Chapter V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

In athletics, the individual's performance is the combined result of the co-ordinated exertion and integration of a variety of psycho-physiological functions. In order to achieve top performance and championship qualities, the demands of actual event must be perfectly matched by the individual's capabilities. Sports training serves this end through exposing the athlete to a systematically progressive training load over a considerable period of time. This enables the athlete to achieve optimal performance in specific main competition.

As long as the demands in training and other demands of daily life are within the capacity of athlete, his athletic performance level develops normally and the athlete produces steadily improving results. On the contrary, if total work load is not within the capacity of athlete, it causes a progressively accumulated fatigue condition. This disturbs the optimum inter-relation between excitation and inhibition with reference to the activity of central nervous system.
In the process of training, practice is most effective when it closely resembles competition conditions. Because many competitions (i.e. basketball, football, and soccer) require performers to maintain a degree of excellence inspite of the stress and fatigue inevitable near the terminal moments, it would be beneficial for them to have practiced under the presence of similar fatiguelike conditions. Moderate fatigue apparently temporarily affects performance. Severe fatigue will cause decrements in performance. Practice under fatiguelike conditions simulates real conditions in which performance be expected; hence it can help to prepare the athlete more adequately for competition.

For the purpose of study one hundred students from Lakshmibai National College of Physical Education, Gwalior, constituted sportsmen group. These subjects had participated at All India Inter-university Competitions during the years 1985-86 and 1986-87 in selected sports of basketball, cricket, football, hockey and volleyball. Each selected sport was represented by twenty subjects. Non-sportsmen group was comprised of one hundred subjects selected from various Arts Colleges of Greater Gwalior, representing the same age, class and socio-economic groups. These subjects had never participated at any level of
competition in selected sports.

The tests on selected psychomotor components (depth perception, kinesthetic perception and time sense) and motor ability components (running speed, agility and two hand coordination) were administered in the Human Performance Laboratory and field adjacent to this laboratory at Lakshmibai National College of Physical Education, Gwalior. Depth perception was measured by Depth Perception Box; kinesthetic perception by Kinesthetic Obstacle Test; time sense by Electronic Time Sense Apparatus; running speed by 50 yards Dash; agility by SEMO'S Agility Test; and two hand coordination by Electrical Two Hand Coordination Apparatus. Reliability of data was established before actual collection of data.

For the purpose of study, the physical fatigue was the experimental variable. The influence of three different levels of physical fatigue was investigated on selected psychomotor and motor ability components. As a result of this four sets of scores were obtained on each of selected variable - under normal condition; under low level physical fatigue; under moderate level physical fatigue; and under high level physical fatigue. These three levels of physical fatigue were induced by pedalling
bicycle ergometer for a constant time period to elicit required pulse rate. The different amounts of load to induce low, moderate and high levels of physical fatigue were determined through a pilot study.

After inducing particular level of physical fatigue the subject was tested on one variable on a particular day. Before inducing different level of physical fatigue or testing on other variable, sufficient recovery was assured on the part of subject. This was done to obtain more authentic results.

The analysis of effects of varying levels of physical fatigue on selected psychomotor and motor ability components of sportsmen and non-sportsmen was done by two way analysis of variance. This two way analysis of variance was applied for each variable separately. The significance of F-ratio, obtained by two way analysis of variance was tested at .05 level of confidence. Wherever F-ratio was found significant, Sheffe's S Test of post hoc was employed to test the significance of differences between paired ordered means.

Two way analysis of variance revealed that sportsmen and non-sportsmen significantly differed from each other on the components of depth perception (59.039), kinesthetic perception (87.160), time sense (18.745), running speed
(668.85), agility (155.551) and two hand coordination (27.9556) under varying levels of physical fatigue. When considered together, sportsmen and non-sportsmen exhibited statistically significant decrease in their performance on the components of depth perception (30.166), kinesthetic perception (11.74), running speed (47.31), agility (16.136) and two hand coordination (101.3191) under varying levels of physical fatigue.

**Conclusions**

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

1. Sportsmen and non-sportsmen significantly differed from each other on the components of depth perception, kinesthetic perception, time sense, running speed, agility and two hand coordination under varying levels of physical fatigue.

2. Sportsmen and non-sportsmen, when considered together, performed significantly different on the components of depth perception, kinesthetic perception running speed, agility and two hand coordination under varying levels of physical fatigue.

3. Sportsmen and non-sportsmen, when considered
together, did not perform significantly different on the component of time sense under varying levels of physical fatigue.

4. Significant interaction existed between the groups (sportsmen and non-sportsmen) and varying levels of physical fatigue on the components of depth perception, running speed, agility and two hand coordination.

5. Significant interaction did not exist between the groups (sportsmen and non-sportsmen) and varying levels of physical fatigue on the components of kinesthetic perception and time sense.

Recommendations

Based on the conclusions of this study, the following recommendations have been made:

1. While framing training programme sincere attempt may be made to train the sportsmen to withstand the influence of physical fatigue on the components of depth perception, kinesthetic perception, running speed, agility and two hand coordination.

2. Effects of mental fatigue may be analysed on variables selected for the purpose of study or effects
of physical fatigue may be assessed on the variables other than selected in this study.

3. Similar study may be undertaken related with subjects of higher trained level than subjects employed in this study i.e., national and inter-national level.

4. Similar investigation may be conducted on the subjects of age and sex other than involved in this study.