SUMMARY CONCLUSIONS
AND RECOMMENDATIONS
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5:1 SUMMARY

5:1.1 INTRODUCTION

Sports performance has triggered off a rigorous competition to research on sports physiology, sports training, sports nutrition, sports medicine, sports psychology and bio-mechanics. Sports performance is a complicated multi-dimensional process of tackling a given sports task. In modern days, highly competitive sports essentially require a very effective and specific selection of participants, improved training procedures, advanced techniques and modern facilities.

Generally the sports performance depends largely upon physical fitness factors such as speed, strength, agility, flexibility and endurance which should be optimally developed. Also the status of sportsmen is determined by physiological factors such as maximum oxygen uptake, physical working capacity, forced vital capacity, total lung capacity and other cardio-pulmonary variables. Development and perfection of various skills in a specific game and execution of them successfully have direct impact on the
total performance of the game.

Training the players is a matter of constructing an exercise programme that develops what the individual will need for his or her specific event. A comprehensive and thorough programme of physical training will enhance a player's performance.

Football is an extremely complex sport with a profile of manifold requirements such as speed, strength, endurance, flexibility and agility. It also involves lot of skills and tactical maneuvers. There has been considerable interest among players and coaches about scientific aspects of football with regard to fitness profile and other demands of the game.

Therefore there is need at present to have a scientifically framed specific training package at college level with a critical approach to training by outlining the demands that underlie football.

5:1.2 Procedure

The subjects for this investigation were 45 men football players who had participated in the Bharathiar University inter-collegiate football tournament 1994-95. They were randomly selected and divided randomly into three groups namely specific pre-season training package group, traditional method of training group and control group.
The criterion variables selected were the physical fitness variables of speed, endurance, agility, flexibility, explosive power, leg strength, percent body fat and lean body weight, cardio-pulmonary variables of physical working capacity, VO₂ max., total lung capacity, tidal volume, forced vital capacity, forced expiratory volume and maximum voluntary ventilation and skill performance of dribbling, kicking, ball control and general playing ability. Tests were administered prior to training (pre test), after fourth week (2nd test), eighth week (3rd test) and twelfth week (final test) of the training period.

In order to find out whether the obtained differences between the means of the pretest, 2nd test (4th week), 3rd test (8th week), and final test (12th week) are statistically significant, Repeated measures ANOVA was applied. When the F ratio was found to be significant, Newman - Keuls posthoc test was applied to test which of the possible comparison among means are significant. Analysis of covariance was applied to determine the significant difference among the three groups namely specific pre-season training package group, traditional method of training group and control group in the development of selected variables after 12 weeks of training. When F ratio was found to be significant the Scheffe's posthoc test was applied to test the significant difference of pairs of adjusted final
5:1.3. **FINDINGS**

The findings of the study are given below:

1. The specific pre-season training package group and the traditional method of training group did not show any significant improvement in any of the selected variables at the end of the 4th week of training.

2. The specific pre-season training package group showed significant ($P < .05$) improvement in the physical fitness variables of speed, endurance, agility, explosive power, leg strength and lean body weight, cardio-pulmonary variables of physical working capacity, $VO_2\ max.$, tidal volume, total lung capacity and forced vital capacity and skill performance of dribbling, ball control, kicking with left leg and right leg and general playing ability and showed significant decrease in percent body fat at the end of the 8th week of training.

3. The traditional method of training group made significant ($P < .05$) improvement in the physical fitness variables of speed, endurance, flexibility, explosive power and leg strength, cardio-pulmonary variables of physical working capacity, $VO_2\ max.$, total lung capacity and forced vital capacity and skill performance of dribbling, ball control and kicking with left leg and right leg at the end of the 8th week of training.
4. The specific pre-season training package group showed significant (P<.05) improvement in cardio-pulmonary variables of forced expiratory volume and maximum voluntary ventilation only at the end of the 12th week of training.

5. The traditional method of training group showed significant (P<.05) improvement in the cardio-pulmonary variables of physical working capacity and tidal volume and skill performance of general playing ability only after the 12th week of training. The group did not show any significant improvement in the physical fitness variables of agility and lean body weight and cardio-pulmonary variables of forced expiratory volume and maximum voluntary ventilation and showed no significant decrease in percent body fat even at the end of the 12th week of training.

6. The control group did not show any significant improvement or decrease in any of the selected variables even at the end of the 12th week.

7. The specific pre-season training package group made significant (P<.05) improvement during the second phase of training (4th week to 8th week) in the physical fitness variable of speed, endurance, agility, flexibility, explosive power, leg strength and lean body weight, cardio-pulmonary variables of physical working capacity, VO₂ max., tidal volume and forced vital capacity and skill performance of dribbling, ball control, kicking with left leg and right leg
and general playing ability. And the group made no significant change during this phase in percent body fat, total lung capacity, forced expiratory volume and maximum voluntary ventilation.

