Chapter – V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The development of physical efficiency for different types of sports and games is of great significance. It required a great deal of selectivity, specificity and training improvements of sports performance depend upon several disciplines of sports sciences that work in a co-ordinated manner.

Since the advent of echocardiography, investigation into the nature of athlete’s heart and long term effects of vigorous exercise on cardiac dimensions have intensified. The athletes engaged in different types of exercise developed different patterns of left ventricular hypertrophy.

The demands of different sports depend on their intensity and duration. The term sport-specific fitness is used to substantiate this statement. Since their demands are different, the metabolic adjustments caused during participation in such sports also differ and are reflected in the composition of the blood.

The anthropometric measurements have wide application as it is one of the essential parameters constituting the selective diagnosis of each game or sports. It has been found that top athletes in some sports tend to have those proportions that biomechanically aid the particular performance required.

The relationships of cardiac performance, biochemical and anthropometric variables to the performance of different sports activities of different intensities and duration have to be established for scientific training. Hence, an effort has been made to study the relationship of selected variables from each category to the performance of the long distance runners and long distance cyclists.

The study was conducted on fifteen long distance runners and fifteen long distance cyclists of Kerala University, Thiruvananthapuram. The athletes of age 18-24 years, who were selected from the Kerala University Intercollegiate cross
country race and those selected for the inter university competition were taken as subjects.

In the case long distance cycling, the subjects were selected from the Kerala University cycling team. Twelve and half kilometer distance running performance of runners and 80 kilometer cycling performance of cyclists were taken as criteria for running and cycling performances.

**The cardiac performance variables analysed were:**

1) Resting heart rate.
2) Stroke volume
3) Left ventricular end diastolic diameter.
4) Left ventricular end systolic diameter
5) Ejection fraction, and
6) Fractional shortening.

**The biochemical variables tested were:**

1) Total cholesterol
2) Serum triglyceride
3) High density lipoprotein cholesterol
4) Low density lipoprotein cholesterol
5) Blood haemoglobin
6) Red blood corpuscles, and
7) White blood corpuscles

**Anthropometric variables measured were:**

1) Weight
2) Height
3) Total leg length
4) Calf girth, and
5) Thigh girth
Summary, Conclusions and Recommendations

Descriptive analysis in terms of mean, standard deviation, standard error, kurtosis, skewness, co-efficient of variation and range were employed to present the data on cardiac performance, biochemical and anthropometric variables of long distance runners and long distance cyclists. The relationship of the selected cardiac performance, biochemical and anthropometric variables to long distance running and cycling performance were found out by Pearson’s product moment coefficient of correlation. In order to compare the significance of differences between the long distance runners and long distance cyclists on the selected variables the t-ratio was employed. The level of significance chosen was 0.05.

Conclusions

Recognising the limitations of the present study the following conclusions may be drawn:

(1) There is significant positive relationship between resting heart rate and long distance running performance.
(2) There is significant negative relationship between stroke volume, and left ventricular end diastolic diameter to long distance running performance.
(3) There is significant negative relationship between blood haemoglobin and long distance cycling performance.
(4) There is significant negative relationship between weight and long distance cycling performance.
(5) There is significant negative relationship between thigh girth and long distance cycling performance.
(6) Significant differences were obtained between long distance runners and long distance cyclists on stroke volume.
(7) Significant differences were obtained between long distance runners and long distance cyclists on total cholesterol.
(8) Significant differences were obtained between long distance runners and long distance cyclists on serum triglyceride.
(9) Significant differences were obtained between long distance runners and long distance cyclists on low density lipoprotein cholesterol. 

(10) Significant differences were obtained between long distance runners and long distance cyclists on weight. 

Long distance runners attained low lipid levels, when compared to long distance cyclists in the present study. 

**Recommendation** 

In the light of the conclusions drawn, the following recommendations are made: 

(1) Similar studies may be conducted on subjects belonging to different age groups and different levels of performance. 

(2) Similar studies may be conducted with controlled intensity as laboratory experiments, following treadmill performance of the athletes. 

(3) Comparisons by means of cardiac performance, biochemical and anthropometric variables of sports persons belonging to different sports group can be made. 

(4) Cardiac performance variables structural and functional changes of elite athletes can be analysed. 

(5) Anthropometric measurements of lower extremities and pedalling cadence of cyclists need deep investigation. 

(6) The results of similar studies will be a guiding factor for classification of different sports events as well as planning systematic training schedules.