Abstract
The purpose of the study was to find out the effect of yoga practice and physical exercises on vital capacity of middle aged men. To achieve the purpose of the study the investigator selected forty five middle aged men as subject in the age group of 18 years to 23 years. They were divided into three equal groups of fifteen each (n=15) at random. Group-I performed yoga practice, group-II performed physical exercises and group-III acted as control. ANCOVA was used to find out the adjusted mean difference between the groups. The result of the study reveals that due to the effect of yoga practices and physical exercises the vital capacity of the subjects was significantly improved. It is also concluded that yogic practices significantly better than physical exercises in improving vital capacity of middle aged men.

I. INTRODUCTION
Good health means that all organs of the body are working efficiently. The important proverb is, ‘Health is wealth’, ‘if health is lost everything is lost’, and is realized more in its absence than by its presence. Middle age is not a time of life it is a state of mind. The importance of health is more than education, money and other material comforts. Happiness is intimately
Kantheti Bhanu Prasad, Dr. I. Devi Vara Prasad: Relative Effect Of Yoga Practice And Physical Exercises On Vital Capacity Of Middle Aged Men

II. METHODOLOGY

2.1 Selection of Subject

To achieve the purpose of the study the investigator proposed to select forty five male middle aged men from the inhabitants of Ongole, a small town in the southern state of Andhra Pradesh, India as subject in the age group of 18 years to 23 years. They were divided into three equal groups of fifteen each (n=15) at random. Group-I performed yoga practice, group-II performed physical exercises and group-III acted as control. All the subjects selected for the experimental treatment was subjected to medical evaluation and certification from a doctor ensuring their health capacities to undergo the training program.
2.2 Training Programme
The training program was scheduled for one session a day each session lasted between forty five minutes to one hour approximately. Training programme was administered to the middle aged men for twelve weeks with six training units per week. The experimental group-I performed yoga practice and group-II performed physical exercises.

2.3 Collection of the Data
The pretest data was collected prior to the training programme and posttest data was collected immediately after the twelve weeks of yoga practice and physical exercises, from the experimental groups and a control group.

2.4 Experimental Design and Statistical Technique
The data collected from the three groups prior to and post experimentation on selected dependent variable was statistically analyzed to find out the significant difference if any, by applying the analysis of covariance (ANCOVA). Since three groups are involved, whenever the obtained ‘F’ ratio value was found to be significant for adjusted post test means, the Scheffe’s test was applied as post hoc test to determine the paired mean differences, if any. In all the cases the level of confidence was fixed at 0.05 for significance.

III. DATA ANALYSIS & RESULTS
The pre and post test data collected from the experimental and control groups on vital capacity is statistically analyzed by ANCOVA and the results are presented in table-I.

<table>
<thead>
<tr>
<th></th>
<th>Yogic Practice Group</th>
<th>Physical Exercise Group</th>
<th>Control Group</th>
<th>SS</th>
<th>Df</th>
<th>Mean Squares</th>
<th>‘F’ ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre test</td>
<td></td>
<td></td>
<td></td>
<td>B</td>
<td>2</td>
<td>2316.48</td>
<td>0.12</td>
</tr>
<tr>
<td>Mean</td>
<td>2810.66</td>
<td>2810.06</td>
<td>2821.33</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>77.36</td>
<td>83.36</td>
<td>78.61</td>
<td>W</td>
<td>27</td>
<td>256506.51</td>
<td></td>
</tr>
<tr>
<td>Post test</td>
<td></td>
<td></td>
<td></td>
<td>B</td>
<td>2</td>
<td>455497.37</td>
<td>15.98*</td>
</tr>
<tr>
<td>Mean</td>
<td>3055.01</td>
<td>2902.66</td>
<td>2811.73</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>88.05</td>
<td>111.62</td>
<td>47.98</td>
<td>W</td>
<td>27</td>
<td>384702.26</td>
<td></td>
</tr>
<tr>
<td>Adjusted Post test</td>
<td></td>
<td></td>
<td></td>
<td>B</td>
<td>2</td>
<td>465091.74</td>
<td>16.78*</td>
</tr>
<tr>
<td>Mean</td>
<td>3056.01</td>
<td>2903.86</td>
<td>2808.85</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD</td>
<td>360288.13</td>
<td>360288.13</td>
<td></td>
<td>W</td>
<td>26</td>
<td>13857.24</td>
<td></td>
</tr>
</tbody>
</table>

(The required table value for significance at 0.05 level of confidence with degrees of freedom 2 and 27 is 3.35 and degree of freedom 2 and 26 is 3.37)

Table-I shows that the pre test mean and standard deviation on vital capacity of yogic practices, physical exercise and control groups are 2810.66 ± 77.36, 2810.06 ± 83.36 and 2821.33 ± 78.61 respectively. The obtained ‘F’ ratio value of 0.12 for pre test means on vital capacity of yogic practices, physical exercise and control groups are less than the required table value of 3.35 for the degrees of freedom 2 and 27 at 0.05 level of confidence.

