post test was 83.13 mm. Hg with a variation of 3.79. The t-value in experimental group obtained was 3.85 which was significant at 0.01 level. It depicts that there was significant decrease in the diastolic blood pressure.

In control group the mean diastolic blood pressure for pre test was 82.37 mm. Hg with a variation of 3.49 and for post test was 82.47 mm. Hg with a variation of 3.48. The t value was 1.80 which showed no significant change.

4.3.2.1 Discussion on Resting Blood Pressure:

The cardiovascular system is controlled by the ANS. Yogic procedures differentially affect the ANS. Those that decrease the sympathetic activity are useful in controlling the diastolic blood pressure in mild to moderate hypertensives. Improvement in risk factors may benefit patients of coronary artery disease. Some of the asanas routinely recommended for improvement in cardiovascular function include Halasana, Paschimottanasana, Virasana, Siddhasana, Shavasana and nadi shodana pranayama (without breath holding). Yoga accompanied by breath control increases cardiac output, decreases blood pressure, the hepatic, renal blood flow and
increases cerebral blood flow in the peripheral vessels. Yoga is also associated with a decrease in the diastolic blood pressure (BP) (Baride et al., 1994).

In the present study all the experimental subjects showed significant decrement in resting blood pressure, both in systolic as well as in diastolic. In case of control group (t-value was 1.80) no significant change was observed after 24 weeks of yogic training programme. Significant decrement of systolic and diastolic blood pressure was observed by Upadhyay et al. (2003) after conducting the study on immediate effect of 4 weeks of yoga practice among adult male. Subsuang et al. (1991) found that regular practice of yoga reduces blood pressure on 52 male subjects. Rao et al. (2008) reported that training causes a decrease in blood pressure particularly in those subjects who are hypertensive. A significant decline in blood pressure was observed by Subhalakshmi et al. (2005). She conducted yogic training for daily 20 minutes among the young adult men. Rai et al. (1983) study was conducted in trained (n = 7) and untrained (n = 7) volunteers to determine the effect of savitri pranayam and shavasan on blood pressure. In trained subject was found a consistent and significant reduction in diastolic blood pressure (p < 0.05). In untrained subjects, the changes in above mentioned parameters were statistically insignificant. Shridharan et al. (1981) studied on 10 healthy male soldiers to evaluate the effect of yogic training on some autonomic responses and biochemical indices. Physiological and biochemical responses were assessed before and after three months of training instructors. A significant decrease in blood pressure was observed.

So, the findings of the present study is in close proximity with other leading researchers.

4.3.3 Blood Sugar:

The concentration of glucose in plasma is one of the most precisely regulated physiological variables. The normal range of blood sugar of an adult is 80–140 mg / dl (P. P.). Shortage of glucose in the blood stream (below 80 mg / dl.) is called hypoglycemia. Excess of glucose in the blood stream (above 140 mg / dl.) is called hyperglycemia. When it becomes more than 80 mg. / dl. glucose excretes from the body through urine is termed as glycosuria and the disease is called diabetes mellitus.
A certain level (approx. 100 mg./dl.) of glucose is required for proper functioning of nervous system and all other biochemical system of our body. Too little or too much blood glucose may cause the body to go into coma or shock. Blood glucose is maintained in a fairly narrow range with the help of the hormone – insulin, secretes from the pancreas. Some individuals have defects in the insulin system and have difficulty in controlling blood glucose. These individuals have the syndrome of diabetes mellitus (Type-1). It is a syndrome in which the body fails to produce insulin or the cells of the body become resistant to insulin.

In the present study the mean, SD and t-value of experimental and control groups of blood sugar level (P.P.) are presented in Table – 9 and in Fig. 8.

**Table – 9 : Mean, SD of Blood Sugar Level (mg./dl) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>99.87 ± 24.09</td>
<td>98.83 ± 24.03</td>
<td>1.03</td>
<td>5.01*</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>100.63 ± 13.28</td>
<td>100.80 ± 13.31</td>
<td>0.17</td>
<td>1.54NS</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*Sig. at 0.05 level, NS is Not Significant.

**Fig. 8 : Graph Showing Blood Sugar Between Pre and Post-test Means of Experimental and Control Groups**
Table-9 indicates that for experimental group the mean blood sugar level (P. P.) of pretest was 99.87 mm. Hg with a variation of 24.09 and that of post test was 98.83 mm. Hg with a variation of 24.03. The t-value in experimental group obtained was 5.01 which was significant at 0.05 level. It depicts that there was significant decrease in the blood sugar level (P. P.).

