Chapter-V

SUMMARY AND CONCLUSION

5.1 SUMMARY OF THE STUDY:

The scientific study of exercise physiology is becoming increasingly important with the growing realization of the relation of exercise to health. Field and laboratory observations of exercise in human subject are being supplemented with physiological and biochemical studies on laboratory animals. The sports performances are always interconnected and interlinked with many factors related to sports physiology, exercise physiology, biomechanics and anthropometric measurements. Sports performance area can be improved only through the co-ordinated functioning of allied branches mentioned above. In the above backgrounds those who work in this field should have thorough knowledge of these newly emerging branches of sports science.

Sports performance is indeed an aspect of complex human performances, which has several dimensions. Hence, several disciplines of sports sciences are required to work in a coordinated manner to explore the nature of sports performance, and the process of improving sports performance. In the last few decades several disciplines of sports sciences namely Sports Medicine, Sports Physiology, Sports biomechanics, Sports Psychology, Sports Nutrition, etc. have been established. In recent times, the field of sports has become popular, since youth in quite large numbers from developed, developing and underdeveloped
countries are participating in large numbers with a recreational and professional approach. The outcome of their quantitative participation is the resultant performance and vast improvement in the sports and games standards. The impact of knowledge of science on sports has raised the standard of sports manifolds during the past century. The improvement in performance has taken place due to the application of since at various levels, such as improvement in facilities, training methods, conditioning, nutrition, psychological, physiological, biochemical and anthropometrical invention strategies etc.

The present study is aimed to elaborate at different categories of athletes dependent changes in anthropometrical measurements, physiological biochemical and psychological variables. This study is be made to find out the growth related changes of anthropometrical measurements, physiological, biochemical and psychological variables at different categories of athletes which can be useful for selection of athletes and to identify the potential deficiencies, and to undertake remedial measures to overcome the training stresses.

The purpose of the present study is to compare the selected anthropometrical, physiological, biochemical and psychological variables among different categories (sub-junior, junior and senior) of athletes of Karnataka. To achieve the purpose of the study, runners, jumpers and throwers were selected at random from each category of sub-junior, junior and senior (30 each), a total of 90 athletes in Karnataka state, India, who had their credit in participating state tournaments during the academic years 2012-13 in their respective events.

In the present study, variables were selected are Anthropometrical Measurements such as Chest Girth, Thigh Girth, Calf Girth, Leg Length, Arm Length); Physiological Variables such as Vital Capacity, Resting Heart Rate and
Breath Holding Time; Biochemical Variables such as Hemoglobin, Uric Acid, Differential Court (a) Neutrophil; (b) Eosinophil; (c) Basophil; (d) Lymphocytes and (e) Mano-cyte; and Psychological Variable such as Sports Competitive Anxiety. The researcher took all the measurements in this study with the assistance of physical education teacher/coaches/managers of concerned authorities. To ensure that the researcher was well versed with the technique of conducting tests, they had a number of practice sessions in the correct testing procedure. The tester’s reliability was established by test and re-test method. The data were collected from the runners, jumpers and throwers among different category athletes in Karnataka state who had participated in the tournaments during the academic years 2012-13 in their respective events.

The static group comparison design was employed as research design for the study. Ninety athletes were selected for the study and they were assigned into three groups based on their level of participation such as sub-junior, junior and senior. This study consists of one categorical variable and eighteen criterion variables.

All statistical analysis was performed with SPSS (Statistical Package for Social Science, Version 16.5). Descriptive statistics including mean scores and standard deviations were computed for all criterion variables. The collected data from the three groups on selected criterion variables were statistically analysed with One-way Analysis of Variance (ANOVA). Whenever the ‘F’ ratio was found to be significant, Scheffe’s test was followed as a post hoc test to determine which of the paired means difference was significant. All of the statistical techniques was computed at 0.05 level of significance (P<0.05).
5.2 CONCLUSION

With the limitations of the present study the following conclusion may be drawn:

1. There was a significant difference in the Chest Girth among different categories of athletes. The senior athletes had better chest girth than junior and sub-junior athletes. This may be due to age growth and nature of physical activity among the athletes.

2. There was no significant difference in the Thigh Girth among different categories of athletes.

3. There was no significant difference in the Calf Girth among different categories of athletes.

4. There was a significant difference in the Leg Length among different categories of athletes. The senior athletes had more leg length than junior and sub-junior athletes.

5. There was a significant difference in the Arm Length among different categories of athletes. The senior athletes had better arm length than junior and sub-junior athletes.

6. There was a significant difference in the Vital Capacity (Standing) among different categories of athletes. The junior athletes had better vital capacity in standing position when compared with sub-junior and senior athletes.

7. There was a significant difference in the Vital Capacity (Sitting) among different categories of athletes. The junior athletes had better vital
capacity in sitting position when compared with sub-junior and senior athletes.

8. There was a significant difference in the Vital Capacity (Lying down) among different categories of athletes. The junior athletes had better vital capacity in lying down position when compared with sub-junior and senior athletes.

9. There was a significant difference in the Resting Heart Rate among different categories of athletes. The junior athletes had better heart rate when compared with senior and sub-junior athletes.

10. There was a significant difference in the Breath Holding Capacity among different categories of athletes. The junior athletes had better breath holding capacity when compared with senior and sub-junior athletes.

11. There was no significant difference in the Hemoglobin among different categories of athletes.

12. There was no significant difference in the Uric Acid among different categories of athletes.

13. There was no significant difference in the Differential Counts (Neutrophil) among different categories of athletes.

14. There was no significant difference in the Differential Counts (Lymphocytes) among different categories of athletes.

15. There was no significant difference in the Differential Counts (Monocytes) among different categories of athletes.
16. There was no significant difference in the Differential Counts (Eosinophil) among different categories of athletes.

17. There was no significant difference in the Sports Competitive Anxiety Level among different categories of athletes.
5.3 SUGGESTIONS AND RECOMMENDATIONS

In the light of conclusion drawn, the following recommendations are made.

1. The information derived from this study is not only serves coaches in their selection of athletes, but also provide guidelines for training programs for athletes at different categories/levels.

2. The results are helpful for coaches, trainers to give necessary, adequate and regular training programmes at school and college levels to develop athletes with potentials so as to compete in district, state and national level games.

3. During the selection of player, the coaches and physical education directors should give proper consideration to physiological, anthropometrical and biochemical characteristics of an individual. Those who possess proper physique for a particular sport should be selected for that particular event.

4. The coaches and physical education directors should give proper emphasis to physiological, anthropometrical, biochemical and psychological components and developing athletic ability level for achieving better performance.

5. The results of the present study are expected to enhance the knowledge of physical education teachers, so as to enable them to give regular and adequate practices to genuine athletes and enhance their abilities to achieve better success.

6. The same study can be taken up by choosing the professional as subject.
7. Provides a valuable insight into the relevance of metabolism to sports performance, clearly describing the biochemical processes specific to different sports

8. Unique structure organizes the subject by sporting event to represent the differing needs of athletes

9. Underlying principles of biochemistry adeptly explained, eliminating the need for additional biochemistry texts

10. Further study can be extended to know the influence of anthropometric, physiological, biochemical and psychological factors on athletic performance in runners, jumpers and throwers individually.

11. The study provides non-significance of results in biochemical and psychological variables hence the study suggested to conduct further study to know the said variables between athletes and non-athletes.