CHAPTER-V

FINDINGS, CONCLUSION, DISCUSSION OF RESULTS, AND SUGGESTIONS AND RECOMMENDATIONS

The present study was designed to conduct the comparative study of selected Anthropometrical and physiological variables among the Kabaddi and Kho-Kho players of Haryana who participated in State Championship and Haryana Olympic Games. In the present study the following Anthropometric and physiological variables were taken:

5.1 FINDINGS

1. It was found that there is a significant difference in weight of Kho-Kho and Kabaddi players. The weight of Kabaddi players is much higher in comparison to weight of Kho-Kho players.

2. It was found that there is a significant difference in height of Kho-Kho and Kabaddi players. The height of Kabaddi players is much higher in comparison to height of Kho-Kho players.

3. It was found that there is no significant difference in total leg length of Kho-Kho and Kabaddi players.

4. It was found that there is no significant difference in thigh length of Kho-Kho and Kabaddi players.

5. It was found that there is a significant difference in lower leg length of Kho-Kho and Kabaddi players. The lower leg length of Kabaddi players is much higher in comparison to Kho-Kho players.
6. It was found that there is a significant difference in foot length of Kho-Kho and Kabaddi players. The foot length of Kabaddi players is much higher in comparison to Kho-Kho players.

7. It was found that there is a significant difference in foot width of Kho-Kho and Kabaddi players. The foot width of Kabaddi players is much higher in comparison to Kho-Kho players.

8. It was found that there is a significant difference in total arm length of Kho-Kho and Kabaddi players. The total arm length of Kabaddi players is much higher in comparison to Kho-Kho players.

9. It was found that there is no significant difference in upper arm length of Kho-Kho and Kabaddi players.

10. It was found that there is a significant difference in forearm length of Kho-Kho and Kabaddi players. Forearm lengths of Kabaddi players are higher in comparison to Kho-Kho players.

11. It was found that there is no significant difference in hand length of Kho-Kho and Kabaddi players.

12. It was found that there is no significant difference in trunk length of Kho-Kho and Kabaddi players.

13. It was found that there is a significant difference in sitting height of Kho-Kho and Kabaddi players. Sitting height of Kabaddi players are much in comparison to Kho-Kho players.

14. It was found that there is a significant difference in shoulder circumference of Kho-Kho and Kabaddi players. The shoulder of Kabaddi players is much higher in comparison to Kho-Kho players.

15. It was found that there is a significant difference in chest circumference of Kho-Kho and Kabaddi players. The chest of Kabaddi players are much in comparison to kho-kho players.
16. It was found that there is no significant difference in abdomen circumference of Kho-Kho and Kabaddi players. Abdomen of Kabaddi players is more than in comparison to Kho-Kho players.

17. It was found that there is a significant difference in hip circumference of Kho-Kho and Kabaddi players. Hips of Kabaddi players are more in comparison to kho-kho players.

18. It was found that there is a significant difference in thigh of Kho-Kho and Kabaddi players. Thigh of Kabaddi players are more in comparison to Kho-Kho players.

19. It was found that there is a significant difference in calf of Kho-Kho and Kabaddi players. Calf of Kabaddi players are more in comparison to Kho-Kho players.

20. It was found that there is a significant difference in biacromial of Kho-Kho and Kabaddi players. The biacromial diameter of Kabaddi players is much higher in comparison to Kho-Kho players.

21. It was found that there is no significant difference in bitrochanteric diameters of Kho-Kho and Kabaddi players.

22. It was found that there is no significant difference in femur bicondylar of Kho-Kho and Kabaddi players.

23. It was found that there is a significant difference in ankle diameter of Kho-Kho and Kabaddi players. Ankle diameter of Kabaddi players are much in comparison to kho-kho players.

24. It was found that there is a significant difference in biceps skinfolds of Kho-Kho and Kabaddi players. The biceps of Kabaddi players is much higher in comparison to Kho-Kho players.

25. It was found that there is no significant difference in triceps skinfolds of Kho-Kho and Kabaddi players.

26. It was found that there is no significant difference in sub-scapular skinfolds of Kho-Kho and Kabaddi players.
27. It was found that there is a significant difference in suprailiac skinfolds of Kho-Kho and Kabaddi players. Kabaddi players having much suprailiac than kho-kho players.

28. It was found that there is no significant difference in thigh skin-folds of Kho-Kho and Kabaddi players.

29. It was found that there is no significant difference in calf skin-folds of Kho-Kho and Kabaddi players.

30. It was found that there is a significant difference in body density of Kho-Kho and Kabaddi players. The body density of Kho-kho players is much higher in comparison to Kabaddi players.

31. It was found that there is a significant difference in Fat% of Kho-Kho and Kabaddi players. The Fat % of Kho-kho players is less than Kabaddi players.

32. It was found that there is a significant difference in fat weight of Kho-Kho and Kabaddi players. The fat weight of Kho-kho players is less than Kabaddi players.

33. It was found that there is a significant difference in fat lean body mass of Kho-Kho and Kabaddi players. The lean body mass of Kho-kho players is less than Kabaddi players.