In control group the mean blood sugar level (P. P.) for pre test was 100.63 mm. Hg with a variation of 13.28 and for post test was 100.80 mm. Hg with a variation of 13.31. The t value was 1.54 which showed no significant change.

4.3.3.1 Discussion on Blood Sugar Level:

In the present study, 24 weeks of yogic training programme made a profound influence on blood sugar level among the experimental subjects and it decreases significantly. Malhotra et al. (2005) investigated for 20 participants between 30 and 60 years old and also compared the yoga group to a control group of 36 adults, Yoga participants showed the following changes after the 40-day program reduced waist to hip ratio and blood glucose. The control group showed no positive changes in any of these measurements. Damodaran et al. (2001) conducted a study on effect of Yoga on the physiological factor or in mild to moderate hypertensive twenty patient’s age ranging from thirty five to fifty five years essential They underwent yogic practices daily for one hour for three months. Physiological parameter like blood sugar was studied prior and following period of three months of Yoga practices. The results showed decrement in blood sugar. Amita et al. (2000) observed decrease in blood sugar of 41 middle aged women following three months of Yogic training programme. Manjunath et al. (2005) found significant decrement in blood glucose level on 20 male subjects following daily Yogic training programme.

4.3.4 Cholesterol:

Cholesterol is a soft, waxy substance found among lipids in the blood stream. It is essential for the formation of cell membranes, enzymes, male and female sex hormones and certain tissues. Cholesterol in the blood comes from two main sources. The cholesterol ingested from outside is taken in the daily diet. A large part of
cholesterol in the blood comes from the cholesterol production within the liver. The liver manufactures enough cholesterol to meet the body's needs even when consuming a cholesterol-free diet (Gupta, 1996). Under 200 mg/dl, total cholesterol is considered normal level and 200 to 240 mg/dl is border line; above 240 mg/dl is high level. People with cholesterol levels higher than 240 mg/dl have three times the ratio of CHD compared to the people with levels below 200 mg/dl. (American Heart Association, 1991). Cholesterol is one of the major components in the atherosclerotic plaque found on the inside of the arterial walls. High levels of circulating cholesterol can also damage the inner lining of blood vessels, which allows for cellular debris, platelets, fats, and calcium to be deposited in the artery wall, resulting in eventual blocking (McMurry, 1999).

In the present study the mean, SD and t-value of experimental and control groups of cholesterol level (mg/dl) are presented in Table - 10 and in Fig. 9.

Table – 10 : Mean, SD of Cholesterol (mg. / dl.) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>159.23 ± 13.61</td>
<td>157.73 ± 13.51</td>
<td>1.50</td>
<td>8.76**</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>158.63 ± 6.23</td>
<td>159.20 ± 6.39</td>
<td>0.57</td>
<td>1.93NS</td>
<td>0.06</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not Significant.

Fig. 9 : Graph Showing Cholesterol Between Pre and Post-test Means of Experimental and Control Groups
It is evident from Table-10 that for experimental group the mean cholesterol of pretest was 159.23 mg. / dl. with a variation of 13.61 and that of post test was 157.73 mg. / dl. with a variation of 13.51. The t-value in experimental group obtained was 8.76 which was significant at 0.01 level. It showed that there was significant decrease in the cholesterol level.

In control group the mean cholesterol for pre test was 158.63 mm. Hg with a variation of 6.23 and for post test was 159.20 mm. Hg with a variation of 6.39. The t value was 1.93 which showed no significant change.

4.3.4.1 Discussion on Cholesterol:

In the present study significant decrement of total cholesterol was observed among the experimental subjects but no significant change was observed among the control subjects. This result is supported by the studies of the following researchers. Damodaran et al. (2001) conducted a study on effect of 3 months Yoga practices on the 20 hypertensive patients. After 3 months, a significant decrease in blood cholesterol has been observed among the subjects. Park et al. (2002) conducted a study to evaluate the effect of a yoga programme on blood cholesterol in 24 patients. Following 8 weeks of yogasana practices, the result indicated that the blood cholesterol reduced significantly. Krishnan (1996) observed that the blood cholesterol reduced significantly following Pranayama course. Karambelkar and Ganguly (1977) conducted a study on reduction of mean cholesterol level in 22 males and 10 females at the end of 3 weeks of training in yogic physical culture. Karambelkar and Ganguly (1981) observed that the cholesterol level decreased after three weeks training in yogic physical culture in 17 normal females.

