RESULTS

Section I – Body Composition, Cardiovascular Parameters & Nutritional Status of Exercising Boys of Scouts (Group EB)

The various anthropometric variables which are of importance in determining body composition are illustrated in Table 5.1.2 below for the boy scouts taking part in the experiment. From the table it becomes clear that the boy scouts were of normal body weight with no incidence of underweight being reported. Along with the BMI values of the scouts also are in the normal range. Other parameters relating to body anthropometric measurements are also in the normal range. This is true for both pre- and post-experiment periods.

Table 5.1.3 provides us the haemoglobin values of the scouts. Here also it can be deduced from the haemoglobin levels that the scouts were not suffering from anaemia, both in pre- and post-experiment period. The slight increase in haemoglobin values in case of post exercising scouts may be attributed to the increase in RBC which occurs normally in case of regular physical activity. The nutrient intake, energy intake was also comparable to RDA (Table 5.1.4/5.1.5). This group also has a good PFI level and their cardiovascular parameters are in the normal range. (Table 5.1.6).
Table 5.1.1 Distribution of the Studied Population:

<table>
<thead>
<tr>
<th>Groups</th>
<th>Boys</th>
<th>Girls</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Groups</td>
<td>38</td>
<td>26</td>
<td>64</td>
</tr>
<tr>
<td>Sedentary Experimental Groups</td>
<td>56</td>
<td>30</td>
<td>86</td>
</tr>
<tr>
<td>Exercising Groups of Scouts &amp; Guides</td>
<td>44</td>
<td>27</td>
<td>71</td>
</tr>
<tr>
<td>Total</td>
<td>138</td>
<td>83</td>
<td>221</td>
</tr>
</tbody>
</table>

Table 5.1.2 – Body composition of Scouts (Group-EB) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Stages</th>
<th>Weight (Kg)</th>
<th>BSA (sq.m)</th>
<th>BMI</th>
<th>%Fat</th>
<th>LBM (Kg*)</th>
<th>FM (Kg)</th>
<th>FFM (Kg)</th>
<th>FMI</th>
<th>FFMI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Exp.</td>
<td>43.27 ± 6.8</td>
<td>1.41 ± 0.15</td>
<td>20.76 ± 2.1</td>
<td>9.79 ± 1.2</td>
<td>39.87 ± 6.2</td>
<td>4.25 ± 0.5</td>
<td>39.02 ± 5.8</td>
<td>1.64 ± 0.3</td>
<td>15.43 ± 1.5</td>
</tr>
<tr>
<td></td>
<td>Post-Exp.</td>
<td>43.32 ± 6.5</td>
<td>1.42 ± 0.12</td>
<td>21.76 ± 2.5</td>
<td>9.30 ± 1.0</td>
<td>39.95 ± 6.0</td>
<td>4.05 ± 0.7</td>
<td>39.27 ± 5.7</td>
<td>1.56 ± 0.2</td>
<td>15.47 ± 1.8</td>
</tr>
</tbody>
</table>

Table 5.1.3 – Haemoglobin levels of Scouts (Group-EB) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Haemoglobin (gm %)(* )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp</td>
<td>13.55 ± 0.89</td>
</tr>
<tr>
<td>Post-Exp</td>
<td>13.62 ± 0.85</td>
</tr>
</tbody>
</table>

* = significant (p<0.05)
Fig: 5.1.1- Distribution of Studied Population

Fig: 5.1.2- Comparison of Body Composition of Scouts (Group-EB) Pre- & Post-Experiment

Fig: 5.1.3- Comparison of Haemoglobin levels of Scouts (Group-EB) Pre- and Post-Experiment
Table 5.1.4 – Nutrient intake of Scouts (Group-EB) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Stages</th>
<th>Carbohydrate (gm)</th>
<th>Protein (gm)</th>
<th>Fat (gm)</th>
<th>Vitamin C (mg)</th>
<th>Iron (mg)</th>
<th>Ca (mg)</th>
<th>Vitamin A (mg)</th>
<th>Vitamin B1 (mg)*</th>
<th>Vitamin B6 (mg)</th>
<th>Nicotinic Acid (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Exp/</td>
<td>433.39 ± 48.1</td>
<td>71.49 ± 7.7</td>
<td>21.67 ± 13.13</td>
<td>40.78 ± 25.2</td>
<td>42.18 ± 8.6</td>
<td>551.43 ± 47.25</td>
<td>133.82 ± 0.7</td>
<td>1.20 ± 0.03</td>
<td>1.88 ± 0.02</td>
<td>16.80 ± 2.79</td>
</tr>
<tr>
<td></td>
<td>Post-Exp.</td>
<td>451.81 ± 44.2</td>
<td>71.80 ± 7.8</td>
<td>22.59 ± 12.9</td>
<td>41.92 ± 36.5</td>
<td>42.46 ± 8.5</td>
<td>569.59 ± 41.28</td>
<td>135.47 ± 0.8</td>
<td>1.20 ± 0.03</td>
<td>1.88 ± 0.02</td>
<td>17.12 ± 2.75</td>
</tr>
</tbody>
</table>

* = significant (p<0.05)

Table 5.1.5 – Energy intake of Scouts (Group-EB) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Energy (K_Cal)</th>
<th>Energy (K_Cal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>2,312.22 ± 105.3</td>
<td>--------</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>2,417.73 ± 116.63</td>
<td>--------</td>
</tr>
<tr>
<td>RDA</td>
<td>--------</td>
<td>2750</td>
</tr>
</tbody>
</table>

Table 5.1.6 – Cardiovascular Parameters of Scouts (Group-EB) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Heart Rate (Beats/Min)</th>
<th>Systolic Blood Pressure (mmHg)</th>
<th>Diastolic Blood Pressure (mmHg)*</th>
<th>PFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>82.73 ± 8.9</td>
<td>116.06 ± 9.9</td>
<td>76.45 ± 7.7</td>
<td>76.23 ± 6.4</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>82.60 ± 9.5</td>
<td>116.33 ± 10.8</td>
<td>76.61 ± 8.2</td>
<td>78.55 ± 8.2</td>
</tr>
</tbody>
</table>
Fig: 5.1.4- Nutrient intake of Scouts (Group-EB) Pre- and Post-Experiment

Comparison of Nutrient Intake in Scouts (Group EB)

Fig: 5.1.5- Energy intake of Scouts (Group-EB) Pre- and Post-Experiment

Comparison of Energy Intake of Scouts (Group EB) with RDA

Fig: 5.1.6- Cardiovascular Parameters of Scouts (Group-EB) Pre- and Post-Experiment

Comparison of Cardiovascular Parameters & Physical Efficiency in Scouts (Group EB)
Section II – Body Composition, Cardiovascular Parameters & Nutritional Status of Exercising Girls of Guides (Group EG)

In case of girl guides taking part in the experiment the various anthropometric variables are tabulated in Table 5.2.1 below. From the table it can be assumed that the girl guides had normal body weight and were not underweight. Along with the BMI values of the girl guides are significantly higher than that of boy scouts, and according to their BMI levels that can be classified as Obese Class I (Moderately obese). Other parameters relating to body anthropometric measurements specially those relating to body fat are also significantly higher in this group. This is true for both pre- and post-experiment periods.

Table 5.2.2 provides us the haemoglobin values of the girl guides. It can be deduced from the haemoglobin levels of girl guides that they are not suffering from anaemia- both in pre and post experimental period. The slight increase in haemoglobin values in case of post exercising guides may be attributed to the increase in RBC which occurs normally in case of regular physical activity. The nutrient and energy intake of guides were on the higher side which results in they being overweight. (Table 5.2.1/5.2.2). Their PFI level and their cardiovascular parameters are in the normal range (Table 5.2.4/5.2.5).
Table 5.2.1 – Body composition of Guides (Group-EG) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Stages</th>
<th>Weight (Kg)</th>
<th>BSA (sq.m.)</th>
<th>BMI</th>
<th>%Fat</th>
<th>LBM (Kg)</th>
<th>FM  (Kg)</th>
<th>FFM  (Kg)</th>
<th>FMI</th>
<th>FFMI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Exp.</td>
<td>40.07 ± 9.2</td>
<td>1.30 ± 0.09</td>
<td>22.76 ± 3.4</td>
<td>13.95 ± 1.8</td>
<td>34.45 ± 5.2</td>
<td>5.63 ± 1.2</td>
<td>34.45 ± 5.1</td>
<td>2.49 ± 0.5</td>
<td>15.25 ± 1.9</td>
</tr>
<tr>
<td></td>
<td>Post-Exp.</td>
<td>40.19 ± 8.8</td>
<td>1.30 ± 0.08</td>
<td>22.94 ± 3.3</td>
<td>13.86 ± 1.5</td>
<td>34.58 ± 5.1</td>
<td>5.61 ± 1.3</td>
<td>34.58 ± 5.0</td>
<td>2.48 ± 0.5</td>
<td>15.31 ± 1.7</td>
</tr>
</tbody>
</table>

Table 5.2.2 – Haemoglobin levels of Guides (Group-EG) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Haemoglobin (gm%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>12.83 ± 1.76</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>12.87 ± 1.84</td>
</tr>
</tbody>
</table>
Fig: 5.2.1- Comparison of Body Composition of Guides (Group-EG) Pre- & Post-Experiment

![Comparison of Body Composition of Guides (Group EG)](image)

Fig: 5.2.2- Comparison of Haemoglobin levels of Guides (Group-EG) Pre- and Post-Experiment

![Comparison of Hemoglobin (gm%) of Guides (Group EG)](image)
### Table 5.2.3 – Nutrient intake of Guides (Group-EG) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Carbohydrate (gm)</th>
<th>Total Protein (gm)</th>
<th>Total Fat (gm)</th>
<th>Vitamin C (mg)</th>
<th>Iron (mg)</th>
<th>Ca (mg)</th>
<th>Vitamin A (mg)</th>
<th>Vitamin B1 (mg)</th>
<th>Vitamin B6 (mg)</th>
<th>Nicotinic Acid (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp. (Primary Axis)</td>
<td>393.95 ± 39.5</td>
<td>32.27 ± 12.3</td>
<td>37.89 ± 17.3</td>
<td>35.69 ± 10.1</td>
<td>26.49 ± 1.1</td>
<td>504.86 ± 40.6</td>
<td>130.99 ± 0.8</td>
<td>1.95 ± 0.16</td>
<td>14.82 ± 2.9</td>
<td></td>
</tr>
<tr>
<td>Post-Exp. (Primary Axis)</td>
<td>394.14 ± 41.2</td>
<td>64.01 ± 12.9</td>
<td>38.42 ± 16.3</td>
<td>36.16 ± 9.9</td>
<td>27.25 ± 1.5</td>
<td>508.51 ± 45.1</td>
<td>134.01 ± 0.9</td>
<td>1.98 ± 0.17</td>
<td>15.25 ± 2.5</td>
<td></td>
</tr>
</tbody>
</table>

