CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

Exercise improves and promotes physical fitness, muscle tone, and body condition. Regular vigorous exercise also increases the efficiency and capacity of the heart and lungs and helps people maintain their proper weight. Individuals who are physically fit tend to be slimmer than those who are unfit.

In India few studies have been made to discover the importance and nature of different physiological profiles on performance. Modern sports scientists and physical educators are interested in human performance in variety of sports and games. Researchers have taken sincere effort to find out the relationship of different psychological and physiological factors to performance in athletics and sports.

In this study, the researcher compared and analysed the differences in the selected physical, physiological, hematological, anthropometrical and biochemical variables among volleyball, basketball, football and hockey state players.
The researcher collected related literature under different heads, namely

a) Physical fitness and performance b) Physiological aspects and performance;

c) Anthropometrical aspects and performance; d) Biochemical aspects and
performance and e) Hematological aspects and performance.

Sixty women subjects who had represented Tamil Nadu State in
hockey, soccer, volleyball and basketball were selected from those who had
participated in the national level competitions and attended special coaching
programmes. Fifteen subjects were selected for each game. All the subjects
were volunteers and had represented the Tamil Nadu state during the years

The investigator and two assistants took adequate training to measure
the selected physical, physiological and anthropometrical variables. Haematological variables were measured by qualified and trained laboratory
personnel. The physiological, biochemical and haematological variables were
measured in Raja’s Bioclinic, Chennai. Standard equipments and
haematological analysis were done by qualified laboratory assistants.

One way independent groups ANOVA was used as the statistical tool
to determine if any significant differences exists between basketball,
volleyball, football and hockey players in the selected physical, physiological,
anthropometrical, biochemical and haematological variables. The level of
significance was fixed as 0.05 level. All the dependent variables were analysed separately to determine the F ratio using the formula described by Thomas and Nelson (1990).

CONCLUSIONS

Based on the results presented the following conclusions are drawn:

1. Under physical variables, the height, weight, percent body fat, agility and explosive power were studied. In height soccer and volleyball players were taller than hockey and basketball players. In weight, the volleyball players were heavier than the other three groups, but the result was not significant. In percent body fat, the hockey women players scored the lowest value whereas the soccer players scored the highest. In agility, soccer state women players scored the lowest, followed by basketball, hockey and volleyball players. In explosive leg strength, volleyball players had more explosive power, followed by hockey, basketball and soccer players. Thus, in the physical variables, it was concluded that all the four groups differed in height, weight, percent body fat, agility and explosive power.

2. Under physiological variables, vital capacity and resting heart rate were tested. It was concluded that basketball players had a higher vital
capacity than the other players and the hockey players had the lowest resting heart rate when compared to the other groups.

3. Under anthropometric variables chest girth, thigh girth, calf girth and upper arm girth were measured. Chest measurements of soccer players was the highest and that of the basketball players was the lowest. The thigh girth of hockey women players was bulkier than the other three groups. In calf girth soccer players scored the highest value and hockey players scored the lowest, but the difference was not significant. Thus, it is concluded that chest girth of soccer players and thigh girth of hockey players were more than that of other groups of players and but there were no differences in calf girth and upper arm girth among the state level women players.

4. In blood sugar the basketball players had the highest blood sugar level and hockey players have lowest blood sugar levels among the four groups, while in blood cholesterol, volleyball players had the highest and hockey players had the lowest levels. Both blood sugar and cholesterol levels were below the normal range for all the groups.

5. In haemoglobin, the differences among the basketball, volleyball, hockey and soccer groups did not show any significance differences but the haemoglobin percent was lower than the normal value of 12.6 gram percent for all the groups.
6. Neutrophils, eosinophils and lymphocytes were compared as differential counts in this study. In neutrophils, there were no significant differences between basketball, volleyball, hockey and soccer women state players. In eosinophils, basketball players had the highest value and volleyball players had lowest value. In lymphocytes, basketball players had the highest value and soccer players had the lowest value. It is concluded that basketball players may be more susceptible to chest infections when compared to hockey, volleyball and soccer players.

RECOMMENDATIONS

The following recommendations are made based on this study.

1. Research literatures have documented that variables like weight, vital capacity, upper arm girth, calf girth, blood sugar and haematological variables could be improved through specific training and proper nutrition. Since no significant differences were obtained in this study, it is recommended that more research study may be conducted on advanced players at national and international level.

2. Similar study could be conducted with more variables like total protein, red blood cells count, albumin and globulin among different games and sports to strengthen the findings of this study.
3. Research studies may be conducted comparing beginners, medium skilled and good players in the same variables to determine the physical and physiological contributing characteristics to elite performance.

4. Similar studies may be conducted to compare the men players in the same variables and in the selected games at national and international levels.

5. Similar studies could be conducted on school children to assess the maturity related changes.

6. The specific role of important biochemical variables, namely, blood sugar and blood cholesterol could be further investigated regarding the contributory role in different game requirements in energy utilization.

7. Research studies may also be conducted to compare physical, physiological, anthropometrical, bio-chemical and hematological variables with different training schedules to improve the anthropometrical, motor and fitness components of athletes in different sports and games.

8. Studies could also be conducted on male and female subjects from school through varsity level to assess specific sex related physiological changes in physical and anthropometrical variables.