4.3.5 Body Fat Percentage:

Three structural components of human body include muscle, feet and bone. There are marked gender differences in this parameter and particularly in relation to percentage of body fat. In case of man, ideal body fat percentage is considered around 15% – 17%. Body fat includes essential as well as storage fat. Essential fat is found in
bone marrow, organs, muscles, intestine and the central nervous system and is indispensable to normal physiologic function. Storage fat is found in adipose tissue which is found subcutaneously and around organs where it acts as buffer against physical trauma. Body fat percentage is directly related to health and wellness.

In the present study the mean, SD and t-value of experimental and control groups of body fat percentage are presented in Table – 11 and in Fig. 10.

**Table – 11 : Mean, SD of Body Fat Percentage and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>19.12 ± 5.51</td>
<td>18.77 ± 5.34</td>
<td>0.35</td>
<td>3.63**</td>
<td>0.01</td>
</tr>
<tr>
<td>Control</td>
<td>19.95 ± 4.74</td>
<td>19.99 ± 4.68</td>
<td>0.04</td>
<td>1.24NS</td>
<td>0.23</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not significant**

![Fig. 10 : Graph Showing Body Fat Percentage Between Pre and Post-test Means of Experimental and Control Groups](image)

Table–11 shows that for experimental group the mean body fat percentage of pretest was 19.12% with a variation of 5.51 and that of post test was 18.77% with a variation of 5.34. The t-value obtained in experimental group was 3.63 which was significant at 0.01 level. It depicts that there was significant decrease in the Fat%.
In control group the mean body fat percentage for pre test was 19.95% with a variation of 4.74 and for post test was 19.99 with a variation of 4.68. The t value was 1.24 which showed no significant change.

It means the significant reduction in body fat percentage is obviously influenced by participation in 24-weeks planned yogic training programme in this middle aged male.

4.3.5.1 Discussion on Body Fat Percentage:

In the present study the experimental group has shown significant reduction in body fat percentage following twenty four weeks of yogic training programme. Bera (1990) found a significant decrease in body fat percentage among 20 male subjects following one year yoga training. Sahay (2007) observed that body fat percentage decreased among the male following daily practice of yoga. Therefore the findings of the present study follows the same path with the other leading researchers.

4.4 Result and Discussion on Motor Ability:

For assessment of this criterion four specific tests were used. Result and discussion on each parameter of this criterion are presented separately.

4.4.1 Balance:

It is the ability to maintain balance during whole body movements and regain balance quickly after the balance disturbing movements. Balance may be defined as the physical ability which enables an individual to hold a stationary position (Johnson). Ability to balance easily depends on the function of the mechanisms in the semicircular canals, kinesthetic sensations in the muscle, tendons and joints, visual perception while the body is in motion and ability to coordinate these three sources of stimuli. Balance is an important ability that is used in everyday activities, such as walking and standing. Balance ability is of two types

(1) Static Balance: It is the ability to maintain balance during stationery position or slow movements. It depends primarily on kinesthetic, tactile and to some extent on vestibular sense organs.
(2) **Dynamic Balance**: It is the ability to maintain or regain balance during movements and during changing positions of the body. It depends primarily on the functional capacity of the vestibular sense organs.

In the present study, the details of the test that measured static balance has already been given in Chapter-III.

In the present study the mean, SD and t-value of experimental and control groups of static balance are presented in Table – 12 and in Fig. 11.

**Table – 12 : Mean, SD of Static Balance (sec.) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Mean</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td>Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>4.68 ± 2.79</td>
<td>9.33 ± 6.28</td>
<td>4.64</td>
<td>6.64*</td>
<td>0.01</td>
</tr>
<tr>
<td>Control</td>
<td>4.67 ± 1.13</td>
<td>4.76 ± 1.11</td>
<td>0.09</td>
<td>1.17NS</td>
<td>0.25</td>
</tr>
</tbody>
</table>

*Sig. at 0.05 level, NS is Not significant.