### Table 5.2.4 – Energy intake of Guides (Group-EG) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Energy (K_Cal)</th>
<th>Energy (K_Cal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp. (*)</td>
<td>2,155.27 ± 127.2</td>
<td>------</td>
</tr>
<tr>
<td>Post-Exp. (*)</td>
<td>2,161.99 ± 131.25</td>
<td>------</td>
</tr>
<tr>
<td>RDA</td>
<td>------</td>
<td>2330</td>
</tr>
</tbody>
</table>

* = significant (p<0.05)

### Table 5.2.5 – Cardiovascular Parameters of Guides (Group-EG) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Heart Rate (beats/min)</th>
<th>Systolic Blood Pressure (mmHg*)</th>
<th>Diastolic Blood Pressure (mmHg)</th>
<th>PFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>74.19 ± 7.5</td>
<td>115.93 ± 12.2</td>
<td>75.41 ± 7.6</td>
<td>75.28 ± 9.5</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>73.96 ± 7.3</td>
<td>116.89 ± 10.5</td>
<td>75.78 ± 7.8</td>
<td>76.42 ± 10.4</td>
</tr>
</tbody>
</table>
Fig: 5.2.3- Nutrient intake of Guides (Group-EG) Pre- and Post-Experiment

![Comparison of Nutrient Intake in Guides (Group EG)](image)

Fig: 5.2.4- Energy intake of Guides (Group-EG) Pre- and Post-Experiment

![Comparison of Energy Intake of Guides (Group EG) with RDA](image)

Fig: 5.2.5- Cardiovascular Parameters of Guides (Group-EG) Pre- and Post-Experiment

![Comparison of Cardiovascular Parameters & Physical Efficiency in Guides (Group EG)](image)
In case of boys in the sedentary experimental group taking part in the experiment the various anthropometric variables are tabulated in Table 5.3.1 below. From the table it can be assumed that the boys in the sedentary experimental group had normal body weight and were not underweight. Along with the BMI values of the boys in the sedentary experimental group are in the normal range and they do not seem to suffer from malnutrition or chronic energy deficiency. Other parameters relating to body anthropometric measurements specially those relating to body fat are also normal in this group. This is true for both pre- and post-experiment periods.

Table 5.3.2 provides us the haemoglobin values of the boys in the sedentary experimental group. It can be deduced from the haemoglobin levels of boys in the sedentary experimental group that they are not suffering from anaemia - both in pre and post experimental period. The slight increase in haemoglobin values in case of post exercising boys in the sedentary experimental group may be attributed to the increase in RBC which occurs normally in case of regular physical activity. Their nutrient and energy intake was a little lower than that warranted by their RDA (Table 5.3.3/ Table 5.3.4) but heir PFI and cardiovascular parameters were normal (Table 5.3.5)
Table 5.3.1 – Body composition of Sedentary Experimental Boys (Group-SB)  
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Stages</th>
<th>Weight (Kg)</th>
<th>BSA (sq.m.)</th>
<th>BMI</th>
<th>%Fat</th>
<th>LBM (Kg*)</th>
<th>FM (Kg)</th>
<th>FFM (Kg*)</th>
<th>FMI</th>
<th>FFMI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Exp.</td>
<td>42.37 ± 5.6</td>
<td>1.39 ± 0.1</td>
<td>16.70 ± 1.9</td>
<td>11.44 ± 2.1</td>
<td>38.78 ± 4.9</td>
<td>4.87 ± 0.9</td>
<td>37.50 ± 5.0</td>
<td>1.92 ± 0.4</td>
<td>15.28 ± 1.5</td>
</tr>
<tr>
<td></td>
<td>Post-Exp.</td>
<td>43.55 ± 5.3</td>
<td>1.41 ± 0.2</td>
<td>17.18 ± 2.2</td>
<td>11.76 ± 2.2</td>
<td>39.44 ± 4.7</td>
<td>5.14 ± 0.9</td>
<td>38.41 ± 4.8</td>
<td>2.03 ± 0.3</td>
<td>15.55 ± 1.7</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

Table 5.3.2 – Haemoglobin Levels of Sedentary Experimental Boys (Group-SB)  
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Haemoglobin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>13.47 ± 0.96</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>13.78 ± 0.69</td>
</tr>
</tbody>
</table>
Fig: 5.3.1- Comparison of Body Composition of Sedentary Experimental Boys (Group-SB) Pre- & Post-Experiment

Comparison of Body Composition of Sedentary Experimental Boys (Group SB)

Fig. 5.3.2 – Comparison of Haemoglobin Levels of Sedentary Experimental Boys (Group-SB) Pre- and Post-Experiment.
Table 5.3.3 – Nutrient intake of Sedentary Experimental Boys (Group-SB)  
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Carbohydrate (gm*)</th>
<th>Total Protein (gm*)</th>
<th>Total Fat (gm)</th>
<th>Vitamin C (mg)</th>
<th>Iron (mg)</th>
<th>Ca (mg*)</th>
<th>Vitamin A (mg)</th>
<th>Vitamin B1 (mg)</th>
<th>Vitamin B6 (mg)</th>
<th>Nicotinic Acid (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>272.53 ± 36.6</td>
<td>67.47 ± 9.8</td>
<td>23.37 ± 7.8</td>
<td>35.29 ± 9.7</td>
<td>0.43 ± 0.8</td>
<td>41.13 ± 1.0</td>
<td>501.39 ± 76.5</td>
<td>1.98 ± 2.7</td>
<td>1.99 ± 2.7</td>
<td>17.13 ± 6.5</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>338.61 ± 69.7</td>
<td>74.97 ± 12.1</td>
<td>24.78 ± 10.1</td>
<td>37.88 ± 7.9</td>
<td>0.48 ± 0.8</td>
<td>43.43 ± 0.8</td>
<td>140.47 ± 9.8</td>
<td>1.99 ± 2.7</td>
<td>1.99 ± 2.7</td>
<td>17.13 ± 6.5</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

Table 5.3.4 – Energy intake of Sedentary Experimental Boys (Group-SB)  
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Energy (K_Cal)</th>
<th>Energy (K_Cal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>1,897.91 ± 288.4</td>
<td>-----------</td>
</tr>
<tr>
<td>Post-Exp.(*)</td>
<td>2,050.09 ± 291.1</td>
<td>-----------</td>
</tr>
<tr>
<td>RDA</td>
<td>2750</td>
<td></td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

Table 5.3.5 – Cardiovascular Parameters of Sedentary Experimental Boys (Group-SB)  
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Heart Rate (beats/min)</th>
<th>Systolic Blood Pressure (mmHg)</th>
<th>Diastolic Blood Pressure (mmHg)</th>
<th>PFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>78.09 ± 8.7</td>
<td>113.87 ± 10.9</td>
<td>75.74 ± 7.0</td>
<td>57.56 ± 8.9</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>77.07 ± 6.8</td>
<td>112.50 ± 11.6</td>
<td>75.08 ± 6.2</td>
<td>69.13 ± 8.7</td>
</tr>
</tbody>
</table>
Fig. 5.3.3 – Comparison of Nutrient intake of Sedentary Experimental Boys (Group-SB) Pre- and Post-Experiment.

Fig. 5.3.4 – Comparison of Energy intake of Sedentary Experimental Boys (Group-SB) Pre- and Post-Experiment.

Fig. 5.3.5 – Comparison of Cardiovascular Parameters of Sedentary Experimental Boys (Group-SB) Pre- and Post-Experiment.
Section IV – Body Composition, Cardiovascular Parameters & Nutritional Status of Sedentary Experimental Girls (Group SG)

Physical performance is defined as the ability to perform a physical task or sport at a desired level. The main determinants of performance are physical fitness and skill. Longitudinal studies have shown that the lifestyle and physical fitness during childhood and adolescence were major determinants of lifestyle, physical fitness and freedom from non-communicable diseases in adult life. Recent studies have demonstrated that maintaining physical fitness (especially cardio respiratory fitness) and physical activity have a favourable impact on overall health. With increasing longevity and growing concern about diabetes and cardiovascular diseases affecting Indians a decade earlier than their developed country counterparts, it is imperative that healthy lifestyles are promoted in school-age children. The focus therefore should be on increasing the use of fitness tests with a focus on cardio-respiratory function and endurance in children, and initiating appropriate intervention in those who perform poorly in these tests.

In case of girls in the sedentary experimental group taking part in the experiment the various anthropometric variables are tabulated in Table 5.4.1 below. From the table it can be assumed that the girls in the sedentary experimental group had normal body weight and were not underweight. The BMI values of the girls in the sedentary experimental group are in the normal range and they do not seem to suffer from malnutrition or chronic energy deficiency. Other parameters relating to body
anthropometric measurements specially those relating to body fat are also normal in this group. This is true for both pre- and post-experiment periods.

Table 5.4.2 provides us the haemoglobin values of the girls in the sedentary experimental group. It can be deduced from the haemoglobin levels of girls in the sedentary experimental group that they are not suffering from anaemia- both in pre and post experimental period. The slight increase in haemoglobin values in case of post exercising girls in the sedentary experimental group may be attributed to the increase in RBC which occurs normally in case of regular physical activity.

The nutrient intake and energy consumption of this group of girls were less compared to RDA (Table 5.4.3/ Table 5.4.4). Though their cardiovascular parameters were normal their PFI was poor (Table 5.4.5).
Table 5.4.1 – Body composition of Sedentary Experimental Girls (Group-SG)
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Stages</th>
<th>Weight (Kg)</th>
<th>BSA (sq. m.)</th>
<th>BMI</th>
<th>%Fat*</th>
<th>LBM (Kg*)</th>
<th>FM*</th>
<th>FFM*</th>
<th>FMI*</th>
<th>FFMI*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Exp.</td>
<td>41.91 ± 5.5</td>
<td>1.33 ± 0.1</td>
<td>18.61</td>
<td>15.06</td>
<td>34.51</td>
<td>6.51</td>
<td>35.40</td>
<td>2.89</td>
<td>15.32</td>
</tr>
<tr>
<td></td>
<td>Post-Exp.</td>
<td>42.82 ± 6.2</td>
<td>1.34 ± 0.1</td>
<td>19.04</td>
<td>14.02</td>
<td>36.22</td>
<td>6.07</td>
<td>36.75</td>
<td>2.70</td>
<td>16.10</td>
</tr>
</tbody>
</table>

* = significant (p<0.05)

Table 5.4.2 – Haemoglobin Levels of Sedentary Experimental Girls (Group-SG)
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Hb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>12.13 ± 2.2</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>12.22 ± 2.3</td>
</tr>
</tbody>
</table>
Fig: 5.4.1- Comparison of Body Composition of Sedentary Experimental Girls (Group-SG)  
Pre- & Post-Experiment

