Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The purpose of the study was to determine the effects of interval running with three different types of recovery during the relief interval, on cardio-respiratory endurance and selected physiological variables.

The subjects were 30 male untrained students of Kendriya Vidyalaya, Sawai Madhopur, studying in grades nine and ten. The subjects were equally assigned using random sampling procedure of drawing lots to three experimental groups and one control group. The three experimental groups participated in an interval running program for a period of ten weeks. The differential treatment factor for the three groups being the type of recovery during the relief-interval i.e. the first group performed jogging (group E_J), the second a combination of walking and jogging (group E_WJ) and the third walking only (Group E_W) during the relief-interval. The data on cardio-respiratory and selected physiological variables of physical work capacity, resting pulse rate, resting
blood pressure, air flow rate, peak flow rate, blood pressure after exercise and recovery pulse rate were recorded before and at the end of the experimental period of ten weeks. The significance of mean differences between the pre-test and post-test scores in each of the variables were analysed by t test and the differences among the groups were analysed by way of analysis of variance and covariance (F ratios). The level of significance selected was .05.

The differences between the pre-test and post-test means in cardio-respiratory endurance (Group E_w-t = 9.31, Group E_wj-t = 9.3, Group E_j-t = 8.33), physical work capacity (Group E_w-t = 10.49, Group E_wj-t = 10.19, Group E_j-t = 8.97), resting pulse rate (Group E_w-t = -5.26, Group E_wj-t = -7.69, Group E_j-t = -8.3), resting systolic blood pressure (Group E_w-t = -4.47, Group E_wj-t = -3.6, Group E_j-t = -4.19), resting diastolic blood pressure (Group E_w-t = 9.65, Group E_wj-t = 8.31, Group E_j-t = 9.91) air flow rate (Group E_w-t = 5.2, Group E_wj-t = 10.24, Group E_j-t = 14.24) peak flow rate (Group E_w-t = 8.99, Group E_wj-t = 5.02, Group E_j-t = 13.2) systolic blood pressure after exercise (Group E_w-t = -4.25, Group E_wj-t = -9.74, Group E_j-t = -4.25) were significant at .05 level of confidence. The control
group did not show any significant differences in all the chosen variables. The differences between pre-test and post-test scores were not found to be statistically significant in diastolic blood pressure after exercise (Group W_v-t = -0.7, Group W_j-t = -1.42, Group E_j-t = -2.0), pulse rate immediately after exercise (Group W_v-t = -1.92, Group W_j-t = -1.6, and Group E_j-t = -1.85), and pulse rate after five minutes recovery (Group W_v-t = -0.7, Group W_j-t = -0.95, Group E_j-t = -0.52).

The variables which had shown statistically significant improvements in one or more groups in the chosen variables were further subjected to F test. An analysis of covariance to find out differences among the groups, if any, resulted in a significant F value at .05 level in cardio-respiratory endurance (F = 24.33), physical work capacity (F = 32.77) resting pulse rate (F = 18.39) resting systolic blood pressure (F = 11.49), resting diastolic blood pressure (F = 5.28), systolic blood pressure after exercise (F = 3.47), air flow rate (F = 20.35) and peak flow rate (F = 6.77).

As the F test showed significant differences among the groups in the above variables, the Scheffe's test was applied to find which of the differences between means amongst the groups were statistically significant. The application of Scheffe's test indicated that the
mean gains made by the groups B_1j and B_2j were significantly higher in cardio-respiratory endurance and air flow rates. Group B_1j indicated significantly higher improvements in physical work capacity and resting pulse rate. No significant differences amongst the three experimental groups were found in resting blood pressure (systolic and diastolic) systolic blood pressure after exercise and peak flow rate.

**Conclusions**

within the limitations imposed by the subjects and the experimental conditions, the following conclusions were considered appropriate:

1. Interval running was an effective method in developing cardio-respiratory endurance of the boys at secondary school level, in the age group of 14 to 16. The groups which performed jogging or a combination of walking-jogging, produced better results when compared to the group which performed walking alone during the relief-interval.

2. Interval running was an effective method in improving physical work capacity, air flow rate and peak flow rate. The group which performed jogging
during the relief interval was found superior to the groups which performed a combination of jogging-walking or walking alone, in increasing physical work capacity. In the case of air flow rate, both the groups which performed jogging or a combination of walking-jogging showed significantly higher improvements than the group which performed walking alone. In peak flow rate all the three groups produced equal training effects.

3. Interval running was effective in lowering resting pulse rate, resting blood pressure (systolic and diastolic) and systolic blood pressure after exercise. The group which performed jogging during the relief-interval indicated significantly better results than the groups which performed a combination of walking-jogging or walking alone, in lowering the resting pulse rate. All the three groups showed equal training effects in resting blood pressure and systolic blood pressure after exercise.

4. Interval running method did not show any significant reduction in resting diastolic blood pressure and recovery pulse rates as a result of ten weeks of training.

5. The control group did not show any significant
changes in cardio-respiratory and selected physiological variables.

**Recommendations**

In the light of the results of this study it is recommended that:

1. Interval running may be employed as an effective method for developing cardio-respiratory endurance for secondary school boys.

2. During the relief interval in interval running method, jogging or a combination of walking-jogging may be performed for achieving better results in developing cardio-respiratory endurance and related physiological variables, rather than being passive.

3. Similar studies may be conducted on subjects of different age groups and sex.

4. Similar studies may be conducted on trained athletes.

5. A study may be undertaken to find out the activities prescribed by different coaches during the relief-interval in interval running method and the rationality behind their programmes.