Chapter V

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

Summary

The necessity of superior performance in sport has impelled coaches to use increasingly effective and sophisticated training methods. This has been better served by applying the principles of periodization, whereby, as levels of a particular fitness component increase, a higher exercise stress is required to create overload and lead to specific physiological adaptations. The modern theory of periodization was advanced in the early 1960s when coaches realized that focusing on an important competition was more effective than preparing the athlete for a year-round competition programme. There is general consensus that fitness and conditioning programs must follow a periodization schedule relative to the timing of the competition phase within annual training plan. Most team sports undertake the majority of their fitness training during the pre-season so that upper and lower body power is at its peak during the competition phase, while competition-phase training focuses on individual skills and team-work (Bompa, 2000). This has been supported by limited scientific data indicating that athletes who train using periodized models attain levels of performance superior to those who use non-periodized models. Performance improvements in most sport activities have been directly linked to changes in structures and metabolic capacities of skeletal muscle. This was the pioneering attempt made to verify the existence of an anecdotal perception that fitness capabilities fluctuates during a periodized training year,
and to assess the capitulated peaking of physical fitness and physiological profiles during the periodized hockey training, and thereby the study was intended to examine the changes on selected physical fitness and physiological profiles during two years of periodized training for RDT hockey academy players of different ages. For this purpose, all the twenty (20) male hockey players in respective age categories from RDT Hockey Academy, Ananthapur, were selected as subjects, and they were segregated into two groups based on their chronological age (10 to 12 years; N=9 and 14 to 16 years; N=11) as juniors and seniors.

The physical fitness and physiological profiles selected as criterion variables for the study were speed, agility, power, abdominal muscular endurance, arm-shoulder muscular endurance, flexibility, aerobic capacity and resting heart rate. And, the independent variable confined to this study was the periodized hockey training for two years in RDT Hockey Academy, Ananthapur. The testing for collection of data was carried out at the beginnings of general preparation (T1), at the beginning of specific preparation (T2), at the beginning of pre competitive phase (T3) and at the beginning of competitive phases of training (T4). For the purpose of evaluating the data on selected criterion variables three-way analysis of variance with repeated measures on last two factors was computed. Whenever, the ‘F’ ratio for interaction was found significant, simple effect was used as a follow-up test. Then, the Scheffé S test was applied as post hoc
test to determine the significant paired mean differences. The level of confidence was fixed at 0.05 to test the significance.

**Conclusions**

1. There is an existence of age-wise group difference irrespective of training years and different phases on abdominal muscular endurance, arm-shoulder muscular endurance, flexibility, maximum oxygen consumption and resting heart rate.

2. The data on speed, agility, power, abdominal muscular endurance, arm-shoulder muscular endurance, flexibility, maximum oxygen consumption and resting heart rate of hockey players differs significantly between two years of systematic hockey training irrespective of age difference and different phases.

3. The data on speed, agility, power, abdominal muscular endurance, arm-shoulder muscular endurance, flexibility, maximum oxygen consumption and resting heart rate of hockey players fluctuates appreciably among different phases irrespective of age difference and training years.

4. The speed, explosive power and arm-shoulder muscular endurance of both age groups at different phases during two training years were found to be significant.
5. The senior high schoolboys were superior on sprinting speed as compared to junior high schoolboys through all the phases of training during the training year 2010-11, and also at phase 1 and 2 during the training year 2011-12. Similar, observations were made with regard to explosive power and arm-shoulder muscular endurance through all the phases of training during the training years 2010-11 and 2011-12.

6. The sprinting speed, explosive power and arm-shoulder muscular endurance of both juniors and seniors improved significantly from phase to phase during the training years 2010-11 and 2011-12 as a result of systematic training.

7. The emphasis for development of speed during periodized hockey training is given in the fourth phase, for the explosive power in the third phase, and for arm-shoulder muscular endurance in the first phase.

8. The improvement on sprinting speed, explosive power and arm-shoulder muscular endurance at each of the training phases of both junior and senior high schoolboys were distinctive between the periodized hockey training years.

**Recommendations**

The outcome of the present study may gratify to the demands for augmentation of peaking fitness profiles for competitive season and thereby
eventually enhancing hockey performance by suggesting the following recommendations.

1. The main direction for further research is to investigate the influence of periodized hockey training among various ages for both male and female players with different levels of experience in periodized training.

2. Studies may be conducted with such periodized hockey training to assess the efficacy of linear and undulated training load, and compare its effectiveness.

3. Studies may also be conducted to evaluate the effectiveness of training modalities at different training phases in seclusion for the peak performance at competitive phase.

4. Additional dependent variables should also be investigated to elucidate potential benefits of periodized hockey training in tests specific to hockey.

5. Since, competitive load and its stress upon players were difficult to quantify, further studies may be conducted with control groups in order to adjust the variances because of varying climatic conditions at different phases and competitive experiences in the development of fitness.

6. Periodized hockey training studies like this would require a larger number of players to participate than were available for this thesis. A
larger sample of players would ensure a sufficient number of players completed the training and were available for testing, in light of the high subject mortality that could likely occur due to chronic and acute injuries sustained during routine hockey training. To recruit a larger sample of players with a less demanding schedule would likely require study participants of a lower standard than those participated in this study.

7. Since the majority of players train in year round programs and often compete in several leagues (school, city, and representative programs) at any given time, their opportunity for periodized programs is limited. It is important to recognise that there is little opportunity for players to improve fitness, even at the junior State level, so fundamental movement skills (e.g. sprinting and jumping) and fitness must be developed prior to this level in junior clubs and school physical education and sport programs. Once players reach senior and representative levels, coaches may place such a high emphasis on team and individual skills that little fitness develops in the limited amount of time allocated for physical conditioning in a periodized program.

8. For the purpose of multi-faceted development of fitness for sports performance and health, it is essential to undergo a periodized training protocol that caters to the demands of the team players, athletes and common man.
9. Based on the findings of the study and by reviewing the research literatures, the investigator is in the position to suggest that there is a need to evaluate the predominant characteristics of players of different levels of participation and achievement with hockey skill performance.