Fig. 5.4.2 – Comparison of Haemoglobin Levels of Sedentary Experimental Girls (Group-SG)  
Pre- and Post-Experiment
### Table 5.4.3 – Nutrient intake of Sedentary Experimental Girls (Group-SG) 
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Carbohydrate (gm*)</th>
<th>Total Protein (gm*)</th>
<th>Total Fat (gm*)</th>
<th>Vitamin C (mg)</th>
<th>Iron (mg)</th>
<th>Ca (mg)</th>
<th>Vitamin A (mg*)</th>
<th>Vitamin B1 (mg*)</th>
<th>Vitamin B6 (mg*)</th>
<th>Nicotinic Acid (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>258.31 ± 35.8</td>
<td>64.32 ± 9.1</td>
<td>23.32 ± 10.5</td>
<td>39.25 ± 11.4</td>
<td>25.89 ± 3.9</td>
<td>545.36 ± 45.9</td>
<td>120.10 ± 0.4</td>
<td>1.89 ± 0.2</td>
<td>1.95 ± 0.4</td>
<td>12.46 ± 2.1</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>269.45 ± 36.2</td>
<td>65.77 ± 8.7</td>
<td>23.80 ± 12.3</td>
<td>40.10 ± 8.3</td>
<td>26.95 ± 5.3</td>
<td>580.10 ± 43.1</td>
<td>126.20 ± 0.4</td>
<td>1.03 ± 0.4</td>
<td>1.95 ± 0.4</td>
<td>12.48 ± 2.1</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

### Table 5.4.4 – Energy intake of Sedentary Experimental Girls (Group-SG) 
Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Energy (K_Cal)</th>
<th>Energy (K_Cal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>1750.65 ± 123.9</td>
<td>---------------</td>
</tr>
<tr>
<td>Post-Exp.*</td>
<td>1,953.56 ± 149.7</td>
<td>---------------</td>
</tr>
<tr>
<td>RDA</td>
<td>---------------</td>
<td>2330</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

### Table 5.4.5 – Cardiovascular Parameters of Sedentary Experimental Girls (Group-SG) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Heart Rate (Beats/min)</th>
<th>Systolic Blood Pressure (mmHg)</th>
<th>Diastolic Blood Pressure (mmHg)</th>
<th>PFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>91.81 ± 11.7</td>
<td>114.24 ± 10.6</td>
<td>75.24 ± 6.9</td>
<td>50.14 ± 6.8</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>91.86 ± 12.0</td>
<td>114.72 ± 11.9</td>
<td>75.66 ± 6.7</td>
<td>65.83 ± 9.6</td>
</tr>
</tbody>
</table>
Fig. 5.4.3 – Comparison of Nutrient intake of Sedentary Experimental Boys (Group-SB) Pre- and Post-Experiment.

Fig. 5.4.4 – Comparison of Energy intake of Sedentary Experimental Girls (Group-SG) Pre- and Post-Experiment. (Mean ± SD)

Fig. 5.4.5 – Comparison of Cardiovascular Parameters of Sedentary Experimental Girls (Group-SG) Pre- and Post-Experiment.
Section V – Body Composition, Cardiovascular Parameters & Nutritional Status of Control Sedentary Boys (Group CB)

In case of the control sedentary boys group taking part in the experiment the various anthropometric variables are tabulated in Table 5.5.1 below. From the table it can be assumed that the control sedentary boys group had normal body weight and were not underweight. Another point of importance is that the boys of this group have more amount of lean body mass and fat free mass as compared to those of other groups. The BMI values of the control sedentary boys group are in the normal range and they do not seem to suffer from malnutrition or chronic energy deficiency. This is true for both pre- and post-experiment periods.

Table 5.5.2 provides us the haemoglobin values of the control sedentary boys group. It can be deduced from the haemoglobin levels of control sedentary boys group that they are not suffering from anaemia- both in pre and post experimental period. The slight increase in haemoglobin values in case of post exercising boys in the control sedentary group may be attributed to the increase in RBC which occurs normally in case of regular physical activity.

The nutrient intake and energy consumption of this group of boys were less compared to RDA (Table 5.5.3/Table 5.5.4). Though their cardiovascular parameters were normal their PFI was very poor (Table 5.5.5).
Table 5.5.1 – Body composition of Control Sedentary Boys (Group-CB) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Weight (Kg)</th>
<th>BSA (sq.m.)</th>
<th>BMI</th>
<th>%Fat</th>
<th>LBM (Kg)</th>
<th>FM (Kg)</th>
<th>FFM (Kg)</th>
<th>FMI</th>
<th>FFMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>45.50 ± 6.7</td>
<td>1.58 ± 0.1</td>
<td>18.99 ± 2.3</td>
<td>11.40 ± 0.9</td>
<td>46.42 ± 1.1</td>
<td>5.21 ± 0.9</td>
<td>40.29 ± 4.7</td>
<td>1.85 ± 0.3</td>
<td>16.72 ± 1.7</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>45.33 ± 8.7</td>
<td>1.58 ± 0.2</td>
<td>19.04 ± 1.5</td>
<td>11.41 ± 1.2</td>
<td>46.55 ± 1.4</td>
<td>5.16 ± 0.8</td>
<td>40.17 ± 4.6</td>
<td>1.83 ± 0.4</td>
<td>16.77 ± 1.6</td>
</tr>
</tbody>
</table>

Table 5.5.2 – Haemoglobin Levels of Control Sedentary Boys (Group-CB) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Haemoglobin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>12.91 ± 1.9</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>12.97 ± 2.8</td>
</tr>
</tbody>
</table>
Fig. 5.5.1 – Comparison of Body composition of Control Sedentary Boys (Group-CB) Pre- and Post-Experiment.

Fig. 5.5.2 – Comparison of Haemoglobin Levels of Control Sedentary Boys (Group-CB) Pre- and Post-Experiment.
Table 5.5.3 – Nutrient intake of Sedentary Control Boys (Group-CB) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Stages</th>
<th>Carbohydrate (gm)</th>
<th>Total Protein (gm)</th>
<th>Total Fat (gm)</th>
<th>Vitamin C (mg)*</th>
<th>Iron (mg)</th>
<th>Ca (mg)</th>
<th>Vitamin A (mg)</th>
<th>Vitamin B1 (mg)</th>
<th>Vitamin B6 (mg)</th>
<th>Nicotinic Acid (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-Exp.</td>
<td>278.29 ± 38.6</td>
<td>61.83 ± 7.1</td>
<td>25.97 ± 11.0</td>
<td>43.88 ± 19.4</td>
<td>40.59 ± 4.8</td>
<td>419.4 ± 45.9</td>
<td>127.0 ± 0.5</td>
<td>1.07 ± 0.1</td>
<td>1.43 ± 0.1</td>
<td>14.51 ± 1.9</td>
</tr>
<tr>
<td></td>
<td>Post-Exp.</td>
<td>278.41 ± 38.7</td>
<td>62.64 ± 6.7</td>
<td>29.30 ± 11.2</td>
<td>44.53 ± 19.3</td>
<td>40.56 ± 3.8</td>
<td>418.10 ± 45.3</td>
<td>127.10 ± 0.3</td>
<td>1.05 ± 0.2</td>
<td>1.44 ± 0.3</td>
<td>14.56 ± 2.1</td>
</tr>
</tbody>
</table>

Table 5.5.4 – Energy intake of Sedentary Control Boys (Group-CB) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Energy (K_Cal)</th>
<th>Energy (K_Cal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>1,813.24 ± 354.1</td>
<td>---------</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>1,815.68 ± 342.2</td>
<td>---------</td>
</tr>
<tr>
<td>RDA</td>
<td>---------</td>
<td>2750</td>
</tr>
</tbody>
</table>

Table 5.5.5 – Cardiovascular Parameters of Sedentary Control Boys (Group-CB) Pre- and Post-Experiment (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Heart Rate (Beats/Min)</th>
<th>Systolic Blood Press (mmHg)</th>
<th>Diastolic Blood Press (mmHg)</th>
<th>PFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>80.40 ± 9.8</td>
<td>114.37 ± 11.3</td>
<td>76.70 ± 6.8</td>
<td>52.60 ± 3.6</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>82.41 ± 8.7</td>
<td>116.48 ± 10.4</td>
<td>78.11 ± 6.7</td>
<td>52.93 ± 2.8</td>
</tr>
</tbody>
</table>
Fig. 5.5.3 – Comparison of Nutrient intake of Sedentary Control Boys (Group-CB) Pre- and Post-Experiment.

Table 5.5.5 – Cardiovascular Parameters of Sedentary Control Boys (Group-CB) Pre- and Post-Experiment.
Optimal nutrition is essential for a perfectly healthy child whose growth and development is guaranteed. This is of paramount importance for the development of a healthy adult having optimal working capacity and normal reproductive performance. Such a person can lead happy life as he is protected from the infections by virtue of his healthy immune system. The consequences of an inadequate diet in a child would result in a subaltern work capacity and stunted growth, lowering of mental faculties and increased risk of mortality and morbidity. Insufficient diet results in two types of metabolic nutritional disorders: protein-energy malnutrition (PEM) and micronutrient disorders (deficiencies). Long term inadequate food consumption cannot meet the daily energy requirements and results in thinness in adults and stunting in children.

When there is a sudden and severe drop in food consumption, acute malnutrition in the form of wasting occurs. These two forms of nutritional deficiencies are called chronic undernutrition. Its causes include unavailability of sufficient food or access to food, inadequate care of mothers and children and recurrent infections. The prevalence of micronutrient malnutrition is more severe than the PEM. Pregnant and lactating women and young children under 5 years of age are most vulnerable sections of society having the risk of iron deficiency.
In children, even mild form of anaemia can affect intellectual development, limiting the physical, recreational and exploratory activities. However, iron deficiency is easy to correct by a combination of iron supplementation, iron fortification and dietary improvement.

In case of the control sedentary girls group taking part in the experiment the various anthropometric variables are tabulated in Table 5.6.1 below. From the table it can be assumed that the control sedentary girls group had normal body weight and were not underweight. Another point of importance is that the girls of this group have more amount of fat mass as compared to those of boys and also of other groups. The BMI values of the control sedentary girls group are in the normal range and they do not seem to suffer from malnutrition or chronic energy deficiency. This is true for both pre- and post-experiment periods.

Table 5.6.2 provides us the haemoglobin values of the control sedentary girls group. It can be deduced from the haemoglobin levels of control sedentary girls group that they are not suffering from anaemia- both in pre and post experimental period. The slight increase in haemoglobin values in case of post exercising girls in the control sedentary group may be attributed to the increase in RBC which occurs normally in case of regular physical activity.

The nutrient intake and energy consumption of this group of girls were less compared to RDA (Table 5.6.3/ Table 5.6.4). Though their cardiovascular parameters were normal their PFI was very poor (Table 5.6.5).
Table 5.6.1 – Body composition of Control Sedentary Girls (Group-CG) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Weight (Kg)</th>
<th>BSA (sq.m.)</th>
<th>BMI</th>
<th>%Fat</th>
<th>LBM (Kg*)</th>
<th>FM (Kg)</th>
<th>FFM (Kg*)</th>
<th>FMI</th>
<th>FFMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>43.54 ± 7.4</td>
<td>1.34 ± 1.3</td>
<td>19.41 ± 4.9</td>
<td>18.97 ± 4.5</td>
<td>34.94 ± 5.0</td>
<td>8.60 ± 2.7</td>
<td>34.94 ± 5.1</td>
<td>3.82 ± 0.3</td>
<td>15.60 ± 2.1</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>43.67 ± 7.3</td>
<td>1.35 ± 1.2</td>
<td>19.47 ± 5.0</td>
<td>19.00 ± 4.6</td>
<td>35.04 ± 4.9</td>
<td>8.64 ± 2.1</td>
<td>35.04 ± 4.9</td>
<td>3.83 ± 0.2</td>
<td>15.64 ± 2.6</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

Table 5.6.2 – Haemoglobin Levels of Control Sedentary Girls (Group-CG) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Haemoglobin (gm%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>11.80 ± 3.1</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>11.95 ± 2.7</td>
</tr>
</tbody>
</table>
Fig. 5.6.1 – Comparison of Body composition of Control Sedentary Girls (Group-CG) Pre- and Post-Experiment.