34. It was found that there is a significant difference in diastolic blood pressure of Kho-Kho and Kabaddi players. The diastolic blood pressure of Kho-kho players is less than Kabaddi players.

35. It was found that there is no significant difference in systolic blood pressure of Kho-Kho and Kabaddi players.

36. It was found that there is a significant difference in basal pulse rate of Kho-Kho and Kabaddi players. The basal pulse rate of Kho-kho players is less than Kabaddi players.
37. It was found that there is a significant difference in Haemoglobin of Kho-Kho and Kabaddi players. The Haemoglobin of Kho-kho players is less than Kabaddi players.

38. It was found that so there is no significant difference in FEV1 of Kho-Kho and Kabaddi players.

39. It was found that there is no significant difference in PEF of Kho-Kho and Kabaddi players.

5.2 CONCLUSION

It was concluded that there is a significant difference in linear measurements such as weight, height, lower leg length, foot length, foot width, total arm length, forearm length, sitting height in comparison to Kho-Kho players. Kabaddi players are found more in weight, weight, height, lower leg length, foot length, foot width, total arm length, forearm length, sitting height in comparison to Kho-Kho players. But no significant difference was found in total leg length, thigh length, upper arm length, hand length, trunk length.

Regarding body circumferences, there is a significant difference in shoulder, chest, hip, thigh, calf between Kabaddi and Kho-Kho players. Kabaddi players are found more in shoulder, chest circumferences, hip, thigh, calf, but there is no significant difference was found in abdomen.

Regarding bone diameter, there is a significant difference in biacromial and ankle diameters. Kabaddi players are found more in biacromial and ankle diameters in comparison to Kho-Kho players. But no significant difference was found in bitrochanteric diameters and femur bicondylar between Kabaddi and Kho-Kho players.

Regarding skin-fold, there is a significant difference in biceps, and suprailliac. Kabaddi players are found more in biceps and suprailliac in comparison to Kho-Kho players. But no significant difference was found in triceps, subscapular, thigh and calf between Kabaddi and Kho-Kho players.
Regarding body composition, there is a significant difference in Fat percent, fat weight and lean body mass. Kabaddi players are found more in Fat percent, fat weight and lean body mass in comparison to Kho-Kho players. There is a significant difference in body density between Kabaddi and Kho-Kho players. Kho-Kho players are more in body density in comparison to Kabaddi players.

In case of physiological parameters, there is a significant difference in diastolic blood pressure, haemoglobin and basal pulse rate. Kabaddi layers are found more in diastolic blood pressure, haemoglobin in comparison to Kho-Kho players. But no significant difference was found in systolic blood pressure, FEV1 and PEF between Kabaddi and Kho-Kho players.

5.3 DISCUSSION OF RESULTS

The present study was conducted with respect to compare the physiological and anthropometrical variables between Kho-Kho and Kabaddi players. In our study, it was found that there is a significant difference in biceps and suprailiac skin-fold between Kho-Kho and Kabaddi players. Kabaddi players were better in biceps and suprailiac skin-fold in comparison to Kho-Kho players. The findings of the present study are in consonance or contrast with the findings of Dhillo (2007) and Naresh (2004), who compared skin-folds measurement and body composition variables these games players. The skin-fold measurement such as biceps, triceps, suprailiac, thigh and calf Kabaddi players were found significantly better than compare to Kho-Kho players.

On the basis of result of present study, it was concluded that there exist a significant difference in fat %, fat weight and lean body mass between Kabaddi and Kho-Kho players. Kabaddi players having much fat %, fat weight and lean body mass in comparison to Kho-Kho players. The findings of our study were in consonance with the findings of Dey, Khanna, Batra (1993) conducted a
study of twenty five national Kabaddi Players (Asiad Gold Medalists 1990). Body fat was calculated from skin fold thicknesses taken at four different sites, using Harpenden skin fold calipers. The mean (S.D.) percentage body fat (17.56 (3.48) of Kabaddi player was found to be higher than normal sedentary people. In our study, it was found that fat %, fat weight and lean body mass of Kabaddi players were higher in comparison to Kho-Kho players, these findings are also in consonance with the findings of Dhillo (2007) who also found that Kabaddi players were significantly better than the Kho-Kho players in body composition variables such as Fat%, Fat weight and lean body mass. Kho-Kho players were significantly better than the Kabaddi players in body composition variables such as body density.

The present study reveals that there was a significant difference in linear measurement such as height, lower leg length, foot length, foot width, total arm length, forearm length and sitting height. Kabaddi players are much better than Kho-Kho players. Most of our findings are similar with the findings of Naresh (2004) who found that Kabaddi players were significantly better than the Kho-Kho players in linear measurement such as height, thigh length, for arm length and foot length. Kabaddi player were significantly better than Kho-Kho players in body circumferences such as shoulder, chest, abdomen, hip, thigh and calf. Kabaddi players were significantly better than the Kho-Kho players in Bonn diameters such as bitrochantric femur by condylor and ankle.

