CHAPTER - V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary

Previous studies in the field of sports training have positively documented that the physical training either with the mode of periodization or of combined training significantly develops the physical fitness components and physiological variables that are the sources for improving the skill performance of a player in sports and games. Besides basically these two are differed in nature. But the research studies in these areas had mostly emphasized their effects mainly on physical components (strength, power, endurance or flexibility) and ignored the physical training that are specific to sports. Now-a-days the most preferred training is sport specific training that reflects the movements of the sports to develop the performance related components and skill performance variables rather than the varied methods of physical training. Since the sports specific training is formulated based on the nature that is used to develop the physical, physiological and skill performance. Thus in nature, sports specific training has significant effects. Moreover to find the magnitude of effect, and enhance the treatment, of the variance can be maximized while executing the treatment through the periodized form or combined form, in turn the players can also be benefited in time. With this purpose, the scientific structured handball specific training was treated under two different conditions such as periodized form and combined form.

To achieve the purpose of the study, 112 healthy men handball players were selected as samples from the team qualified for the quarterfinals in the Sivagangai district inter-collegiate handball tournament. Ensuring the quality in selection of samples, as a criterion measure, overall playing ability was considered. The overall playing ability of selected samples was assessed by a team of three experts (including the investigator)
using a 10 point rating scale. Based on the performance of overall playing ability of the 112 handball players, 71 handball players were selected excluding the players scored lower and upper quarter. Therefore of the 71 handball players, 60 players were selected randomly as subjects for this present study.

The subjects selected (N=60), were assigned randomly into three groups namely experimental group-1, experimental group-2 and control group, consisting of 20 each. Thus they were named experimental group-1 as Periodized Handball Specific Training Group (PHSTG) – I, experimental group-2 Combined Handball Specific Training Group (CHSTG) - II and control group as and Traditional methods of Training Group (TMTG) - III. The subjects of three groups were measured on the following variables: speed, agility, upper extremity strength, lower extremity strength, arm explosive power, leg explosive power (physical), maximum volume of oxygen consumption, resting heart rate (physiological) and overall playing ability using the standardized tests and equipments. For measuring the overall playing ability, expert rating method using 10 point scale was used. Thus the data collected were considered as pre-test score. After completion of above task, the players of each group were assigned one of the following three treatments. The experimental group-I underwent Periodized handball specific training, experimental group-II underwent Combined Handball specific training and Traditional method of training group -III practiced pure resistance, aerobic and plyometric apart from the participation in the handball skill practice. The treatment was given for the three groups three days a week in alternate days for about 12 weeks totally. After completion of twelve weeks of treatment period, the subjects of the three groups were tested on variables used in the present study as such in the case of pre-test. The collected data were treated with the appropriate statistical technique of analysis of covariance to study the comparative effects among the three
different treatments and paired t-test to study the individualized effect on variables used in the study.

Results

The results derived from the analysis of individualized effect and comparative effects are as follows.

5.2 Findings

The findings observed on individualized effects of PHST, CHST and TMT on physical, physiological and overall playing ability of male collegiate team handball players are enlisted below. On testing the effect of PHST, CHST on physical, physiological and overall playing ability significant mean difference was observed.

1. The mean difference between pre-test and post-test of PHST on variables namely, speed, agility, upper extremity strength, lower extremity strength, leg explosive power, arm explosive power (physical) maximum oxygen consumption, resting heart rate (physiological) and overall playing ability was statistically significant,

2. The mean difference between pre-test and post-test of CHST on variables namely, speed, agility, upper extremity strength, lower extremity strength, leg explosive power, arm explosive power (physical) maximum oxygen consumption, resting heart rate (physiological) and overall playing ability was statistically significant.