**Fig. 11 : Graph Showing Static Balance Between Pre and Post-test Means of Experimental and Control Groups**

Table–12 shows that for experimental group the mean static balance of pretest was 4.68 sec. with a variation of 2.79 and that of post test was 9.33 sec. with a variation of 6.28. The t-value obtained in experimental group was 6.64 which was significant at 0.05 level. It showed that there was significant increase in the static balance.
In control group the mean static balance for pre test was 4.67 with a variation of 1.13 and for post test was 4.76 with a variation of 1.11. The t value was 1.17 which showed no significant change.

4.4.1.1 Discussion on Static Balance:

Hegde et al. (1983) observed that changes in body flexibility due to the regular practice of yogic asanas were studied on 40 healthy physically active middle aged men. Filomor et al. (2010) observed that yogic training programme can improve balance ability among middle aged male. Tsang and Hai Chan (2004) found significant improvement in balance control after 4 weeks of intensive Tai Chi training. Gharote (1979) conducted a study about improvement in balance among college students through Yogic training Programme and found great improvement in balance only after three weeks among them. From these observations, it appears that balance is an important quality for health and fitness and also it deteriorates with age but through yogasana one can improve balance ability even in advanced age.

In the present study, the middle aged male has shown significant improvement in balance ability following 24 weeks of planned yogic training programme.

4.4.2 Flexibility:

Flexibility is the ability to move the body and its parts through a wide range of motion without undue strain to the articulations and muscles attachments. The range of movement about a joint is flexibility or it may be defined as the ability to execute movements with greater amplitude or range. Flexibility is usually mentioned as an attribute to physical fitness. A loss in flexibility is frequently one of the first signs of the body’s getting out of shape. Flexibility also has important implication for safety from injury. Flexibility is important for sports excellence and for maintaining general health and fitness. Flexibility may be increased with yogasanas. The determining factors of flexibility are anatomical structure of joint, ligaments of the joint, stretchability of muscles, hand eye coordination and strength of the muscles. Flexibility is, to a significant extent, age dependent. Children are more flexible than the adults. With the increase in age the flexibility also decreases. Women are normally more flexible than men. This may be due to sex differences in joint structure and also
due to lower muscle mass thus reducing the role of muscle stretchability. Though women are more flexible than men but with advancing age they require to participate in a scheduled and specific exercise programme to maintain optimum level of flexibility so that they can execute daily life activities independently.

In the present study, the details of the test that measured trunk flexibility has already been given in Chapter–III.

In the present study the mean, SD and t-value of experimental and control groups of trunk flexibility are presented in Table – 13 and in Fig. 12.

Table – 13 : Mean, SD of Trunk Flexibility (cm.) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>0.22 ± 3.44</td>
<td>0.54 ± 3.12</td>
<td>0.32</td>
<td>2.61*</td>
<td>0.05</td>
</tr>
<tr>
<td>Control</td>
<td>0.23 ± 2.40</td>
<td>0.25 ± 2.26</td>
<td>0.02</td>
<td>0.03NS</td>
<td>0.98</td>
</tr>
</tbody>
</table>

*Sig. at 0.05 level, NS is Not significant.

Fig. 12 : Graph Showing Trunk Flexibility Between Pre and Post-test Means of Experimental and Control Groups

Table–13 shows that for experimental group the mean trunk flexibility of pretest was 0.22 cm. with a variation of 3.44 and that of post test was 0.54 cm. with a variation of 3.12. The t-value obtained in experimental group was 2.61 which was significant at 0.05 level. It showed that there was significant increase in the trunk flexibility.
In control group the mean trunk flexibility for pre test was 0.23 cm. with a variation of 2.40 and for post test was 0.25 cm. with a variation of 2.26. The t value was 0.03 which showed no significant change.

4.4.2.1 Discussion on Trunk Flexibility Improvement:

In the present study significant improvement in trunk flexibility was observed in middle aged male group, following 24-weeks of planned yogic programme. Ray et al. (2001) observed that flexibility improved following five months of yoga practices. Tekur et al. (2008) observed that yogic training programme increased flexibility ability of the middle aged males. James et al. (2001) found that flexibility increased following 10 years practice hatha yoga. Gharote (1979) conducted a study about improvement in trunk flexibility among male subjects through Yogic training Programme and found great improvement in trunk flexibility only after three weeks among them.

