CHAPTER - V
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

The purpose of the present study was to determine the effect of isotonic and isokinetic training on cardiovascular and pulmonary functions. The subjects were fifteen male cricketers of 15 to 18 years of age, from L.N.I.P.E., Gwalior cricket academy. The subjects were randomly selected and were assigned to two experimental groups i.e. isotonic and isokinetic groups and control group, with 5 subjects in each group.

The modernization and establishment of L.N.I.P.E., Exercise Physiology laboratory with most state of art equipments and instrument facilitated conception of this research and selection of variables for this study. The availability of instruments like Spirometry test for pulmonary variables, standard stopwatch and manual sphygmomanometer offered data collection and experimentation feasible on field in actual conditions.

The training was given for a period of 10 weeks. The two experimental groups were trained up to three days in a week, while the control group continued with their daily routine work. The selected variables were the performance of subjects in cardiovascular and pulmonary functions. The pre- and post-test were conducted. After the collection of data, analysis of covariance was used to identify significant difference between the groups. The LSD post hoc test was used to identify significant differences between the training programmes. The level of significance was set at 0.05.

There was a significant effect was found on heart rate, systolic blood pressure, endurance, vital capacity, peak expiratory flow rate, respiratory rate, forced vital capacity, VO₂ max, forced expiratory volume₁, maximum voluntary ventilation and breath holding capacity but no significant difference was found in diastolic blood pressure and minute ventilation through isotonic training on Cybex for ten weeks.
There was a significant effect was found on heart rate, vital capacity, peak expiratory flow rate, respiratory rate, forced vital capacity, VO₂ max, maximum voluntary ventilation but no significant difference was found in blood pressure, endurance, forced expiratory volume₁, breath holding capacity and minute ventilation through isokinetic training on Cybex for ten weeks.

**CONCLUSIONS**

On the basis of findings of the study, the following conclusions were drawn:

- Isotonic and isokinetic group brings significant changes for improving heart rate.
- Isotonic group brings significant changes for improving systolic blood pressure.
- There was no significant effect was found through training for improving diastolic blood pressure between isotonic group, isokinetic group and control group.
- Isotonic group brings significant changes for improving endurance of the subjects.
- Isotonic and isokinetic group brings significant changes for improving vital capacity.
- Isotonic and isokinetic group brings significant changes for improving peak expiratory flow rate.
- Isotonic and isokinetic group brings significant changes for improving respiratory rate.
- Isotonic and isokinetic group brings significant changes for improving forced vital capacity.
- Isotonic and isokinetic group brings significant changes for improving VO₂ max.
- Isotonic group brings significant changes for improving forced expiratory volume₁.
- Isotonic and isokinetic group brings significant changes for improving maximum voluntary ventilation.
Isotonic group brings significant changes for improving positive breath holding.

Isotonic group brings significant changes for improving negative breath holding.

There was no significant effect was found through training for improving minute ventilation between isotonic group, isokinetic group and control group.

**RECOMMENDATIONS**

On the basis of findings and conclusions of the study, the following recommendations were made:

- The study may be conducted on subjects of different age groups.
- A similar study may be conducted for athletes of different levels and with larger samples.
- A study of similar type may be conducted on women of different age group.
- Similar training programmes may be used in other games and sports where excellent cardiovascular and pulmonary functions are important factors for better performance.
- Physical education teachers, coaches and athletes may use the bicycle ergometer and Cybex training while formulating their training programmes.
- The study may be conducted by using designs other than those employed in this study.