Comparative study of cardio-vascular efficiency of kabaddi and kho-kho male players

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Abstract
The purpose of this study was to compare the cardiovascular efficiency of Kabaddi and Kho-kho Male players of university and national level of Haryana state. A sample of 40 Male players of age group of 18-22 years was randomly selected and compares their cardiovascular efficiency. For assessing cardiovascular efficiency the Harvard Step test was used. The statistics treatment was applied with graph pad statistics software for comparing the both group at the .05 level of significant. At the end result the study was significant difference was found between the Kabaddi and Kho-kho Male player of cardiovascular efficiency.

Keywords: Kabaddi, kho-kho, cardiovascular efficiency

Introduction
The performance at high level or outstanding performance is based upon the foundation of the players, which should also be strong and potential in sports. The foundation of sportspersons starts from his initial developmental phase and goes up-to high level. Endurance is a term widely used in sport & game and can mean many different things to many different people. In sports it refers to an ability of an athlete to sustain prolonged exercise for minutes, hours, or even days. Endurance requires the circulatory and respiratory systems to supply energy to the working muscles in order to support sustained physical activity. When most people talk about endurance they are referring to aerobic endurance, which is often equated with cardiovascular fitness. Aerobic means "with oxygen" and during aerobic exercise the body uses oxygen to help supply the energy needed for exercise. The objective of endurance training is to develop the energy production systems to meet the demands of activity for as long as they are required. A healthy circulatory system goes a long way to preventing a number of dangerous diseases. Maintaining cardiovascular fitness can help to prevent

The present study concentrated on the Cardio-vascular Efficiency of Kabaddi and Kho-kho Male players. The age of players was 18 to 22 years. The total duration of both games is about one hour and for the activity which is around one hour. The endurance is very important consideration for the activity of more than 40 minutes therefore cardiovascular efficiency is most important factor while selecting the players of these games. The researcher compared the Cardio-vascular Efficiency of Kabaddi and Kho-kho players. In the present study the Harvard Step Test (Lucien Brouha 1943) [1] was used for accessing the Cardiovascular Efficiency of Kho-kho and Kabaddi Male players.

Sources of the Data
The sources of the data for the present study the Male Kabaddi and Kho-kho players of Haryana were selected for the study. The Male players who have participated minimum at National or Inter-University Level Tournaments was considered as sources of the data.

Procedure for Collection of Data
The investigator met the subjects, whom were to be tested, in their respective training centres & camps and explained and guided to them the purpose of the present investigation.
He explained and demonstrated them the Harvard Step test, which the subjects had to took, so that the subjects form a mental prepare of test they was going to attempt. The subjects were asked to clarify their doubts by asking questions and quires. The researcher took the data of 3 players per day. First the researchers gathered data from Kabaddi players and then Kho-kho players. After taken the data the physical efficiency index (PEI) applied as per Harvard Step Test. At the last of every day the researcher thanks the player for their cooperation. The research scholar also took the help of other research scholars, classmates, coaches and other professional friends to record the data of different test items in a require manner.

Data Analysis
For the present study, the mean value, standard deviation, ‘t’-test was applied to analyze the data, different steps in ‘t’- test was used in Graph pad software and the final conclusion was drawn and it was also be compared with the significant value at .05 level of confidence.

Results of study
Cardiovascular Efficiency

Table 1: Comparison of Mean on Cardiovascular Efficiency of Kabaddi and Kho-kho Male players

<table>
<thead>
<tr>
<th>Groups</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>d.f.</th>
<th>S.E.D.</th>
<th>‘t’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kabaddi Players</td>
<td>62.35</td>
<td>10.99</td>
<td>38</td>
<td>3.35</td>
<td>2.86</td>
</tr>
<tr>
<td>Kho-kho Players</td>
<td>67.86</td>
<td>11.77</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Significant at 0.05 levels
\( t_{0.05} = 1.96 \)

The above table indicates that the mean difference of cardiovascular efficiency between Kabaddi and Kho-kho Male players. The mean values of Male Kabaddi and Kho-kho players in Cardio-Vascular Efficiency were cited as 62.35 and 67.86 respectively. The S.D. of Male Kabaddi and Kho-kho players was calculated as 10.99 and 11.77 respectively. The standard error was also finding out with the reading of 3.35. The ‘t’- was calculated as 2.86, which was tested at the level of significant at 0.05 (table value 1.96) which showed that significant difference in mean values of Male Kabaddi and Kho-kho players in Cardio-Vascular Efficiency was found and our hypothesis was accepted.

Conclusion
Cardio vascular efficiency is important factor for performance for the games of Kabaddi and Kho-Kho players. The study showed that the cardio-vascular efficiency of Kho-Kho players in better than Kabaddi Players after tested at .05 level of significant it was prude. Our null hypothesis “there is no significance different between cardio-vascular efficiency of Kabaddi and Kho-Kho players” was rejected.

References
1. Lucien Brouha. The step Test research quarterly, 1943, 1.