Above findings of the leading reasearchers have clearly indicated that Yogic training programme positively influenced the flexibility performance which was in conformity with the present study.

4.4.3 Strength:

Strength may be defined as the ability to overcome the resistance or to act against the resistance by exerting maximal muscular effort. For all kinds of work strength is needed, specifically the hand grip strength. Maximum strength of men and women is generally achieved between the ages of 20–30 years, at a time when the muscular cross sectional area is usually the largest. Thereafter, there is a progressive decline in strength. For most muscle groups there is a decline of at least 5% of muscular strength after the third decade of life. The loss of hand grip strength in male by 60 is about 20% compared to the values for 20 years old. Generally the strength depends on muscle cross-section area, muscle fibre spectrum, energy supply, amount of contractile protein of muscle, strength of connective, tendinous and ligamentous tissues.

In the present study the hand grip strength was measured and the results before and after 24 weeks of yogic training programme of middle aged male were separately
presented in two groups, viz. Experimental and Control.

The mean, SD and t-value of experimental and control groups of hand grip strength are presented in Table–14 and in Fig. 13.

**Table – 14 : Mean, SD of Hand Grip Strength (kg) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>47.16 ± 6.61</td>
<td>47.66 ± 6.43</td>
<td>0.50</td>
<td>1.28&lt;sub&gt;NS&lt;/sub&gt;</td>
<td>0.21</td>
</tr>
<tr>
<td>Control</td>
<td>50.70 ± 4.87</td>
<td>50.56 ± 4.73</td>
<td>0.14</td>
<td>0.72&lt;sub&gt;NS&lt;/sub&gt;</td>
<td>0.47</td>
</tr>
</tbody>
</table>

NS is Not significant.

Fig. 13 : Graph Showing Hand Grip Strength Between Pre and Post-test Means of Experimental and Control Groups

Table–14 depicts that for experimental group the mean hand grip strength of pretest was 47.16 kg with a variation of 6.61 and that of post test was 47.66 kg with a variation of 6.43. The t-value obtained in experimental group was 1.28 which showed no significant change.

In control group the mean trunk flexibility for pre test was 50.70 kg with a variation of 4.87 and for post test was 50.56 kg with a variation of 4.73. The t value was 0.72 which showed no significant change.
4.4.3.1 Discussion on Strength:

Ganguly et al. (2003) observed that the long-term effect of three different yoga schedules of Swami Kuvalayananda upon health Related Physical Fitness and Academic Achievement of nearby school going boys for three years. No significant improvement was seen in hand grip strength against control group, while, the academic achievement was seen improved year wise.

In tune to the study stated above, the present study also showed no significant change in hand grip strength of middle aged male after 24 weeks of Yogic training programme.

4.4.4 Hand Eye Coordination:

Hand eye coordination is primarily dependent on motor control and regulation processes of central nervous system. For hand eye coordination, motor control and regulation, processes function in a definite manner. As the control and regulation processes of motor hand eye coordination can only be influenced through the process of offference and reoffference (i.e. feedback), therefore, the various sense organs involved in motor hand eye coordination are the necessary biological pre-requisites for the improvement and perfection of hand eye coordination. The functional capacity of these sense organs determines the level of types of hand eye coordination to a great extent.

In the present study the hand eye coordination was measured and the results before and after 24 weeks of yogic training programme of middle aged male were separately presented in two groups, viz. Experimental and Control.

The mean, SD and t-value of experimental and control groups of hand eye coordination are presented in Table-15 and in Fig. 14.

Table – 15 : Mean, SD of Hand Eye Coordination (no. of times / min.) and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>9.06 ± 1.14</td>
<td>9.20 ± 1.24</td>
<td>0.14</td>
<td>1.16&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.25</td>
</tr>
<tr>
<td>Control</td>
<td>8.76 ± 1.13</td>
<td>8.80 ± 1.09</td>
<td>0.04</td>
<td>0.72&lt;sup&gt;NS&lt;/sup&gt;</td>
<td>0.47</td>
</tr>
</tbody>
</table>

NS is Not significant.
Table-15 reveals that for experimental group the mean hand eye coordination (no. of times / min.) of pretest was 9.06 times / min. with a variation of 1.14 and that of post test was 9.20 times / min. with a variation of 1.24. The t-value obtained in experimental group was 1.16 which showed no significant change.