3. The mean difference between pre-test and post-test of TMT on variables namely, speed, agility, upper extremity strength, lower extremity strength, leg explosive power, arm explosive power (physical), maximum oxygen consumption, resting heart rate (physiological) and overall playing ability was statistically not significant,
4. The mean difference observed among PHST, CHST and TMT on variables namely, speed, agility, upper extremity strength, lower extremity strength, leg explosive power and arm explosive power (physical), maximum oxygen consumption and resting heart rate (physiological) and overall playing ability prior to treatment (pre-test) was statistically not significant,

5. The mean difference observed among PHST, CHST and TMT on variables namely, speed, agility, upper extremity strength, lower extremity strength, leg explosive power and arm explosive power (physical), maximum oxygen consumption and resting heart rate (physiological) and overall playing ability after completion of twelve weeks period of treatment (post-test) was statistically significant,

6. In testing the adjusted post test mean difference observed among PHST, CHST and TMT on variables namely, speed, agility, upper extremity strength, lower extremity strength, leg explosive power and arm explosive power (physical), maximum oxygen consumption and resting heart rate (physiological) and overall playing ability was statistically significant,

7. Similar effects was found between PHST and CHST on speed, agility explosive power and heart rate,

8. PHST performed better on the lower extremity strength, upper extremity strength maximum oxygen consumption and overall playing ability as compared to CHST,

9. CHST was performed better on development of arm explosive power as compared to PHST, and

10. PHST and CHST were performed better on variables used in the study-speed, agility, upper extremity strength, lower extremity strength, leg explosive power, arm explosive power (physical), maximum oxygen consumption, heart rate (physiological) and overall playing ability as compared to TMT group.
5.3 Conclusions

From the results of the present study the following conclusions have been made

1. Periodized handball specific training is found as highly effective on physically lower extremities strength, and upper extremities strength. Physiologically effectiveness was observed on maximum oxygen consumption as compared the players treated with combined form of handball specific training.

2. As far as overall playing ability is concerned, it was concluded that periodized form of practicing the handball specific training would be a significant source as compared to the players treated with the combined form.

3. In developing the power related variables namely, arm explosive power, leg explosive and speed, it was observed from the results that similar effect produced by both periodized handball specific training and combined handball specific training on leg explosive power can be accommodated to the influence of plyometric training that is a common training for both.

4. Observing the results derived on individualized effect of periodized handball specific training and combined handball specific training on physical, physiological variables, it is concluded that though the skill related drills, general and specific conditioning exercises, are the sources to develop the aerobic capacity, incorporating the aerobic training into sports specific training program would enhance the aerobic power in addition to develop the sustainability during the course of multiple components of training.

5. Previous studies in the field of sports training such as aerobic training, resistance training, interval training, intermittent training, plyometric training have helped the sportsman to perform better. A similar method of sports training has been used in the present study. However, the training program administered here is not a general one, but it is used for all the sports. The present training program designed specially for the handball game, and it also executed as a periodized handball training program.
From the results and overall aspects of the present study, it is concluded that having the varied form of intensity, load and frequency as in the case of periodized form, or combined form, would help the athlete to free from injuries and to maintain the tempo of training over the course of training period positively.

5.4 Recommendation

1. In the present study, individual effects of periodized handball specific training and combined handball specific training are explained positively on the performance of physical (speed, agility, upper extremity strength, lower extremity strength, leg explosive power, arm explosive power), physiological (maximum oxygen consumption) variables and overall playing ability of team handball players. Having the significant influence of these two different handball specific training program, it is recommended to physical education teachers, coaches and trainers to prefer this type of training so as to reach their aim in time.

2. Handball specific training used in the present study is specifically formulated for in-season training. Hence, it is recommended to trainers, based on the nature, a handball specific training program can also be formulated for pre-season.

3. While designing the sports specific training it is to recommend that a resistance of team comprising a coach, a renowned player, exercise physiologist, physical education teacher and physical trainer may be sought. It would provide validity in selecting the physical exercises which underlie the movements of sports to which the sport specific training has to be formulated.
5.5 Future Work

1. In the present study, the specifically designed periodized handball specific training programme and combined handball specific training are used for competitive session. Hence a study may be conducted to test the effects during preseason and competitive season.

2. Plyometric training used in the handball specific training is not in the progressive nature. So a study may be conducted in future by plyometric using periodized to study its effects on performance related components of handball players.

3. Complex training may be used in implicating specific training for sport. Thus a study can be conducted using resistance and plyometric as so called complex training to study its effect on the development of performance of players.

4. Micro study can be conducted in order to analyze the changes of players due to sport specific training using factorial design.

5. In addition, to study the changes from base line to post treatment, a study may be taken to evaluate periodical progress over the period of training on physical, physiological and skill performance of players.

6. Earlier studies positively confirmed the psychological influence on the effect of physical training on physical and physiological aspects, a study may be taken by incorporating the psychological training into sport specific training.