RESEARCH ARTICLE

EFFECTS OF CIRCUIT TRAINING PROGRAMME ON PHYSIOLOGICAL PARAMETERS OF TRIBAL SCHOOL BOYS.

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Abstract:
The study consisted of 40 of 14-16 years tribal boys selected randomly from Napara High School (H.S.), Purulia District, W.B; they were divided into two equated viz. experimental and control groups for circuit training of three alternate days per week for ten weeks. Their pre and post test data of Systolic Blood Pressure and Diastolic Blood Pressure was measured. The data was analyzed by applying paired 't' test. On the basis of analysis within the limitation imposed on the experimental conditions researchers came to the following conclusions that circuit training improves Systolic and Diastolic Blood Pressure.

Key Words: Circuit Training, Systolic Blood Pressure, Diastolic Blood Pressure, Tribal.

Introduction:
Training helps to develop the specific physiological capacities required to perform a given sports skill (L. Matveyev 1981), (Reuban B. Frost 1975). Circuit training was invented in 1953 as an efficient way for coaches to train many athletes in a limited amount of time with limited equipment. Circuit training is an effective organizational form of doing physical exercises for improving all physical fitness components, physiological and anthropometrical parameters. Circuit training is a formal type of training in which an individual goes through a series of selected exercises or activities that are performed in sequence or in circuit. Circuit can be set up inside gymnasium, exercise rooms or outside on courts and fields. It combines a number of different components of training, thus total fitness is emphasized. It provides an interesting training environment for the individual, and there are established time and levels to motivate the athlete to continue improving. Training increases the overall efficiency of the heart. Contraction becomes more forceful, the diastolic phase increases and reservoir capacities are enlarged (Karal A. and Book Walter 1969). Training techniques based on new findings in exercise physiology, biomechanics, sports medicine etc. are adopted to bring about maximum possible unfolding of potential in sports performance (Ludwig Prokop). A training programme to be most beneficial, it must develop the specific physiological capabilities required to perform a given sports skill or activity (Bowers et.al 1992). According to the American Council on exercise, athletes involved in rowing, kayaking, tennis or volleyball can improve sport performance with circuit training (Zatsiorsky & kraemer, 2006).

Methods:
Forty tribal 8th and 9th grade school boys out of one hundred and twenty school boys from Napara High School (H.S.), District Purulia – West Bengal were initially height-wise separately assembled and then randomly selected as the subjects for this study. The average age of the subjects was 15.5, ranging from 14 to 16 years of age. Further subdivided randomly into two equal groups (N=20) one group was treated as experimental group, where as remaining one group was studied as control group. The selected criterion variables were Systolic Blood Pressure and Diastolic Blood Pressure. The Circuit Training programme of ten weeks, three days per week and a session on each day was administered to the experimental group only. To investigate the effect of circuit training programme on Systolic blood pressure and Diastolic blood presser of tribal school boys, the random group design was adopted. The paired 't' test was considered for the statistical calculations.
Results and Discussion:-

Table 1: significance of difference between pre and post test means in systolic blood pressure of experimental and control Group tribal school boys.

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Group</th>
<th>Pre-Test Mean ± S.D.</th>
<th>Post-Test Mean± S.D.</th>
<th>Mean Diff.</th>
<th>S.E.</th>
<th>‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Resting Systolic Blood Pressure</td>
<td>Experimental</td>
<td>112.40±5.678</td>
<td>115.90±6.327</td>
<td>3.00</td>
<td>0.589</td>
<td>5.09*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Control</td>
<td>115.9±6.212</td>
<td>116.2±5.436</td>
<td>0.3</td>
<td>0.299</td>
<td>1.00</td>
</tr>
</tbody>
</table>

* Significant at .05 level of confidence.

* ‘t’ value required to be significant at 19 degree of freedom at .05 level of confidence is 2.09.

![Figure 1](image1.png)

Figure 1: Comparison of means of Systolic Blood Pressure between Pre and Post test data belonging to experimental and control group subjects of Tribal School boys.

Table 2: Significance Of Difference Between Pre And Post Test Means In Diastolic Blood Pressure Of Experimental And Control Group Tribal School Boys

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Variables</th>
<th>Group</th>
<th>Pre-Test Mean ± S.D.</th>
<th>Post-Test Mean± S.D.</th>
<th>Mean Diff.</th>
<th>S.E.</th>
<th>‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Resting Diastolic Blood Pressure</td>
<td>Experimental</td>
<td>70.60±4.52</td>
<td>73.9±5.31</td>
<td>3.30</td>
<td>0.758</td>
<td>4.355*</td>
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<tr>
<td></td>
<td></td>
<td>Control</td>
<td>72.9±5.71</td>
<td>73.1±3.92</td>
<td>0.20</td>
<td>0.541</td>
<td>0.370</td>
</tr>
</tbody>
</table>

* Significant at .05 level of confidence.

* ‘t’ value required to be significant at 19 degree of freedom at .05 level of confidence is 2.09.

![Figure 2](image2.png)

Figure 2: Comparison of means of Diastolic Blood Pressure between Pre and Post test data belonging to experimental and control group subjects of Tribal School boys.
Discussion:-

Table 1, 2 and Figure 1, 2 clearly indicate that under experimental group category the significant differences between pre and post-test data in Systolic Blood Pressure and Diastolic Blood Pressure of tribal school boys are observed whereas no significant differences was observed in control group subjects. The results of the present study are also in line with the observation by Alcaraz and others (2008) that heavy resistance circuit training may be an effective training strategy for the promotion of cardiovascular adaptations. Stewart et al(2006) found that there was a significant decrease in SBP and DBP after the aerobic exercise and resistance training.

Conclusion:-

Circuit training programme showed significantly effective in developing Systolic Blood Pressure and Diastolic Blood Pressure of experimental group tribal school boys. However, the control group of Tribal School boys had not shown significant change in Systolic Blood Pressure and Diastolic Blood Pressure.

References:-