Fig. 5.6.2 – Comparison of Haemoglobin Levels of Control Sedentary Girls (Group-CG) Pre- and Post-Experiment.
### Table 5.6.3 – Nutrient intake of Control Sedentary Girls (Group-CG) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Carbohydrate (gm)</th>
<th>Total Protein (gm)</th>
<th>Total Fat (gm)</th>
<th>Vitamin C (mg)</th>
<th>Iron (mg)</th>
<th>Ca (mg)</th>
<th>Vitamin A (mg)</th>
<th>Vitamin B1 (mg)</th>
<th>Vitamin B6 (mg)</th>
<th>Nicotinic Acid (mg)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stages</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-Exp.</td>
<td>268.96 ± 37.3</td>
<td>62.08 ± 8.3</td>
<td>22.37 ± 8.9</td>
<td>37.08 ± 20.2</td>
<td>27.01 ± 6.8</td>
<td>474.20 ± 37.8</td>
<td>132.12 ± 0.7</td>
<td>1.01 ± 0.3</td>
<td>1.69 ± 0.1</td>
<td></td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>268.93 ± 36.5</td>
<td>62.17 ± 6.6</td>
<td>22.62 ± 6.5</td>
<td>37.56 ± 18.4</td>
<td>27.17 ± 5.9</td>
<td>473.51 ± 39.8</td>
<td>132.14 ± 0.5</td>
<td>1.01 ± 0.0</td>
<td>1.64 ± 0.1</td>
<td></td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

### Table 5.6.4 – Energy intake of Control Sedentary Girls (Group-CG) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Energy (K_Cal)</th>
<th>Energy (K_Cal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>1,729.15 ± 236.2</td>
<td>--------</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>1,733.33 ± 212.1</td>
<td>--------</td>
</tr>
<tr>
<td>RDA</td>
<td>--------</td>
<td>2330</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

### Table 5.6.5 – Cardiovascular Parameters of Control Sedentary Girls (Group-SG) Pre- and Post-Experiment. (Mean ± SD)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Heart Rate (beats/min)</th>
<th>Systolic Blood Pressure (mmHg)</th>
<th>Diastolic Blood Pressure (mmHg)</th>
<th>PFI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Exp.</td>
<td>93.01 ± 13.9</td>
<td>113.88 ± 10.9</td>
<td>75.27 ± 8.9</td>
<td>50.99 ± 4.5</td>
</tr>
<tr>
<td>Post-Exp.</td>
<td>93.05 ± 13.8</td>
<td>113.27 ± 10.1</td>
<td>74.69 ± 9.2</td>
<td>51.73 ± 4.2</td>
</tr>
</tbody>
</table>
Fig. 5.6.3 – Comparison of Nutrient intake of Control Sedentary Girls (Group-CG) Pre- and Post-Experiment.

Fig. 5.6.4 – Comparison of Energy intake of Control Sedentary Girls (Group-CG) Pre- and Post-Experiment.

Fig. 5.6.5 – Comparison of Cardiovascular Parameters of Control Sedentary Girls (Group-SG) Pre- and Post-Experiment.
Section VII - Comparison of Percentage Changes in Boys

Table 5.7.1 - Comparison of Percentage Changes in Body Composition due to Exercise in Boys

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
<th>BSA</th>
<th>BMI</th>
<th>%Fat</th>
<th>LBM</th>
<th>FM</th>
<th>FFM</th>
<th>FMI</th>
<th>FFMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary</td>
<td>-0.37</td>
<td>0.00</td>
<td>0.26</td>
<td>0.09</td>
<td>0.28</td>
<td>-0.97</td>
<td>0.29</td>
<td>0.00</td>
<td>0.29</td>
</tr>
<tr>
<td>Boys</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sedentary Experimental</td>
<td>2.78*</td>
<td>1.44</td>
<td>2.87*</td>
<td>2.80</td>
<td>1.70*</td>
<td>5.54*</td>
<td>2.43</td>
<td>5.73*</td>
<td>1.77</td>
</tr>
<tr>
<td>Boys*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boys of Scouts</td>
<td>0.12</td>
<td>0.71</td>
<td>4.82*</td>
<td>-5.02</td>
<td>0.20</td>
<td>-4.71</td>
<td>0.64</td>
<td>-4.88</td>
<td>0.26</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

Food insecurity, homelessness, lack of safe drinking water and polluted air are becoming the hallmarks of the environment of third world countries of Asia, Latin America and Africa. There is widespread malnutrition, impairment of physical and intellectual development, diminished working capacity and sub-optimal health of the residents of these continents. There seems to be a clear relationship of the undesirable factors listed above with the lowered health status of these populations. Anthropometry is emerging as an important indicator to evaluate the physical status of individuals and populations which in turn highlights the nutritional status of the populations and the history of their economic development.

Table 5.7.1 above provides us the percentage change that occurred in body composition in the boys that took part in the experiment. Data from the above table shows that though changes did occur in all class of the boys, but the highest percentage of change was noticed in the sedentary experimental group where...
almost all the parameters show an upward percentage shift value wise. A point of interest is that fat mass levels in scouts show a significant decline which clearly points to the benefits of rigorous exercise that these groups underwent.

Table 5.7.2 - Comparison of Percentage Changes in Hemoglobin due to Exercise in Boys

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage Changes in Haemoglobin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Boys</td>
<td>0.38</td>
</tr>
<tr>
<td>Sedentary Experimental Boys</td>
<td>2.31</td>
</tr>
<tr>
<td>Boys of Scouts</td>
<td>0.51*</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

A similar trend as in case of anthropometric variables is noticed in the percentage changes occurring in the haemoglobin levels of the participants of the study as given in Table 5.7.2 above. Here also the Sedentary Experimental Boys group show the maximum percentage change that occurred due to exercise. The same were not noticed in the scouts/guides because they were already into the scout movement and so they had a small rise. As the control group were not exercising so they showed the smallest level of change.
### Table 5.7.3 - Comparison of Percentage Changes in Nutritional Intake due to Exercise in Boys

<table>
<thead>
<tr>
<th>Category</th>
<th>Carbohydrate</th>
<th>Total Protein</th>
<th>Total Fat</th>
<th>Vitamin C</th>
<th>Iron</th>
<th>Calcium</th>
<th>Vitamin A</th>
<th>Vitamin B1</th>
<th>Vitamin B6</th>
<th>Nicotinic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Boys</td>
<td>0.04</td>
<td>1.31</td>
<td>12.82</td>
<td>1.48</td>
<td>-0.07</td>
<td>0.07</td>
<td>-1.87</td>
<td>0.70</td>
<td>0.70</td>
<td>0.34</td>
</tr>
<tr>
<td>Sedentary Experimental Boys*</td>
<td>24.25</td>
<td>11.42</td>
<td>6.03</td>
<td>7.34</td>
<td>4.83</td>
<td>5.43</td>
<td>3.48</td>
<td>10.53</td>
<td>0.56</td>
<td>5.87</td>
</tr>
<tr>
<td>Boys of Scouts</td>
<td>7.07</td>
<td>10.13</td>
<td>1.27</td>
<td>2.36</td>
<td>0.64</td>
<td>0.99</td>
<td>2.84</td>
<td>0.66</td>
<td>0.86</td>
<td>0.30</td>
</tr>
</tbody>
</table>

* = significant (p<0.05)

Acute malnutrition occurs also in emergency situations such as drought, warfare and mass migration of populations. The newspapers are full of poverty, squalor and malnutrition in areas under drought, in countries engaged in armed conflicts and situations of mass migration of populations as has happened during 1947 when millions of people lost their homes and had to start afresh. Over nutrition occurs in many situations of new found richness, in fast growing economies, as a result of acculturation, green revolution, etc.

Expanding technology and modernization brings with it new values, new foods, new directions, social freedom and thrilling ways of enjoying life, which naturally had to
take its toll in the form of over nutrition and obesity in its initial phases. While acute undernutrition brings with it lower levels of health and susceptibility to infections, over nutrition and obesity are generally inviting non-insulin dependent diabetes mellitus, hypertension and cardiovascular disease.

The same trend continues when the percentage changes in nutrient intake was tabulated in Table 5.7.3. Here also, the sedentary experimental boys group shows maximum percentage changes across all components of nutrient intake. This clearly is due to the effect of exercise which directly helps in increasing the body’s demand for nutrient and thus increases hunger and food intake causing a concurrent rise in nutrient intake post-exercise. An interesting point to note is that, as in case of other variables (body composition, etc.); there was no percentage change in nutrient intake in Scouts. The obvious reason for this is that, probably, since, they were already into the scout movement and so they had a small rise.
Fig. 5.7.1 - Comparison of Percentage Changes in Body Composition due to Exercise in Boys

Fig. 5.7.2 - Comparison of Percentage Changes in Hemoglobin due to Exercise in Boys

Fig. 5.7.3 - Comparison of Percentage Changes in Nutritional Intake due to Exercise in Boys
**Table 5.7.4 - Comparison of Percentage Changes in Energy Intake due to Exercise in Boys**

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage Changes in Energy Intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Boys</td>
<td>0.13</td>
</tr>
<tr>
<td>Sedentary Experimental Boys*</td>
<td>8.02</td>
</tr>
<tr>
<td>Boys of Scouts</td>
<td>4.37</td>
</tr>
</tbody>
</table>

* = significant (p<0.05)

Data in Table 5.7.4 also shows the same trend, when the energy intake is being compared among the boys of all groups. Thus, only in case of Sedentary Experimental Boys show the maximum amount of increase in energy intake. This is in concurrence with their nutrient intake which also has shown a significant rise.