8. The traditional method of training group made significant (P < .05) improvement during the second phase of training (4th week to 8th week) in the physical fitness variables of speed, flexibility, explosive power and leg strength, cardio-pulmonary variables of physical working capacity, VO$_2$ max., total lung capacity and forced vital capacity and skill performance of dribbling, ball control, kicking with left leg and right leg and general playing ability. The group made no significant change during this phase in physical fitness variables of endurance, agility, percent body fat and lean body weight, cardio-pulmonary variables of tidal volume, forced expiratory volume and maximum voluntary ventilation.

9. The control group did not show any significant change during the second phase (4th week to 8th week) in any of the selected variables.

10. Further the specific pre-season training package group showed significant (P < .05) improvement during the third phase of the training (8th week to 12th week) in cardio-pulmonary variables of physical working capacity, VO$_2$ max., tidal volume, total lung capacity, forced vital capacity and
forced expiratory volume and skill performance of ball control and general playing ability. The group made no further significant change during this phase in all the physical fitness variables, cardio-pulmonary variables of maximum voluntary ventilation and skill performance of dribbling and kicking with left leg and right leg.

11. The traditional method of training group showed further significant (P<.05) improvement during the third phase of the training (8th week to 12 week) in cardio-pulmonary variables of VO2 max. and tidal volume and skill performance of dribbling, kicking with left leg and right leg and general playing ability. The group did not show further significant change during this phase in all the selected physical fitness variables, cardio-pulmonary variables of physical working capacity, total lung capacity, forced vital capacity, forced expiratory volume and maximum voluntary ventilation and skill performance of ball control and kicking with left leg.

12. The control group did not show any significant change during the third phase (8th week to 12th week) in any of the selected variables.

13. ANACOVA revealed that the specific pre-season training package group made significant (p<.05) gain over the traditional method of training group in physical fitness variables of speed, agility, leg strength and lean body
weight, cardio-pulmonary variables of physical working capacity, VO$_2$ max., total lung capacity, forced vital capacity and maximum voluntary ventilation and skill performance of dribbling, ball control and general playing ability.

14. The analysis revealed a trend on the physical fitness variables of endurance, flexibility and percent body fat and cardio-pulmonary variables of tidal volume and forced expiratory volume to be greater in the specific pre-season training package group than in the traditional method of training group.

15. The specific pre-season training package group made significant (p<.05) gain over the control group in all the selected variables.

16. The traditional method of training group made significant (p<.05) gain over the control group in physical fitness variables of speed, endurance, agility, flexibility, explosive power and leg strength, cardio-pulmonary variables of physical working capacity and forced vital capacity and skill performance of dribbling, ball control, kicking with left leg and right leg. The group did not show significant difference over the control group in physical fitness variables of percent body fat, lean body weight, cardio-pulmonary variables of VO$_2$ max., total lung capacity and maximum voluntary ventilation and skill performance of
The following conclusions are drawn based on the findings of the study.

1. The constructed specific pre-season training package is significantly effective than the traditional method of training in promoting desirable changes in physical fitness variables of speed, agility, leg strength and lean body weight, cardio-pulmonary variables of physical working capacity, VO$_2$ max., total lung capacity, forced vital capacity and maximum voluntary ventilation and skill performance of dribbling, ball control and general playing ability.

2. There was no training effect during the first phase of four weeks of constructed specific pre-season training in any of the selected variables.

3. Eight weeks of specific pre-season training package had indicated significant improvement in the physical fitness variables of speed, endurance, agility, flexibility, explosive power, and leg strength, cardio-pulmonary variables of physical working capacity and forced expiratory volume and skill performance of dribbling, ball control, kicking with right leg and left leg and general playing ability.
4. The cardio-pulmonary variables of forced expiratory volume and maximum voluntary ventilation required a minimum of 12 weeks of specific pre-season training for significant improvement.

5. The specific pre-season training package has produced significant effect in all the selected physical fitness variables, cardio-pulmonary variables and skill performance except in percent body fat, total lung capacity, forced expiratory volume and maximum voluntary ventilation during the second phase (4th to 8th week) of the pre-season.

6. Training effects during the last phase of four weeks of constructed specific pre-season training (8th to 12th week) had significant effect only in cardio-pulmonary variables of physical working capacity, VO₂ max., tidal volume, total lung capacity, forced vital capacity, forced expiratory volume and skill performance of ball control and general playing ability.

5:3. RECOMMENDATIONS

Based on the major findings of the present study the following suggestions were made.

1. Since this study has proved that specific pre-season training package enhanced the physical fitness variables, cardio-pulmonary variables and skill performance of the football players, it is suggested that the coaches and
physical education teachers can follow this package to train college level football players.

2. It is suggested that programmes of similar type for various levels like university, state and national can be prepared with varied intensity, load and duration.

3. The results showed that there is no significant improvement in all the physical fitness variables and skill performance of dribbling and kicking from 8th week of training, hence it is suggested a similar study may be conducted with increase in volume and intensity of load after the 8th week of training.

4. A similar study may be undertaken which includes the nutritional effect and psychological variables.