*Significant at .05 level of confidence
It revealed that there is statistically insignificant difference exist among the yogic practices, physical exercise and control groups during pre test period. The post test mean and standard deviation on vital capacity of yogic practices, physical exercise and control groups are $3055.01 \pm 88.05$, $2902.66 \pm 111.62$, and $2811.73 \pm 47.98$ respectively. The obtained ‘F’ ratio value of 15.98 for post test means on vital capacity of yogic practices, physical exercise and control groups are greater than the required table value of 3.35 for the degrees of freedom 2 and 27 at 0.05 level of confidence.

The adjusted post test means on vital capacity of yogic practices, physical exercise and control groups are 3056.01, 2903.86 and 2808.85 respectively. The obtained ‘F’ ratio value of 16.78 on vital capacity are greater than the required table value of 3.22 for the degrees of freedom 2 and 26 at 0.05 level of confidence. It was observed from this finding that significant differences existed among the adjusted post test means of experimental and control groups on vital capacity. Since, the adjusted post test ‘F’ ratio value was found to be significant the Scheffe’s test is applied as post-hoc-test to determine the paired mean differences, and it is presented in table-II.

Table-2: Scheffe’s Test for the Difference between the Adjusted Post Test Paired Means of Vital Capacity

<table>
<thead>
<tr>
<th>Yogic Practice Group</th>
<th>Physical Exercise Group</th>
<th>Control Group</th>
<th>Difference between Means</th>
<th>Confidence Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>3056.01</td>
<td>2903.86</td>
<td>2808.85</td>
<td>152.15*</td>
<td>61.42</td>
</tr>
<tr>
<td>3056.01</td>
<td>2808.85</td>
<td>95.01*</td>
<td>61.42</td>
<td></td>
</tr>
</tbody>
</table>

*Significant

Figure – I: Pre Post and Adjusted Post Test Mean Scores of Experimental and Control Groups on Vital Capacity
Table-II shows that there was significant difference existed between yogic practices and physical exercise groups, yogic practices and control groups, physical exercise and control groups on vital capacity. Since, the mean differences 152.15, 247.16 and 95.01 are higher than the confidence interval value of 61.42; it reveals that both experimental groups had significantly improved the vital capacity. However, yogic practices were significantly better than physical exercise in altering the vital capacity. The pre, post and adjusted post test mean values on vital capacity of the experimental and control groups is graphically represented in figure- I for better understanding.

IV. DISCUSSION

Yoga helps to tone up the entire body to regularize blood compositions and improve blood circulations, tones up glands and visceral muscles. Robson states that “yoga develops flexibility and vital capacity”. Regular practice of yoga helps to keep our body fit, controls cholesterol level, reduces weight, normalizes blood pressure and improves heart performances. Further, preliminary studies in the United States and India suggest that yoga may be helpful for specific conditions, such as asthma, epilepsy, anxiety, stress and others. Regular exercise results in an increase in the blood flow and improves oxygen carrying and waste removal capacity and further increases work load capacity (Vitale, 1973). Exercise increases the volume of hemoglobin and erythrocyte of the blood. Also blood vessels are seen to maintain elasticity and suppleness when stressed systematically probably by the beneficial effect of the heart. Yogic practices demonstrated a significant difference in heart rate, with breathing practices and asanas lowering heart rate significantly so yogic practices into a lower-impact workout may be beneficial. Chaya et al., (2008) reported that long-term practice of yogic asanas along with pranayama and meditation causes reduced sympathetic activity resulting in reduced metabolic rate and greater metabolic efficiency in yoga practitioners. Hagins et al., (2007) suggested that yoga is a mind-body practice where practice of physical postures is combined with control of breathing, meditation along with stretching exercise, isometric exercise, and dynamic exercises of skeletal muscles. Raub (2002) find that Practice of hatha yoga may help control such physiological variables as blood pressure, respiration, HR and metabolic rate to improve overall exercise capacity.

V. CONCLUSION

The result of the study reveals that due to the effect of yoga practice and physical exercises the vital capacity of the subjects was significantly improved. It is also concluded that yogic practices significantly better than physical exercises in improving vital capacity of middle aged men.

VI. REFERENCES


To Cite This Paper