**Table 5.7.5 - Comparison of Percentage Changes in Cardiovascular Parameters & Physical Efficiency due to Exercise in Boys**

<table>
<thead>
<tr>
<th>Category</th>
<th>Heart Rate</th>
<th>Systolic Blood Pressure</th>
<th>Diastolic Blood Pressure</th>
<th>Physical Fitness Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Boys</td>
<td>0.93</td>
<td>1.36</td>
<td>1.31</td>
<td>0.69</td>
</tr>
<tr>
<td>Sedentary Experimental Boys</td>
<td>-1.16</td>
<td>-1.16</td>
<td>-0.81</td>
<td>2.73*</td>
</tr>
<tr>
<td>Boys of Scouts</td>
<td>-0.11</td>
<td>0.25</td>
<td>0.21</td>
<td>3.04</td>
</tr>
</tbody>
</table>

* = significant (p<0.05)

The human body evolved to be physically active. In other words, our bodies require physical activity to remain healthy. Throughout history, survival of the human species depended on hunting or gathering our food supplies, pursuits that demanded prolonged and often strenuous physical activity. The advent of mechanization and modern technology in the last few decades has resulted in the human race becoming less physically active than ever before – and we are paying for it with our health.
Data in Table 5.7.5 provides the most conclusive proof that, regular physical exercise helps tone up the cardiovascular system. Thus, in case of Sedentary Experimental Boys, there is a maximum percentage increase in PFI. The same also occurs in case of Scouts, but to a lesser extent, since, they are already exercising, as part of the Scout Movement, before the start of the experiment. Control Sedentary Boys show negligible percentage change in various cardiovascular parameters like, resting heart rate, blood pressure, because, they did not exercise at all. Due to this reason, their PFI values were also almost unchanged.
Fig. 5.7.4 - Comparison of Percentage Changes in Energy Intake due to Exercise in Boys

Fig. 5.7.5 - Comparison of Percentage Changes in Cardiovascular Parameters & Physical Efficiency due to Exercise in Boys
Section VIII - Comparison of Percentage Changes in Girls

Table 5.8.1 - Comparison of Percentage Changes in Body Composition due to Exercise in Girls

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
<th>BSA</th>
<th>BMI</th>
<th>%Fat</th>
<th>LBM</th>
<th>FM</th>
<th>FFM</th>
<th>FMI</th>
<th>FFMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Girls</td>
<td>0.30</td>
<td>0.75</td>
<td>0.31</td>
<td>0.16</td>
<td>0.29</td>
<td>0.47</td>
<td>0.29</td>
<td>0.26</td>
<td>0.26</td>
</tr>
<tr>
<td>Sedentary Experimental Girls*</td>
<td>2.17</td>
<td>0.75</td>
<td>2.31</td>
<td>-6.91*</td>
<td>4.96*</td>
<td>-6.76*</td>
<td>3.81*</td>
<td>-6.57*</td>
<td>5.09</td>
</tr>
<tr>
<td>Girls of Guides</td>
<td>0.30</td>
<td>0.00</td>
<td>0.79</td>
<td>-0.65</td>
<td>0.38</td>
<td>-0.36</td>
<td>0.38</td>
<td>-0.40</td>
<td>0.39</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

Table 5.8.1 above provides us the percentage change that occurred in body composition in the girls that took part in the experiment. Data from the above table shows that though changes did occur in all class of the girls, but the highest percentage of change was noticed in the sedentary experimental group. Here the effect of exercise is more apparent on girls as most of the parameters relating to body fat shows a downward percentage change.

Table 5.8.2 - Comparison of Percentage Changes of Hemoglobin due to Exercise in Girls

<table>
<thead>
<tr>
<th>Category</th>
<th>Haemoglobin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Girls</td>
<td>1.27</td>
</tr>
<tr>
<td>Sedentary Experimental Girls</td>
<td>0.74</td>
</tr>
<tr>
<td>Girls of Guides</td>
<td>0.37</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)
Poor nutrition starts before birth, and generally continues into adolescence and adult life and can span generations. Chronically malnourished girls are more likely to remain undernourished during adolescence and adulthood, and when pregnant, are more likely to deliver low birth-weight babies. Epidemiological evidence from both developing and industrialized countries now suggests a link between foetal under-nutrition and increased risk of various adult chronic diseases (ACC/SCN, 2000). Nutrition challenges continue throughout the life cycle, particularly for girls and women. A similar trend as in case of anthropometric variables is noticed in the percentage changes occurring in the haemoglobin levels of the participants of the study as given in Table 5.8.2 above. Here also the Sedentary Experimental Girls group show the maximum percentage change that occurred due to exercise. The same level of increase was not noticed in the guides because they were already into the scout movement and so they had a small rise. As the control group were not exercising so they showed the smallest level of change, and that too on the negative side.
Table 5.8.3 - Comparison of Percentage Changes in Nutrient Intake due to Exercise in Girls

<table>
<thead>
<tr>
<th>Category</th>
<th>Carbohydrate</th>
<th>Total Protein</th>
<th>Total Fat</th>
<th>Vitamin C</th>
<th>Iron</th>
<th>Ca (mg)</th>
<th>Vitamin A (mg)</th>
<th>Vitamin B1</th>
<th>Vitamin B6</th>
<th>Nicotinic Acid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Girls</td>
<td>0.03</td>
<td>0.14</td>
<td>1.12</td>
<td>1.29</td>
<td>0.53</td>
<td>0.15</td>
<td>0.02</td>
<td>1.00</td>
<td>3.05</td>
<td>1.46</td>
</tr>
<tr>
<td>Sedentary Experimental Girls*</td>
<td>4.31</td>
<td>2.25</td>
<td>1.20</td>
<td>2.17</td>
<td>4.09</td>
<td>6.37</td>
<td>5.08</td>
<td>7.29</td>
<td>3.17</td>
<td>1.46</td>
</tr>
<tr>
<td>Girls of Guides</td>
<td>0.05</td>
<td>2.79</td>
<td>1.40</td>
<td>1.32</td>
<td>2.07</td>
<td>0.72</td>
<td>2.31</td>
<td>3.16</td>
<td>1.54</td>
<td>2.90</td>
</tr>
</tbody>
</table>

* = significant (p<0.05)

Globally, including in India, health hazards associated with undernutrition and micronutrient deficiencies remain major public health problems. In the second half of the previous century, the adverse effects of undernutrition and anaemia on physical performance were extensively investigated in adults. The same trend continues when the percentage changes in nutrient intake was tabulated in Table 5.8.3. Here also, the sedentary experimental girls group shows maximum percentage changes across all components of nutrient intake, especially, in case of protein and vitamin intakes. This clearly is due to the effect of exercise which directly helps in increasing the body’s demand for nutrient and thus increases hunger and food intake causing a concurrent rise in nutrient intake post-exercise. But then the percentage change in the girls group is not as large as in case of boys. This may be due to various
extraneous factors study of which is beyond the scope of this work. An interesting point to note is that, as in case of other variables (body composition, etc.), there was no percentage change in nutrient intake in Guides. The obvious reason for this is that, probably, since, they were already into the scout movement and so they had a small rise.
Fig. 5.8.1 - Comparison of Percentage Changes in Body Composition due to Exercise in Girls

Fig. 5.8.2 - Comparison of Percentage Changes of Hemoglobin due to Exercise in Girls

Fig. 5.8.3 - Comparison of Percentage Changes of Nutrient Intake due to Exercise in Girls
Table 5.8.4 - Comparison of Percentage Changes of Energy Intake due to Exercise in Girls

<table>
<thead>
<tr>
<th>Category</th>
<th>Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Girls</td>
<td>0.24</td>
</tr>
<tr>
<td>Sedentary Experimental Girls*</td>
<td>11.59</td>
</tr>
<tr>
<td>Girls of Guides</td>
<td>0.80</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

Data in Table 5.8.4 also shows the same trend, when the energy intake is being compared among the girls of all groups. Thus, only in case of Sedentary Experimental Girls show the enormous amount of increase in energy intake. This is in concurrence with their nutrient intake which also has shown a significant rise.

Table 5.8.5 - Comparison of Percentage Changes in Cardiovascular Parameters & Physical Efficiency due to Exercise in Girls

<table>
<thead>
<tr>
<th>Category</th>
<th>Heart Rate</th>
<th>Systolic Blood Pressure</th>
<th>Diastolic Blood Pressure</th>
<th>Physical Fitness Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Sedentary Girls</td>
<td>-1.45</td>
<td>-0.73</td>
<td>-0.93</td>
<td>1.45</td>
</tr>
<tr>
<td>Sedentary Experimental Girls*</td>
<td>0.06</td>
<td>0.42</td>
<td>0.57</td>
<td>31.29*</td>
</tr>
<tr>
<td>Girls of Guides</td>
<td>-0.34</td>
<td>0.85</td>
<td>0.47</td>
<td>1.33</td>
</tr>
</tbody>
</table>

*= significant (p<0.05)

Physical inactivity is widely recognized as a major risk factor for chronic diseases. Physical inactivity during the early years of life is currently indicated as a major contributor to the increasing levels of obesity, and other serious medical conditions, being seen in children and adolescents. The nature of children's recreational pursuits has changed dramatically over the last few decades. Whereas children used to
spend much of their recreational time engaged in active outdoor play, the emergence of television, computer games and the internet has meant that children are now spending much more of their free time engaged in sedentary pursuits. The importance of physical activity for the physical, mental and social health of youth is undisputed, and therefore it is critically important that efforts are made throughout the world to “reintroduce” physical activity into our youth. Data in Table 5.8.5 provides the most conclusive proof that, regular physical exercise helps tone up the cardiovascular system. Thus, in case of Sedentary Experimental Girls, there is a maximum percentage increase in PFI. The same also occurs in case of Guides, but to a lesser extent, since, they were already exercising, as part of the Guide Movement, before the start of the experiment. Control Sedentary Girls show negligible percentage change in various cardiovascular parameters like, resting heart rate, blood pressure, because, they did not exercise at all. Due to this reason, their PFI values increase was also negligible.
Fig. 5.8.4 - Comparison of Percentage Changes of Energy Intake due to Exercise in Girls

Fig. 5.8.5 - Comparison of Percentage Changes in Cardiovascular Parameters & Physical Efficiency due to Exercise in Girls
Section IX – Correlation and Linear Regression Equations

Table 5.9.1 - Correlation coefficient matrix between various anthropometric variables

<table>
<thead>
<tr>
<th>Category</th>
<th>BSA with PFI</th>
<th>BSA with FM</th>
<th>BSA with LBM</th>
<th>BSA with BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy Scouts (EB)</td>
<td>0.209</td>
<td>0.749(*)</td>
<td>0.942(*)</td>
<td>0.96(*)</td>
</tr>
<tr>
<td>Girl Guides (EG)</td>
<td>0.206</td>
<td>0.833(*)</td>
<td>0.95(*)</td>
<td>0.927(*)</td>
</tr>
<tr>
<td>Sedentary Experimental Boys (SB)</td>
<td>0.31</td>
<td>0.508</td>
<td>0.925(*)</td>
<td>0.446</td>
</tr>
<tr>
<td>Sedentary Experimental Girls (SG)</td>
<td>0.41</td>
<td>0.484</td>
<td>0.735(*)</td>
<td>0.595</td>
</tr>
<tr>
<td>Control Sedentary Boys (CB)</td>
<td>0.106</td>
<td>0.9(*)</td>
<td>0.896(*)</td>
<td>0.726(*)</td>
</tr>
<tr>
<td>Control Sedentary Girls (CG)</td>
<td>0.167</td>
<td>0.885(*)</td>
<td>0.93(*)</td>
<td>0.807(*)</td>
</tr>
</tbody>
</table>

(*) = Strong Correlation

Thus from the above Table 5.9.1 correlation matrix it can be suggested that in case of boys, there exists strong positive correlation between BSA and LBM. To some extent there also is strong correlation between BSA and FM as well as BMI in almost all groups. This is also in tune with other research studies conducted earlier.