In our study, there exist a significant difference between Kabaddi and Kho-Kho players regarding diastolic blood pressure, basal pulse rate and haemoglobin. Kabaddi players were found having much blood pressure, basal pulse rate and haemoglobin in their Kho-Kho counterparts, but no significant difference was found in vital capacity (PEF, FEV1 and systolic blood pressure). Most of our findings were not in consonance with the findings of Kala (1999) who found that Kabaddi players were significantly better than the Kho-Kho players in physiological variables such as PEF (Peak Expiratory Flow
Rate) but Kho-Kho player were significantly better than the Kabaddi players in pulse rate.

The present study reveals that there is a significant difference in Body circumferences (shoulder, chest, hip, thigh and calf) between Kho-Kho and Kabaddi players, but no significant difference was found in abdomen of both game players. Our findings were in consonance with the findings of Naresh (2004) who found that Kabaddi player were significantly better than Kho-Kho players in body circumferences such as shoulder, chest, abdomen, hip, thigh and calf. Kabaddi players were significantly better than the Kho-Kho players in Bonn diameters such as bitrochantric femur by condylor and ankle.

When we compare Kho-Kho with Kabaddi, Kabaddi is a combative game so, it requires muscular strength for catching the opponents and also getting rid of the hands of the opponents. While Kho-Kho players do not requires too much muscular strength as Kabaddi players because of the nature of the games.

From the aforesaid discussion it is clear that there is acute shortage of studies related to physiological and anthropometric variables. H.V. Nataraj conducted many researches on Kabaddi game, but most of his studies were relative studies. There are few studies conducted in India on these variables. So there is a dire need to do research on the physiological and anthropometric variables.

5.4 TESTING OF HYPOTHESES:

From the results, it is clear that Kabaddi players possess more weight, height, lower leg length, foot length, foot width, total arm length, forearm length sitting height than those of Kho-Kho players. No significant difference was found total leg length, thigh length, upper arm length, hand length and trunk length. Hence the hypothesis (No. 1) partially accepted and partially rejected.
In case of Body circumferences Kabaddi players possess more in shoulder, chest, hip, thigh and calf than those of Kho-Kho players. But no significant difference was found in abdomen. Hence the hypothesis (No. 2) partially accepted and partially rejected.

Further the bone diameters, Kabaddi players possess more in biacromial and ankle than Kho-Kho players. But no significant difference was found in bitrochanteric diameters and femur bicondylar between Kabaddi and Kho-Kho players. Hence the hypotheses (No. 3) partially accepted and partially rejected.

Furthermore the skin-fold variables, Kabaddi players possess more in biceps and suprailiac than Kho-Kho players. But no significant difference was found in triceps, sub-scapular, thigh and calf between Kabaddi and Kho-Kho players. Hence the hypotheses (No. 4) partially accepted and partially rejected.

Regarding body composition, Kabaddi players possess more in fat percentage, fat weight and lean body mass than Kho-Kho players. But there was found a significant difference in body density, Kho-Kho players possess more body density in comparison to Kabaddi players. Hence the hypotheses (No. 5) partially accepted and partially rejected.

In case of the physiological parameters, Kabaddi players possess more in diastolic blood pressure, haemoglobin and basal pulse rate than Kho-Kho players. But no significant difference was found in systolic blood pressure, FEV1 and PEF between Kabaddi and Kho-Kho players. Hence the hypotheses (No. 6) partially accepted and partially rejected.

5.5 EDUCATIONAL IMPLICATIONS

1. The finding of the study has the significance of self assessment of physiological and Anthropometrical variables of Kabaddi and Kho-Kho players.
2. The study seeks to bring out the significance differences through comparison of selected physiological and Anthropometrical variables between Kabaddi and Kho-Kho players.

3. The study has the significance of making a training schedule for the players, coaches, trainers and physical education teachers of Kabaddi and Kho-Kho players for developing different structure pertaining of this game.

4. The study, contrary to above, has the significant to select the players for Kabaddi and Kho-Kho games on the basis of the evaluation of physiological and Anthropometrical measurement as possessed by one individual.

5. The present study has also the significance of proposing guideline and index for future researchers in the field of Kabaddi and Kho-Kho game related to physiology and Anthropometrics measurements.

5.6 SUGGESTIONS AND RECOMMENDATIONS:

On the basis of the results of the study, the following suggestions and recommendations are made:-

1. The similar study may be undertaken by selecting subjects belonging to different levels and age groups of participations in different games and sports.

2. The findings of study can be used by the coaches and physical trainers as an aid in screening and selecting talented identification.

3. Study of similar nature can be conducted on female players.

4. For such type of research, more facilities, training and practice with instruments are essential for better results.

5. It is suggested that similar study may be conducted by using psychological variables and motor fitness measures of players.
6. Such type of studies should be conducted on other athletics events and games/sports. So that specific anthropometric characteristics of an individual may be found out according to the games and sports.

7. Appreciable incentives to research personals in physical education and sports should be provided for standard research work.

8. More facilities for research in physical education and sports should be provided for smooth conduct and better results.

9. The preset study will be of immense use for further research in the field.

10. Such types of studies will help the Physical Education Teacher trainer and coaches to find out the best talent among the participants according to their selected anthropometric variables.

11. The more findings of such studies should be made available to all coaches and physical education teachers so that they may come to know and try to implement the findings for better performance.