In control group the mean hand eye coordination (no. of times / min.) for pre test was 8.76 times / min. with a variation of 1.13 and for post test was 8.80 times / min. with a variation of 1.09. The t value was 0.72 which showed no significant change.

4.4.4.1 Discussion on Hand Eye Coordination:

Hand eye coordination is a basic trait of motor performance which is inter-related with several other traits like strength, agility, balance, power, speed, movement precision and kinesthetic sense (Philips & Hornok, 1979). With age, ability in this trait diminished. Furthermore, apart from the performing part of hand eye coordination, a loss of accommodation, a, circumscription of the visual field and decrease in the visual activity impair responses to visual cues. Disturbances of hearing further reduce the input of sensory information (Shephard, 1984).

But in the present study, after yogic training programme no significant change in hand eye coordination was observed in experimental group.
4.5 Result and Discussions on Psychological Potentiality:

For the assessment of this criterion five variables were considered such as State Anxiety, Trait Anxiety, State Anger, Trait Anger, Depression. Procedure of data collection of all these variables were already discussed in Chapter – III and the results are presented here and discussions made parameter-wise.

4.5.1 Anxiety (State and Trait):

Everyone experiences anxiety as a diffuse, unpleasant, vague sense of apprehension, often accompanied by autonomic symptoms, such as headache, perspiration, palpitation, tightness in the chest, mild stomach discomfort, and restlessness, as indicated by inability to sit or stand still for long. The experience of anxiety has two components: i) the awareness of the physiological sensations (such as palpitations and sweating) and ii) the awareness of being nervous or frightened. In addition to motor and visceral effects, anxiety affects thinking, perception and learning. It tends to produce confusion and distortions of perception, not only of time and space but people and meanings of events. These distortions can interfere with learning by lowering concentration, reducing recall, and impairing the ability to relate one item to another – that is, to make associations. State anxiety as a reaction consisting of unpleasant consciously perceived feelings of tension and apprehension, with associated – activation or arousal of autonomic nervous system. (Speilberger, 1976). State anxiety as consciously perceived feelings of apprehension and tension, accompanied by arousal of the autonomic nervous system (Martens, 1972).

Trait anxiety is ‘an acquired behavioural disposition that predisposes an individual to perceive a wide range of objectively non-dangerous circumstances, as threatening, and to respond with state anxiety reactions disproportionate in intensity to the magnitude of the objective danger’.

It refers to relatively stable individual differences in anxiety proneness, i.e., to differentiate among people in disposition or tendency to perceive a wide range of situation as threatening and to respond to these situations with differential elevations in State Anxiety (Speilberger, 1976).
In the present study the state & trait anxiety were measured and the results before and after 24 weeks of yogic training programme of middle aged male were separately presented in two groups, viz. Experimental and Control.

The mean, SD and t-value of experimental and control groups of State Anxiety are presented in Table–16(a) and in Fig. 15.

**Table – 16(a) : Mean, SD of State Anxiety and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male**

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>44.03 ± 6.62</td>
<td>42.66 ± 6.57</td>
<td>1.37</td>
<td>6.01**</td>
<td>0.01</td>
</tr>
<tr>
<td>Control</td>
<td>45.27 ± 5.78</td>
<td>45.30 ± 6.14</td>
<td>0.03</td>
<td>0.17NS</td>
<td>0.87</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not significant.

**Fig. 15 : Graph Showing State Anxiety Between Pre and Post-test Means of Experimental and Control Groups**

Table–16(a) shows that for experimental group the mean State Anxiety of pretest was 44.03 with a variation of 6.62 and that of post test was 42.66 with a variation of 6.57. The t-value obtained in experimental group was 6.01 which was significant at 0.01 level. It showed that there was significant decrease in the State Anxiety.
In control group the mean State Anxiety for pre test was 45.27 with a variation of 5.78 and for post test was 45.30 with a variation of 6.14. The t value was 0.17 which showed no significant change.

The mean, SD and t-value of experimental and control groups of Trait Anxiety are presented in Table-16(b) and in Fig. 16.

Table – 16(b) : Mean, SD of Trait Anxiety and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>55.56 ± 8.41</td>
<td>52.50 ± 7.28</td>
<td>3.06</td>
<td>6.05**</td>
<td>0.01</td>
</tr>
<tr>
<td>Control</td>
<td>58.43 ± 9.24</td>
<td>58.57 ± 9.32</td>
<td>0.14</td>
<td>1.28NS</td>
<td>0.21</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not significant.