Table 5.9.2 - Correlation coefficient matrix between $HR_{rest}$ and other variables

<table>
<thead>
<tr>
<th>Category</th>
<th>$HR_{rest}$ and SBP</th>
<th>$HR_{rest}$ and DBP</th>
<th>$HR_{rest}$ and BSA</th>
<th>$HR_{rest}$ and BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy Scouts (EB)</td>
<td>0.139</td>
<td>0.213</td>
<td>0.245</td>
<td>0.111</td>
</tr>
<tr>
<td>Girl Guides (EG)</td>
<td>0.08</td>
<td>0.166</td>
<td>0.043</td>
<td>0.125</td>
</tr>
<tr>
<td>Sedentary Experimental Boys (SB)</td>
<td>0.05</td>
<td>0.184</td>
<td>0.404</td>
<td>0.404</td>
</tr>
<tr>
<td>Sedentary Experimental Girls (SG)</td>
<td>0.04</td>
<td>0.173</td>
<td>0.58</td>
<td>0.461</td>
</tr>
<tr>
<td>Control Sedentary Boys (CB)</td>
<td>0.393</td>
<td>0.562</td>
<td>0.09</td>
<td>0.015</td>
</tr>
<tr>
<td>Control Sedentary Girls (CG)</td>
<td>0.312</td>
<td>0.542</td>
<td>0.174</td>
<td>0.176</td>
</tr>
</tbody>
</table>
But then again there seems to be very little correlation between HR rest and other variables such as SBP, DBP, BSA and BMI as is seen from the correlation matrix in Table 5.9.2.

Table 5.9.3 - Correlation coefficient matrix between energy consumption and other variables

<table>
<thead>
<tr>
<th>Category</th>
<th>Energy intake and PFI</th>
<th>Energy intake and Hb</th>
<th>Energy intake and Weight</th>
<th>Energy intake and BMI</th>
<th>Energy intake and FM</th>
<th>Energy intake and LBM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy Scouts (EB)</td>
<td>0.013</td>
<td>0.38</td>
<td>0.75(*)</td>
<td>0.142</td>
<td>0.114</td>
<td>0.145</td>
</tr>
<tr>
<td>Girl Guides (EG)</td>
<td>0.017</td>
<td>0.39</td>
<td>0.86(*)</td>
<td>0.125</td>
<td>0.266</td>
<td>0.108</td>
</tr>
<tr>
<td>Sedentary Experimental Boys (SB)</td>
<td>0.061</td>
<td>0.081</td>
<td>0.78(*)</td>
<td>0.435</td>
<td>0.355</td>
<td>0.728(*)</td>
</tr>
<tr>
<td>Sedentary Experimental Girls (SG)</td>
<td>0.098</td>
<td>0.092</td>
<td>0.73(*)</td>
<td>0.517</td>
<td>0.558</td>
<td>0.718(*)</td>
</tr>
<tr>
<td>Control Sedentary Boys (CB)</td>
<td>0.025</td>
<td>0.387</td>
<td>0.652</td>
<td>0.658</td>
<td>0.429</td>
<td>0.787(*)</td>
</tr>
<tr>
<td>Control Sedentary Girls (CG)</td>
<td>0.095</td>
<td>0.244</td>
<td>0.672</td>
<td>0.659</td>
<td>0.751(*)</td>
<td>0.52</td>
</tr>
</tbody>
</table>

(*) = Strong Correlation

Table 5.9.3 below provides the correlation matrix between energy consumption and other variables. Among the variables in case of Sedentary Experimental Girls (SG) there seems to be a strong correlation between energy consumption and body weight, BMI and LBM and a weak correlation between FM and energy consumption. This may be due to the sedentary habit of girls along with their different body fat distribution as well as metabolic rate. In case of Control Sedentary Boys (CB) there
seems to be a strong correlation between energy consumption and Hb levels as well as LBM while there is a weak correlation between energy consumption and weight, BMI and FM. In Control Sedentary Girls (CG) a strong correlation exists between energy consumption and FM while a weak correlation exists between energy consumption and body weight, BMI and LBM.

**Table 5.9.4 - Correlation coefficient matrix between Hb and other variables**

<table>
<thead>
<tr>
<th>Category</th>
<th>Hb and PFI</th>
<th>Hb and Weight</th>
<th>Hb and BMI</th>
<th>Hb and SBP</th>
<th>Hb and DBP</th>
<th>Hb and HR rest</th>
<th>Hb and Energy intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy Scouts (EB)</td>
<td>0.151</td>
<td>0.238</td>
<td>0.345</td>
<td>0.088</td>
<td>0.148</td>
<td>0.227</td>
<td>0.338</td>
</tr>
<tr>
<td>Girl Guides (EG)</td>
<td>0.06</td>
<td>0.263</td>
<td>0.361</td>
<td>0.093</td>
<td>0.155</td>
<td>0.296</td>
<td>0.239</td>
</tr>
<tr>
<td>Sedentary Experimental Boys (SB)</td>
<td>0.122</td>
<td>0.126</td>
<td>0.126</td>
<td>0.36</td>
<td>0.085</td>
<td>0.242</td>
<td>0.081</td>
</tr>
<tr>
<td>Sedentary Experimental Girls (SG)</td>
<td>0.207</td>
<td>0.158</td>
<td>0.197</td>
<td>0.325</td>
<td>0.141</td>
<td>0.137</td>
<td>0.092</td>
</tr>
<tr>
<td>Control Sedentary Boys (CB)</td>
<td>0.301</td>
<td>0.453</td>
<td>0.575</td>
<td>0.33</td>
<td>0.33</td>
<td>0.384</td>
<td>0.278</td>
</tr>
<tr>
<td>Control Sedentary Girls (CG)</td>
<td>0.285</td>
<td>0.021</td>
<td>0.434</td>
<td>0.215</td>
<td>0.18</td>
<td>0.195</td>
<td>0.244</td>
</tr>
</tbody>
</table>
Table 5.9.5 - Correlation coefficient matrix between PFI and other variables

<table>
<thead>
<tr>
<th>Category</th>
<th>PFI and BMI</th>
<th>PFI and Hb</th>
<th>PFI and LBM</th>
<th>PFI and $HR_{rest}$</th>
<th>PFI and Energy intake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boy Scouts (EB)</td>
<td>0.087</td>
<td>0.051</td>
<td>0.134</td>
<td>0.352</td>
<td>0.513</td>
</tr>
<tr>
<td>Girl Guides (EG)</td>
<td>0.147</td>
<td>0.06</td>
<td>0.142</td>
<td>0.413</td>
<td>0.417</td>
</tr>
<tr>
<td>Sedentary Experimental Boys (SB)</td>
<td>0.062</td>
<td>0.662</td>
<td>0.723(*)</td>
<td>0.78(*)</td>
<td>0.884(*)</td>
</tr>
<tr>
<td>Sedentary Experimental Girls (SG)</td>
<td>0.029</td>
<td>0.552</td>
<td>0.62</td>
<td>0.531</td>
<td>0.593</td>
</tr>
<tr>
<td>Control Sedentary Boys (CB)</td>
<td>0.123</td>
<td>0.098</td>
<td>0.017</td>
<td>0.687</td>
<td>0.217</td>
</tr>
<tr>
<td>Control Sedentary Girls (CG)</td>
<td>0.166</td>
<td>0.048</td>
<td>0.084</td>
<td>0.349</td>
<td>0.225</td>
</tr>
</tbody>
</table>

(*) = Strong Correlation

As per the correlation matrix in Table 5.9.5, there seems to be a strong correlation between Physical Fitness Index and other variables, such as, Haemoglobin, LBM, $HR_{rest}$, Energy Intake only in Sedentary Experimental Boys and Girls (Group SB & SG). The other groups namely Control Boys & Girls (Groups CB & CG) and Exercising group of Scouts & Guides (Group EB & EG) showed no such correlation. This may be because the control groups did not exercise at all, while the exercising groups were already attuned to the exercise protocol of Scouts & Guides. On the other hand, the Sedentary Experimental groups (Group SB & SG), who were not exercising earlier, had started to undergo a regular bout of exercise.

With the help of the correlation, the following linear regression equations were developed for all the groups.
A – Linear Regression Equations of Body Surface Area (BSA) with different parameters are tabulated below.

<table>
<thead>
<tr>
<th>Table 5.9.6 – Linear Regression Equation of BSA with other variable in Control Sedentary Boys (Groups CB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA – 0.474 + 0.032 BMI</td>
</tr>
<tr>
<td>SE (0.153) (0.008)</td>
</tr>
<tr>
<td>BSA – 0.1667 -0.003 PFI</td>
</tr>
<tr>
<td>SE (0.159) (0.006)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 5.9.7 – Linear Regression Equation of BSA with other variable in Control Sedentary Girls (Group CG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA – 1.401 - 0.002 PFI</td>
</tr>
<tr>
<td>SE (0.069) (0.002)</td>
</tr>
<tr>
<td>BSA – 0.75 + 0.031 BMI</td>
</tr>
<tr>
<td>SE (0.09) (0.005)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 5.9.8 – Linear Regression Equation of BSA with other variable in Sedentary Experimental Boys (Group EB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA – 1.727 - 0.004 PFI</td>
</tr>
<tr>
<td>SE (0.163) (0.002)</td>
</tr>
<tr>
<td>BSA – 1.604 -0.011 BMI</td>
</tr>
<tr>
<td>SE (0.219) (0.013)</td>
</tr>
</tbody>
</table>
Table 5.9.9 – Linear Regression Equation of BSA with other variable in Sedentary Experimental Girls (Group EG)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA – PFI</td>
<td>1.218</td>
<td>(0.041)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.003</td>
<td>(0.001)</td>
</tr>
<tr>
<td>BSA – BMI</td>
<td>1.011</td>
<td>(0.68)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.017</td>
<td>(0.004)</td>
</tr>
<tr>
<td>BSA – LBM</td>
<td>1.055</td>
<td>(0.039)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.009</td>
<td>(0.001)</td>
</tr>
<tr>
<td>BSA – FM</td>
<td>1.387</td>
<td>(0.025)</td>
</tr>
<tr>
<td>SE</td>
<td>-0.006</td>
<td>(0.003)</td>
</tr>
</tbody>
</table>

Table 5.9.10 – Linear Regression Equation of BSA with other variable in Exercising Boys of Scouts (Group SB)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA – PFI</td>
<td>1.575</td>
<td>(0.136)</td>
</tr>
<tr>
<td>SE</td>
<td>-0.002</td>
<td>(0.002)</td>
</tr>
<tr>
<td>BSA – BMI</td>
<td>1.184</td>
<td>(0.259)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.014</td>
<td>(0.015)</td>
</tr>
<tr>
<td>BSA – LBM</td>
<td>0.491</td>
<td>(0.06)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.023</td>
<td>(0.001)</td>
</tr>
<tr>
<td>BSA – FM</td>
<td>0.897</td>
<td>(0.084)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.154</td>
<td>(0.025)</td>
</tr>
</tbody>
</table>

Table 5.9.11 – Linear Regression Equation of BSA with other variable in Exercising Girls of Guides (Group SG)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSA – PFI</td>
<td>1.299</td>
<td>(0.151)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.001</td>
<td>(0.002)</td>
</tr>
<tr>
<td>BSA – BMI</td>
<td>0.656</td>
<td>(0.053)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.02</td>
<td>(0.002)</td>
</tr>
<tr>
<td>BSA – LBM</td>
<td>0.641</td>
<td>(0.044)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.019</td>
<td>(0.001)</td>
</tr>
<tr>
<td>BSA – FM</td>
<td>0.931</td>
<td>(0.052)</td>
</tr>
<tr>
<td>SE</td>
<td>+0.066</td>
<td>(0.009)</td>
</tr>
</tbody>
</table>
Linear Regression Equations of Energy Intake (EI) different parameters are tabulated below.

