Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The purpose of the study was to investigate the effects of the traditional Army Physical Training means and modern physical training means on selected motor components, physiological variables and anthropometric measurements of the recruits in the initial ten weeks of their training after joining the Army and to find out, which of the training method between the two was more effective and brought about higher level of performance in physical and physiological fitness of the recruits. The subordinate purpose was to assess the performance, relationship of each of the physiological and anthropometric measurements to motor fitness performance.

The subjects were two hundred twenty newly enrolled recruits in the branch of Artillery of the Indian Army. All the subjects were randomly divided into two groups i.e. Control group and Experimental group, with one hundred and ten subjects in each group. The
control group was trained with the traditional Army Physical Training means and the experimental group was imparted modern physical training programme prepared by the investigator himself. The experiment was conducted from 7th February to 16th April, 1988 in the Artillery Centre, Hyderabad. The variables selected for comparison were physical, physiological and anthropometric measurements.

The ponderal index was calculated from the height and weight, body density was calculated by taking four skinfold measurements of the subjects measured with the help of skinfold calipers and fat percentage was calculated with the help of body density.

The pre-test and post-test data was computed with t ratio, using mean gains method (paired t test) to determine the significance of differences, if any, within the group. To find out the significance of differences, if any, between group C and group E (uncorelated data) unpaired t test was employed.

To evaluate the relationship of physiological variables and anthropometric measurements to motor fitness components, Pearson's product moment correlation (zero order) was computed. The level of significance chosen for testing the hypothesis was .05.
The reliability of the data was established by using test retest method.

The results of the study showed that both group C and group E made significant improvement in performance on the following motor components:

Strength: Pull ups, Bent knee sit ups, Grip Strength and Back strength.

Power: Sargent jump and Margaria's anaerobic power test.

Flexibility: Spine flexibility and Shoulder flexibility.

Agility: Squat thrust.

Balance: Bass modified dynamic balance.

But the performance improvement of group C was not significant in speed - 50 metres run, flexibility - sit and reach, agility - boomerang run test. However, the performance improvement of group E was significant in these tests.

In physiological variables, the performance improvement of group C and group E was significant in tidal volume, minute ventilation, resting pulse rate, respiratory rate, haemoglobin concentration, cardio-respiratory endurance, reaction time audio and visual, speed of movement and
heart rate after exercise. But group C did not show significant improvement in vital capacity, maximum breathing capacity, cardiac assessment factor, ponderal index, body density and fat percentage. However, group E improved significantly in the above variables.

On comparison of improvement of performances between group C and group E, it was found that group E made significantly greater improvement over group C in all the motor components, physiological variables and anthropometric measurements.

All the physiological variables showed positive correlation with motor fitness components except resting pulse rate, haemoglobin concentration, cardiac assessment factor and ponderal index, where low correlations were obtained.

**Conclusions**

With the limitations of the present study the following conclusions were drawn:

1. Ten weeks duration was enough to find out the effects of different means of physical training on physical fitness of the recruits along with the other subjects taught during basic training to make an efficient and physically fit soldiers in the Indian Army.
2. The traditional physical training programme was effective in bringing about changes in strength, explosive leg power, anaerobic power, spine and shoulder flexibility, agility (squat thrust) and dynamic balance. However, the modern training programme was more effective in all the above motor components.

3. The traditional training programme was not effective in bringing about the improvement in speed, flexibility (sit and reach) and agility (boomerang run test). But the modern training programme made a great improvement in these motor components also.

4. The traditional physical training programme showed improvement in tidal volume, resting minute ventilation resting pulse rate, respiratory rate, haemoglobin concentration, cardio-respiratory endurance, breath hold, respiratory endurance, reaction time audio and visual, speed of movement and heart rate after exercise. But the modern training programme effected greater improvement in the above variables. There was no improvement in vital capacity, maximum breathing capacity and cardiac assessment factor with the traditional training programme whereas the modern training programme showed improvement in these variables.
5. There were negative effects on performance in ponderal index, body density and fat percentage with the traditional training programme. However the modern training programme showed improvement in performance of body density and fat percentage. There was no effect on ponderal index because the modern training programme did not effect any increase or decrease in weight of the subjects which further added for the improvement of motor components, physiological variables and anthropometric measurements and better effectiveness of the modern training programme.

6. It has been observed that physical fitness components have got positive correlation with each of the physiological variables. But there was low correlation with resting pulse rate, haemoglobin concentration, cardiac assessment factor and ponderal index.

7. The over all effectiveness of the modern physical training programme on motor components, physiological variables and anthropometric measurements was much greater than the traditional physical training programme imparted to the recruits in the Indian Army.
Recommendations

In the light of results of the present study the following recommendations are made:

1. The positive results obtained with the modern physical training programme, the traditional physical training may be supplemented with the modern training programme by preparing new syllabus on the lines of modern physical training programme to attain a high degree of physical fitness in the initial stages of recruits training.

2. In the light of this study, the Army Physical Training Corps may suitably modify the programme to impart physical training instructions in the recruits training centres with the latest techniques to achieve better results.

3. The results of the study will help the coaches and physical education teachers to design systematic conditioning programme on scientific basis with the latest methods for the sportsmen participating in different games and sports at different levels in the army to enhance optimal performance.
4. It is recommended that a similar study may be conducted to find out the effects of the conditioning programme on the remaining training i.e. drill movements, byonet fighting, efficiency in handling different weapons and firing accuracy of recruits in the Indian Army.