Fig. 16 : Graph Showing Trait Anxiety Between Pre and Post-test Means of Experimental and Control Groups

Table–16(b) shows that for experimental group the mean Trait Anxiety of pretest was 55.56 with a variation of 8.41 and that of post test was 52.50 with a variation of 7.28. The t-value obtained in experimental group was 6.05 which was significant at 0.01 level. It showed that there was significant decrease in the State Anxiety.

In control group the mean Trait Anxiety for pre test was 58.43 with a variation
of 9.24 and for post test was 58.57 with a variation of 9.32. The t value was 1.28 which showed no significant change.

4.5.1.1 Discussion on Anxiety (State and Trait):

Gupta et al. (2006) observed significant decrease in state & trait anxiety among middle aged males following yogasana training. Ray et al. (2001) reported that yoga was more effective in reducing anxiety. Smith et al. (2007) observed significant decreased in anxiety among 131 subjects following Hatha Yoga training programme of 10 weeks. Michalsen et al. (2005) observed significant reduction of anxiety among experimental yoga groups and no change in control groups.

In the present study significant reduction in state and trait anxiety was observed among the experimental subjects. There was almost no change in control groups. Therefore, this study is similar to the studies by other leading researchers.

4.5.2 Anger (State and Trait):

Anger is an emotion. The physical effects of anger include increased heart rate, blood pressure and levels of adrenalin and non-adrenalin (Digiuseppe, 2006). Anger becomes the predominant feeling behaviourally, cognitively and physiologically when a person makes the conscious choice to take action to immediately stop the threatening behaviour of another outside force (Harris, et al., 1964). State anger refers to the intensity of the individual’s angry feelings either at (i) the time of testing, or (ii) a time and situation specified by the test administrator. Trait anger causes the general tendency of a person to get angry.

Anger as part of the fight or flight brain response to the perceived threat of harm. (Kent, 2000) The external expression of anger can be found in facial expressions, body language, physiological responses and at times in public acts of aggression.

In the present study tests on state and trait anger of middle aged males were measured before and after 24 weeks yogic training programme. The results of experimental and control groups were presented below.

The mean, SD and t-value of experimental and control groups of hand eye coordination are presented in Table–17(a) and in Fig. 17.
Table – 17(a) : Mean, SD of State Anger and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>81.83 ± 8.98</td>
<td>76.33 ± 8.40</td>
<td>5.50</td>
<td>12.69**</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>83.50 ± 8.03</td>
<td>83.57 ± 7.89</td>
<td>0.07</td>
<td>0.44NS</td>
<td>0.66</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not significant.

Fig. 17 : Graph Showing State Anger Between Pre and Post-test Means of Experimental and Control Groups

Table–17(a) shows that for experimental group the mean State Anger of pretest was 81.83 with a variation of 8.98 and that of post test was 76.33 with a variation of 8.40. The t-value obtained in experimental group was 12.69 which was significant at 0.01 level. It showed that there was significant decrease in the State Anger.

In control group the mean State Anger for pre test was 83.50 with a variation of 8.03 and for post test was 83.57 with a variation of 7.89. The t value was 0.44 which showed no significant change.

The mean, SD and t-value of experimental and control groups of Trait Anger are presented in Table–17(b) and in Fig. 18.
Table – 17(b) : Mean, SD of Trait Anger and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test</th>
<th>Post-test</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean ± SD</td>
<td>Mean ± SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Experimental</td>
<td>81.46 ± 8.23</td>
<td>75.20 ± 5.48</td>
<td>6.26</td>
<td>7.36**</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>81.00 ± 9.68</td>
<td>81.10 ± 9.85</td>
<td>0.10</td>
<td>1.14NS</td>
<td>0.26</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not significant.

Fig. 18 : Graph Showing Trait Anger Between Pre and Post-test Means of Experimental and Control Groups

Table-17(b) shows that for experimental group the mean Trait Anger of pretest was 81.46 with a variation of 8.23 and that of post test was 75.20 with a variation of 5.48. The t-value obtained in experimental group was 7.36 which was significant at 0.01 level. It showed that there was significant decrease in the Trait Anger.