### Table 5.9.12 – Linear Regression Equation of Energy Intake with other variable in Control Sedentary Boys (Group CB)

<table>
<thead>
<tr>
<th>EI –</th>
<th>1.593 - 0.003</th>
<th>PFI</th>
<th>EI –</th>
<th>- 4.291</th>
<th>+0.448</th>
<th>Hb</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(0.607)</td>
<td>(0.002)</td>
<td>SE</td>
<td>(0.914)</td>
<td>(0.07)</td>
<td></td>
</tr>
<tr>
<td>EI –</td>
<td>0.612</td>
<td>+0.04</td>
<td>Weight</td>
<td>EI –</td>
<td>0.917</td>
<td>+0.128</td>
</tr>
<tr>
<td>SE</td>
<td>(0.501)</td>
<td>(0.009)</td>
<td>SE</td>
<td>(0.526)</td>
<td>(0.29)</td>
<td></td>
</tr>
<tr>
<td>EI –</td>
<td>1.171</td>
<td>+0.054</td>
<td>FM</td>
<td>EI –</td>
<td>-2.496</td>
<td>+0.086</td>
</tr>
<tr>
<td>SE</td>
<td>(0.172)</td>
<td>(0.023)</td>
<td>SE</td>
<td>(0.633)</td>
<td>(0.014)</td>
<td></td>
</tr>
</tbody>
</table>

### Table 5.9.13 – Linear Regression Equation of Energy Intake with other variable in Control Sedentary Girls (Group CG)

<table>
<thead>
<tr>
<th>EI –</th>
<th>1.618 - 0.009</th>
<th>PFI</th>
<th>EI –</th>
<th>2.779</th>
<th>-0.113</th>
<th>Hb</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(0.295)</td>
<td>(0.009)</td>
<td>SE</td>
<td>(1.168)</td>
<td>(0.092)</td>
<td></td>
</tr>
<tr>
<td>EI –</td>
<td>0.607</td>
<td>+0.045</td>
<td>Weight</td>
<td>EI –</td>
<td>-0.744</td>
<td>+0.107</td>
</tr>
<tr>
<td>SE</td>
<td>(0.445)</td>
<td>(0.025)</td>
<td>SE</td>
<td>(0.492)</td>
<td>(0.01)</td>
<td></td>
</tr>
<tr>
<td>EI –</td>
<td>0.505</td>
<td>+0.097</td>
<td>FM</td>
<td>EI –</td>
<td>-0.85</td>
<td>+0.063</td>
</tr>
<tr>
<td>SE</td>
<td>(0.164)</td>
<td>(0.017)</td>
<td>SE</td>
<td>(0.742)</td>
<td>(0.021)</td>
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</tr>
</tbody>
</table>

### Table 5.9.14 – Linear Regression Equation of Energy Intake with other variable in Sedentary Experimental Boys (Group EB)

<table>
<thead>
<tr>
<th>EI –</th>
<th>2.576 - 0.003</th>
<th>PFI</th>
<th>EI –</th>
<th>1.564</th>
<th>+0.056</th>
<th>Hb</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(0.638)</td>
<td>(0.008)</td>
<td>SE</td>
<td>(1.589)</td>
<td>(0.115)</td>
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</tr>
<tr>
<td>EI –</td>
<td>2.035</td>
<td>+0.007</td>
<td>Weight</td>
<td>EI –</td>
<td>1.186</td>
<td>+0.067</td>
</tr>
<tr>
<td>SE</td>
<td>(0.662)</td>
<td>(0.015)</td>
<td>SE</td>
<td>(0.801)</td>
<td>(0.46)</td>
<td></td>
</tr>
<tr>
<td>EI –</td>
<td>1.623</td>
<td>+0.188</td>
<td>FM</td>
<td>EI –</td>
<td>2.23</td>
<td>+0.003</td>
</tr>
<tr>
<td>SE</td>
<td>(0.324)</td>
<td>(0.083)</td>
<td>SE</td>
<td>(0.675)</td>
<td>(0.017)</td>
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</tbody>
</table>
Table 5.9.15 – Linear Regression Equation of Energy Intake with other variable in Sedentary Experimental Girls (Group EG)

<table>
<thead>
<tr>
<th>EI –</th>
<th>PFI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.582</td>
<td>0.007</td>
<td>(0.417)</td>
</tr>
<tr>
<td></td>
<td>0.062</td>
<td>(0.01)</td>
</tr>
<tr>
<td>1.341</td>
<td>Weight</td>
<td>(0.36)</td>
</tr>
<tr>
<td>0.316</td>
<td>FM</td>
<td>(0.218)</td>
</tr>
</tbody>
</table>

Table 5.9.16 – Linear Regression Equation of Energy Intake with other variable in Exercising Boys of Scouts (Group SB)

<table>
<thead>
<tr>
<th>EI –</th>
<th>PFI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.209</td>
<td>0.006</td>
<td>(0.37)</td>
</tr>
<tr>
<td></td>
<td>0.003</td>
<td>(0.001)</td>
</tr>
<tr>
<td>2.32</td>
<td>Weight</td>
<td>(0.460)</td>
</tr>
<tr>
<td>2.392</td>
<td>FM</td>
<td>(0.335)</td>
</tr>
</tbody>
</table>

Table 5.9.17 – Linear Regression Equation of Energy Intake with other variable in Exercising Girls of Guides (Group SG)

<table>
<thead>
<tr>
<th>EI –</th>
<th>PFI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.831</td>
<td>0.001</td>
<td>(1.055)</td>
</tr>
<tr>
<td></td>
<td>0.17</td>
<td>(0.016)</td>
</tr>
<tr>
<td>2.061</td>
<td>Weight</td>
<td>(0.94)</td>
</tr>
<tr>
<td>1.907</td>
<td>FM</td>
<td>(0.62)</td>
</tr>
</tbody>
</table>
C – Linear Regression Equations of Haemoglobin (Hb) different parameters are tabulated below.

Table 5.9.18 – Linear Regression Equation of Haemoglobin with other variable in Control Sedentary Boys (Group CB)

<table>
<thead>
<tr>
<th>Hb –</th>
<th>11.386 + 0.06</th>
<th>PFI</th>
<th>Hb –</th>
<th>15.442 - 0.03</th>
<th>HR_{Rest}</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(1.017)</td>
<td>(0.038)</td>
<td>SE</td>
<td>(1.199)</td>
<td>(0.014)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hb –</th>
<th>10.371 +0.049</th>
<th>Weight</th>
<th>Hb –</th>
<th>9.236 +0.196</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(1.035)</td>
<td>(0.019)</td>
<td>SE</td>
<td>(1.073)</td>
<td>(0.056)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hb –</th>
<th>16.643 -0.032</th>
<th>SBP</th>
<th>Hb –</th>
<th>17.882 -0.063</th>
<th>DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(2.109)</td>
<td>(0.018)</td>
<td>SE</td>
<td>(2.239)</td>
<td>(0.029)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hb –</th>
<th>10.872 +1.382</th>
<th>EI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(0.387)</td>
<td>(0.217)</td>
</tr>
</tbody>
</table>

Table 5.9.19 – Linear Regression Equation of Haemoglobin with other variable in Control Sedentary Girls (Group CG)

<table>
<thead>
<tr>
<th>Hb –</th>
<th>11.747 + 0.027</th>
<th>PFI</th>
<th>Hb –</th>
<th>11.28 +0.015</th>
<th>HR_{Rest}</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(0.621)</td>
<td>(0.018)</td>
<td>SE</td>
<td>(1.424)</td>
<td>(0.015)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hb –</th>
<th>12.787 -0.003</th>
<th>Weight</th>
<th>Hb –</th>
<th>13.566 - 0.047</th>
<th>BMI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(1.293)</td>
<td>(0.029)</td>
<td>SE</td>
<td>(1.345)</td>
<td>(0.071)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hb –</th>
<th>10.084 +0.023</th>
<th>SBP</th>
<th>Hb –</th>
<th>15.024 - 0.032</th>
<th>DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(2.391)</td>
<td>(0.021)</td>
<td>SE</td>
<td>(2.644)</td>
<td>(0.035)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hb –</th>
<th>13.354 - 0.524</th>
<th>EI</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(0.608)</td>
<td>(0.426)</td>
</tr>
</tbody>
</table>
Table 5.9.20 – Linear Regression Equation of Haemoglobin with other variable in Sedentary Experimental Boys (Group EB)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>PFI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb</td>
<td>13.112</td>
<td>0.916</td>
<td></td>
<td>0.11</td>
</tr>
<tr>
<td>Hb</td>
<td>13.893</td>
<td>0.182</td>
<td>-0.039</td>
<td>0.051</td>
</tr>
<tr>
<td>Hb</td>
<td>12.46</td>
<td>1.608</td>
<td>+0.012</td>
<td>0.014</td>
</tr>
<tr>
<td>Hb</td>
<td>13.509</td>
<td>0.573</td>
<td>+0.118</td>
<td>0.24</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>HR_{Rest}</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb</td>
<td>14.992</td>
<td>0.813</td>
<td>-0.016</td>
<td>0.01</td>
</tr>
<tr>
<td>Hb</td>
<td>13.893</td>
<td>0.182</td>
<td>-0.039</td>
<td>0.051</td>
</tr>
<tr>
<td>Hb</td>
<td>13.063</td>
<td>1.41</td>
<td>+0.01</td>
<td>0.019</td>
</tr>
</tbody>
</table>

Table 5.9.21 – Linear Regression Equation of Haemoglobin with other variable in Sedentary Experimental Girls (Group EG)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>PFI</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb</td>
<td>10.703</td>
<td>1.047</td>
<td>+0.036</td>
<td>0.025</td>
</tr>
<tr>
<td>Hb</td>
<td>12.317</td>
<td>1.344</td>
<td>-0.002</td>
<td>0.031</td>
</tr>
<tr>
<td>Hb</td>
<td>6.4</td>
<td>2.451</td>
<td>+0.031</td>
<td>0.021</td>
</tr>
<tr>
<td>Hb</td>
<td>11.916</td>
<td>0.506</td>
<td>+0.235</td>
<td>0.367</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>HR_{Rest}</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb</td>
<td>10.931</td>
<td>1.353</td>
<td>+0.014</td>
<td>0.015</td>
</tr>
<tr>
<td>Hb</td>
<td>12.218</td>
<td>1.172</td>
<td>+0.024</td>
<td>0.061</td>
</tr>
<tr>
<td>Hb</td>
<td>9.003</td>
<td>1.877</td>
<td>+0.043</td>
<td>0.025</td>
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</tbody>
</table>
Table 5.9.22 – Linear Regression Equation of Haemoglobin with other variable in Exercising Boys of Scouts (Group SB)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
<th>Value</th>
<th>Coefficient</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb –</td>
<td>14.278</td>
<td>0.794</td>
<td>(0.012)</td>
<td>Hb –</td>
<td>14.768</td>
</tr>
<tr>
<td>PFI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hb –</td>
<td>12.286</td>
<td>0.987</td>
<td>(0.023)</td>
<td>Hb –</td>
<td>10.727</td>
</tr>
<tr>
<td>Weight</td>
<td>+0.031</td>
<td></td>
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<td>+0.172</td>
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<tr>
<td>SE</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Hb –</td>
<td>14.598</td>
<td>2.014</td>
<td>(0.017)</td>
<td>Hb –</td>
<td>14.863</td>
</tr>
<tr>
<td>SBP</td>
<td>-0.008</td>
<td></td>
<td></td>
<td>-0.016</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hb –</td>
<td>13.433</td>
<td>0.863</td>
<td>(0.083)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>El</td>
<td>+0.083</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td></td>
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</tbody>
</table>

