Chapter V

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

Summary

Coaches and athletes have endeavoured, largely through a process of trial and error, to identify appropriate training techniques of short duration to elicit the greatest improvements in performance. Coaches face great problem while preparing their team for interuniversity competition. They were provided with short duration to prepare their team. Therefore, the aim of the study was to assess the effect of handball specific aerobic training on selected physical fitness and physiological variables of male handball players. To accomplish the purpose of the study, twenty four (24) male handball players were selected from the Department of Physical Education and Sports Sciences, Annamalai University, Chidambaran, Tamilnadu. These subjects were classified into two groups namely handball specific aerobic training group (HSATG) and Control group (CG), each group constituted 12 subjects. The selected handball players age 22.12 ± 3.22 years; height 174.50 ± 7.83 cm and weight 65.62 ± 7.79 kg. In the present study physical fitness variables (speed, agility, explosive power and arm explosive strength) and physiological variables (percent body fat, lean body mass, resting heart rate,
aerobic capacity, maximum heart rate and anaerobic endurance) were selected as dependent variables. To measure the dependent variables standardized tests were administered. The independent variable selected in the present study was handball specific aerobic training which was administered three days per week for eight weeks. The HSATG underwent handball specific aerobic training and CG remained passive.

All the subjects were tested on physical fitness and physiological variables prior to training, after four weeks of training and after eight weeks of training. The testing session comprised of warm-up and test interspersed with rest. All tests were explained and demonstrated. Before testing, subjects were given practice trials to become familiar with the testing procedures. All tests were counterbalanced pre and post testing to ensure that testing effects were minimized. Subjects performed each test as per the testing procedure and the scores of best trials were taken for this study. In the morning on the day of testing measurements like height, weight, body composition, speed, explosive power, agility, arm explosive strength and anaerobic endurance were assessed. However, in the evening resting heart rate, aerobic capacity and peak heart rate was evaluated.
The data collected from the HSATG and CG on selected physical fitness and physiological variables were statistically analysed to examine the changes. A two-way repeated measure ANOVA with last factor repeated was applied to examine the difference between groups and testing conditions. When interaction was significant simple effect was applied and Scheffe S post hoc test was applied to find the difference between different testing conditions. All the statistical tests were calculated using the statistical package for the social science (SPSS) for windows (Version 16). The level of statistical significance was set at \( p < 0.05 \).

**Results of the study**

1. It is observed from the results of the study that physical fitness variables remained unchanged after four and eight week of handball specific aerobic training.
2. It is noted from the findings of this study that aerobic capacity and anaerobic endurance improved significantly after four and eight weeks as a result of handball specific aerobic training.
3. The research findings also establish that significant decline in resting heart rate but maximal heart rate remained unaltered as a result of handball specific aerobic training.
Conclusions

Based on the findings of the study, it is concluded that handball specific aerobic training programs is appropriate enough to improve aerobic capacity and anaerobic endurance of handball players in short duration, that contributes to improved match performance. The results of this study make obvious that sports specific or game based training is an effective modality to develop the specific aerobic and anaerobic endurance of handball players. The integration of sports specific drills during regular training schedule is a method of simulation that places a stress similar to the physiological demands of players experienced during match play.

Recommendations

Based on the results of the study the following recommendations have been made.

1. The present study showed that aerobic capacity and anaerobic endurance improved over a short period of time, but the influence on blood lactate was not monitored.

2. The time motion analyses of handball specific aerobic training have to be assessed.
3. The decline in sprinting performance and agility requires further analysis.

4. Court dimensions and the number of players in small sided games impact on physical fitness and physiological variables has to be analysed.

5. The physiological impact has to be assessed by increasing and decreasing the number of bouts during game based training.

6. The present study also failed to measure the skill levels of players.