In control group the mean Trait Anger for pre test was 81.00 with a variation of 9.68 and for post test was 81.10 with a variation of 9.85. The t value was 1.14 which showed no significant change.

4.5.2.1 Discussion on Anger (State and Trait) :

Shapiro et al. (2006) found that significant decreased in State and Trait anger among 37 subjects following iyengar Yoga. Lavey et al. (2005) observed that yogic
training programme can significantly decreased in State and Trait Anger of experimental subjects. Khalsa et al. (2009) found significant reduction in State Anger among adolescents.

In the present study significant decrement in State and Trait anger was observed in experimental subjects following 24 weeks of Yogic programme which was similar to the findings of other researchers.

4.5.3 Depression:

Depression is one of the most common and treatable psychiatric illnesses in late life. Depression is a disorder of mood that involves symptoms of sadness, discouragement and feelings of hopelessness, as well as loss of appetite, difficulty in sleeping and loss of energy (Koen et al., 1996). Although depression can be a transient state for some, for others it may last many months and sometimes, many years. The depression found in the elderly is due to the several problems they face as an individual These problems may be physical, financial, psychological and problems of interaction in social familial setting.

In the present study, Depression tests were conducted on middle aged males before and after twenty four weeks of yogic training programme and the results were presented below.

The mean, SD and t-value of experimental and control groups of Depression are presented in Table–18 and in Fig. 19.

Table – 18 : Mean, SD of Depression and Comparison (t-test) between Pre-test & Post-test Means of Middle aged male

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-test Mean ± SD</th>
<th>Post-test Mean ± SD</th>
<th>Mean Difference</th>
<th>t-value</th>
<th>Level of Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>176.03 ± 38.66</td>
<td>174.67 ± 38.53</td>
<td>1.37</td>
<td>3.20**</td>
<td>0.00</td>
</tr>
<tr>
<td>Control</td>
<td>177.10 ± 31.97</td>
<td>177.17 ± 31.96</td>
<td>0.07</td>
<td>1.44NS</td>
<td>0.16</td>
</tr>
</tbody>
</table>

**Sig. at 0.01 level, NS is Not significant.
Fig. 19 : Graph Showing Depression Between Pre and Post-test Means of Experimental and Control Groups

Table-18 shows that for experimental group the mean Depression of pretest was 176.03 with a variation of 38.66 and that of post test was 174.67 with a variation of 38.53. The t-value obtained in experimental group was 3.20 which was significant at 0.01 level. It showed that there was significant decrease in the Depression.

In control group the mean Trait Anger for pre test was 177.10 with a variation of 31.97 and for post test was 177.17 with a variation of 31.96. The t value was 1.44 which showed no significant change.

4.5.3.1 Discussion on Depression:

In the present study significant reduction of depression level was found among the subjects of the experimental groups following planned yogic training programme. In this study yogic training programme caused significant reduction in depression level as it increased the blood flow and oxygenation to the cells. Similar results were also observed by many researchers. Sharma et al. (2006) among 30 depressed adults at the end of the 8 weeks of Sahaj Yoga. Woolery et al. (2004) reported significant reduction in depression was obtained among the experimental yoga group and no significant change was found among the control group. Brown et al. (2005) observed that there was significant decrease in depression following ‘Sudarshan Kriya Yoga’ training. Chen et al. (2008) observed that following 6 months of yoga training
programme depression decreased among the middle aged persons. Shapiro et al. (2008) found significant reduction in depression following Iyengar Yoga classes among 37 subjects.

4.6 Testing Hypothesis:

It was hypothesised that there will be no change in motor ability for the middle aged male participating in Yogic training programme of 24 weeks. In the foregoing discussion in Chapter – 4.4.3.1 to 4.4.4.1, it has been observed that there is a positive change in static balance and flexibility and there is no change in hand eye coordination and hand grip strength. Considering this, it may be stated the Hypothesis No. 2 depicted in Chapter – 1.25 is accepted for hand eye coordination and hand grip strength, while it is rejected for flexibility and balance.

Similarly it was hypothesised that there will be improvement in physiological potentiality and psychological parameter following 24 weeks of Yoga practice. From the analysis of data it appears that there is a positive change in physiological potentiality and psychological parameters. Therefore Hypothesis No. 1 and 3 depicted in Chapter–1.25 are accepted.