Table 5.9.23 – Linear Regression Equation of Haemoglobin with other variable in Exercising Girls of Guides (Group SG)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
<th>Value</th>
<th>Coefficient</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb –</td>
<td>12.404</td>
<td>1.568</td>
<td>(0.023)</td>
<td>Hb –</td>
<td>11.863</td>
</tr>
<tr>
<td>PFI</td>
<td>+0.007</td>
<td></td>
<td></td>
<td>+0.014</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hb –</td>
<td>14.013</td>
<td>1.396</td>
<td>(0.034)</td>
<td>Hb –</td>
<td>14.044</td>
</tr>
<tr>
<td>Weight</td>
<td>-0.028</td>
<td></td>
<td></td>
<td>-0.036</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hb –</td>
<td>14.223</td>
<td>2.913</td>
<td>(0.025)</td>
<td>Hb –</td>
<td>11.268</td>
</tr>
<tr>
<td>SBP</td>
<td>+0.012</td>
<td></td>
<td></td>
<td>+0.021</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hb –</td>
<td>11.895</td>
<td>0.818</td>
<td>(0.289)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>El</td>
<td>+0.356</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
D – Linear Regression Equations of Resting Heart Rate (HR_{rest}) with different parameters are tabulated below.

**Table 5.9.24 – Linear Regression Equation of HR_{rest} with other variable in Control Sedentary Boys (Groups CB)**

| HR_{rest} – | 26.388 + 0.481 | SBP | SE | (26.31) | (0.225) |
| HR_{rest} – | 5.332 +1.123 | DBP | SE | (2.591) | (0.331) |
| HR_{rest} – | 94.635 - 7.723 | BSA | SE | (27.064) | (17.039) |
| HR_{rest} – | 83.663 - 0.066 | BMI | SE | (16.785) | (0.874) |

**Table 5.9.25 – Linear Regression Equation of HR_{rest} with other variable in Control Sedentary Girls (Group CG)**

| HR_{rest} – | 14.323 - 0.435 | SBP | SE | (12.75) | (0.271) |
| HR_{rest} – | 11.913 - 0.349 | DBP | SE | (10.134) | (0.469) |
| HR_{rest} – | 12.167 - 21.26 | BSA | SE | (9.082) | (14.53) |
| HR_{rest} – | 10.889 - 0.813 | BMI | SE | (8.314) | (0.93) |

**Table 5.9.26 – Linear Regression Equation of HR_{rest} with other variable in Sedentary Experimental Boys (Group EB)**

| HR_{rest} – | 84.585 - 0.067 | SBP | SE | (25.09) | (0.223) |
| HR_{rest} – | 52.998 +0.321 | DBP | SE | (21.538) | (0.246) |
| HR_{rest} – | 71.748 +4.399 | BSA | SE | (2.557) | (1.659) |
| HR_{rest} – | 71.748 +4.399 | BMI | SE | (2.557) | (1.659) |
Table 5.9.27– Linear Regression Equation of $HR_{rest}$ with other variable in Sedentary Experimental Girls (Group EG)

<table>
<thead>
<tr>
<th>$HR_{rest}$ – 96.692 - 0.042 SBP</th>
<th>$HR_{rest}$ – 94.022 - 0.029 DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE (25.35) (0.22)</td>
<td>SE (18.919) (0.249)</td>
</tr>
<tr>
<td>$HR_{rest}$ – 72.992 -8.31 BSA</td>
<td>$HR_{rest}$ – 76.665 - 0.252 BMI</td>
</tr>
<tr>
<td>SE (27.49) (1.487)</td>
<td>SE (11.446) (0.595)</td>
</tr>
</tbody>
</table>

Table 5.9.28– Linear Regression Equation of $HR_{rest}$ with other variable in Exercising Boys of Scouts (Group SB)

<table>
<thead>
<tr>
<th>$HR_{rest}$ – 57.296 + 0.218 SBP</th>
<th>$HR_{rest}$ – 53.313 + 0.382 DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE (32.58) (0.279)</td>
<td>SE (24.254) (0.315)</td>
</tr>
<tr>
<td>$HR_{rest}$ – 75.13 - 12.98 BSA</td>
<td>$HR_{rest}$ – 77.731 - 0.902 BMI</td>
</tr>
<tr>
<td>SE (23.22) (6.325)</td>
<td>SE (24.404) (1.448)</td>
</tr>
</tbody>
</table>

Table 5.9.29– Linear Regression Equation of $HR_{rest}$ with other variable in Exercising Girls of Guides (Group SG)

<table>
<thead>
<tr>
<th>$HR_{rest}$ – 65.775 + 0.07 SBP</th>
<th>$HR_{rest}$ – 61.873 + 0.16 DBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE (20.48) (0.175)</td>
<td>SE (14.406) (0.189)</td>
</tr>
<tr>
<td>$HR_{rest}$ – 78.022 - 3.115 BSA</td>
<td>$HR_{rest}$ – 75.233 - 0.039 BMI</td>
</tr>
<tr>
<td>SE (19.14) (0.312)</td>
<td>SE (10.335) (0.003)</td>
</tr>
</tbody>
</table>
E – Linear Regression Equations of Physical Fitness Index (PFI) with different parameters are tabulated below.

**Table 5.9.30 – Linear Regression Equation of PFI with other variable in Control Sedentary Boys (Groups CB)**

<table>
<thead>
<tr>
<th>PFI –</th>
<th>Coefficient</th>
<th>SE</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.609</td>
<td>-0.224</td>
<td>(6.105)</td>
<td>(0.325)</td>
</tr>
<tr>
<td>22.841</td>
<td>+0.263</td>
<td>(6.626)</td>
<td>(0.482)</td>
</tr>
<tr>
<td>26.494</td>
<td>-0.014</td>
<td>(1.039)</td>
<td>(0.143)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PFI –</th>
<th>Coefficient</th>
<th>SE</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>27.483</td>
<td>-0.015</td>
<td>(2.317)</td>
<td>(0.031)</td>
</tr>
<tr>
<td>26.494</td>
<td>-0.014</td>
<td>(1.039)</td>
<td>(0.143)</td>
</tr>
</tbody>
</table>

**Table 5.9.31 – Linear Regression Equation of PFI with other variable in Control Sedentary Girls (Group CG)**

<table>
<thead>
<tr>
<th>PFI –</th>
<th>Coefficient</th>
<th>SE</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>42.061</td>
<td>-0.59</td>
<td>(12.249)</td>
<td>(0.639)</td>
</tr>
<tr>
<td>34.315</td>
<td>-0.257</td>
<td>(13.336)</td>
<td>(0.985)</td>
</tr>
<tr>
<td>32.505</td>
<td>-0.386</td>
<td>(2.247)</td>
<td>(0.305)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PFI –</th>
<th>Coefficient</th>
<th>SE</th>
<th>Test Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>22.053</td>
<td>+0.112</td>
<td>(4.674)</td>
<td>(0.055)</td>
</tr>
<tr>
<td>27.464</td>
<td>+0.108</td>
<td>(7.647)</td>
<td>(0.235)</td>
</tr>
</tbody>
</table>
Table 5.9.32– Linear Regression Equation of PFI with other variable in Sedentary Experimental Boys (Group EB)

<table>
<thead>
<tr>
<th></th>
<th>PFI – 37.576 + 2.071 BMI</th>
<th></th>
<th>PFI – 24.199 +0.709 HR&lt;sub&gt;Rest&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(33.50) (1.95)</td>
<td>SE</td>
<td>(6.37) (0.98)</td>
</tr>
<tr>
<td>PFI – 22.544 - 10.75 Hb</td>
<td></td>
<td>PFI – 11.752 +1.686 LBM</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td>(16.76) (1.88)</td>
<td>SE</td>
<td>(9.314) (0.249)</td>
</tr>
<tr>
<td>PFI – 28.973 - 3.716 EI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td>(1.991) (0.303)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.9.33– Linear Regression Equation of PFI with other variable in Sedentary Experimental Girls (Group EG)

<table>
<thead>
<tr>
<th></th>
<th>PFI – 38.635 + 0.086 BMI</th>
<th></th>
<th>PFI – 26.071 +0.169 HR&lt;sub&gt;Rest&lt;/sub&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>SE</td>
<td>(7.664) (0.404)</td>
<td>SE</td>
<td>(3.224) (0.037)</td>
</tr>
<tr>
<td>PFI – 60.299 - 1.578 Hb</td>
<td></td>
<td>PFI – 24.05 +0.475 LBM</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td>(7.336) (0.572)</td>
<td>SE</td>
<td>(4.872) (0.14)</td>
</tr>
<tr>
<td>PFI – 43.243 - 1.013 EI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td>(1.052) (0.187)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Table 5.9.34 – Linear Regression Equation of PFI with other variable in Exercising Boys of Scouts (Group SB)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
<th>PFI –</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFI – BMI</td>
<td>54.411 + 0.616</td>
<td>(22.317) (1.324)</td>
<td>PFI – 66.688 - 0.139</td>
<td>HR_{Rest} (13.557) (0.162)</td>
</tr>
<tr>
<td>PFI – Hb</td>
<td>25.72 - 2.239</td>
<td>(35.951) (2.636)</td>
<td>PFI – 76.499 - 0.282</td>
<td>LBM (15.091) (0.374)</td>
</tr>
<tr>
<td>PFI – EI</td>
<td>66.179 - 0.43</td>
<td>(12.813) (5.78)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 5.9.35 – Linear Regression Equation of PFI with other variable in Exercising Girls of Guides (Group SG)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>SE</th>
<th>PFI –</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFI – BMI</td>
<td>57.314 + 0.279</td>
<td>(12.428) (0.375)</td>
<td>PFI – 73.561 - 0.502</td>
<td>HR_{Rest} (16.453) (0.221)</td>
</tr>
<tr>
<td>PFI – Hb</td>
<td>59.876 + 0.511</td>
<td>(22.004) (1.70.4)</td>
<td>PFI – 57607 + 0.256</td>
<td>LBM (12.416) (0.355)</td>
</tr>
<tr>
<td>PFI – EI</td>
<td>67.054 - 0.22</td>
<td>(7.187) (2.541)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>