



COMPARATIVE STUDY OF CARDIO-RESPIRATORY ENDURANCE AMONG PARTICIPANTS OF INDIVIDUAL GAMES, TEAM GAMES AND HEALTH CLUBS

Sheel Dhar Dubey

Dr., Head & Assistant Professor,
Department of Physical Education,
Pt. Deendayal Upadhyay Govt. P. G. College,
Lucknow, India

Abstract:

The purpose of the study was to compare the cardio-respiratory endurance among the participants of individual games, team games and health clubs. The youth of Lucknow district who had either represented university in any individual or team game for two years or participated in health club activities for two years were chosen as subjects for this study. Their age group ranged from 20-25 years. Eight individual games, Eight team games and Eight health clubs were selected for the study. The subjects comprised of 48 sportsmen from each discipline making a total of 144. Six sportsmen from each individual games, team games and health clubs were selected for the study, using random sampling technique. To assess the cardio-respiratory endurance 600yard run/walk test was employed. The elapsing time from the starting signal until the runner completed the 600yard distance was recorded in minutes and seconds. To compare the participants of selected groups in the dimension of cardio-respiratory endurance analysis of variance was used. Scheffe's post hoc test was applied where ever f-ratio was found significant. Level of significance was kept at 0.05 level of confidence. Based on the findings of the study it was concluded that participants of team games have better cardio-respiratory endurance than the participants of the individual games and health clubs. Whereas significant difference was not found between the participants of individual games and health clubs.

Keywords: cardio-respiratory endurance, individual games, team games, health clubs

1. Introduction

The sports performance depends largely on physical fitness. Strength, muscular endurance, flexibility and cardio-respiratory endurance are the basic components of physical fitness. Although all the physical fitness characteristics are important but cardio-respiratory endurance is more effectively linked to the strength of heart and

lungs. Hence, it is most essential physical fitness component as the efficient functioning of heart and lungs is required for the optimal sports performance. The statement is also supported by Johnson and Nelson, they state that cardio-respiratory endurance is unquestionably one of the key components of physical fitness and to some physical educators it is the single most indicative measure of person's physical condition.

2. Method

For the purpose of the study, sportsmen of age group between 20-25 years of Lucknow district who have either represented university in an individual game or team game for two years or participated in health club activities for two years were chosen as subjects. Eight individual games (athletics, swimming, gymnastic, badminton, table tennis, wrestling, judo and tennis), eight team games (hockey, football, volleyball, basketball, softball, cricket, kho-kho and kabaddi) and eight health clubs were selected for the study. Subjects were comprised of 48 sports men making a total of 144. Six sports men from each individual games, team games and health clubs were selected for the study using the random sampling technique. The criterion measure chosen for this study was the time recorded in minutes and seconds in completing 600yard run/walk test. To ensure uniform testing conditions the subjects were tested during the evening session. To compare the participants of team games, individual games and health clubs in their cardio-respiratory endurance analysis of variance (f-ratio) was employed. Scheffe's post hoc test was applied where ever significant difference existed between groups. The level of significance was set at 0.05 level of confidence.

3. Findings

Findings pertaining to the cardio-respiratory endurance of the selected groups are presented below:

Table 1: Analysis Of Variance for the Means of the Participants
 of Individual Games, Team Games and Health Clubs
 in Their Cardio-Respiratory Endurance

Source of Variance	df	Sum of squares	Mean sum of square	F-ratio
Between Group	2	8.1312	0.18	
				22.59*
Within Group	141	25.7464	4.0656	

*Significant at 0.05 level of confidence

F.05 (2,141) =3.06

It is evident from the above table that there was significant difference among the three study groups in their cardio-respiratory endurance as the obtained F-ratio value of 22.59 is more than the required value of 3.06. As the F-ratio was found to be significant the post hoc test was applied to determine the significance of difference between the paired means. The analysis regarding the post hoc test is given in Table 2.

Table 2: Paired Means and Difference between Means of the Participants
 of Individual Games, Team Games and Health Clubs
 in Their Cardio-Respiratory Endurance

Individual game	Team game	Health club	Difference between means
2.04	1.57		0.47*
2.04		2.10	0.06
	1.57	2.10	0.53*

*Significant at 0.05 level of confidence

Confidence Interval = 0.22

It is evident from the table that the difference between the paired means for the participants of Individual Games and Health Clubs (0.06) were not found to be significant, whereas difference between the paired means for the participants of Individual Games and Team Games (0.47) and Team Games and Health Clubs (0.53) were found to be significant as the confidence interval of 0.22 was less than these values.

This indicated that participants of the Individual Games and Health Clubs did not differ significantly where as participants of the Team Games and Health Clubs and the Individual Games and Team Games showed significant difference between them on the scores of Cardio-respiratory Endurance.

4. Discussion of findings

In the dimension of cardio-respiratory endurance significant difference were observed between the participant of the Team Games & Individual Game and Team Game & Health Clubs, whereas no significant difference was found between Individual Games & Health Clubs participants. It indicates that participants of Team Games have better cardio-respiratory endurance then the participants of Individual Game & Health Clubs. This may probably be because individual games are played in small areas as a result in which participants neither able to achieve their maximum speed nor they run continuously for longer duration. Participants of health clubs are engaged in gymnasium performing exercises with weight and other equipment, where the element of running is almost nil, where as in team games participants are required to sprint as well as to run continuously for longer duration to meet the demand of the nature of the activity. This may be the reason for possessing better cardio-respiratory endurance by the team game participants in comparison to individual games and health clubs participants.

Insignificant difference between individual games and health clubs participants may be attributed to the fact that in case of individual game very less demand is put on the variable cardio-respiratory endurance of the participants which may not be sufficient to create significant difference between the participants of individual games and health clubs.

Bibliography

1. Clarke Harrison H., "Application of Measurement of Health and Physical Education" Fifth Edition (New Jersey: Engle Wood Cliffs, Prentice Hall inc, 1976).pp-122 to 132
2. Johnson L and Nelson K., "Practical Measurement for Evaluation in Physical Education". (Delhi: Surjeet Publication, 1982). P-149.

Creative Commons licensing terms

Authors will retain the copyright of their published articles agreeing that a Creative Commons Attribution 4.0 International License (CC BY 4.0) terms will be applied to their work. Under the terms of this license, no permission is required from the author(s) or publisher for members of the community to copy, distribute, transmit or adapt the article content, providing a proper, prominent and unambiguous attribution to the authors in a manner that makes clear that the materials are being reused under permission of a Creative Commons License. Views, opinions and conclusions expressed in this research article are views, opinions and conclusions of the author(s). Open Access Publishing Group and European Journal of Physical Education and Sport Science shall not be responsible or answerable for any loss, damage or liability caused in relation to/arising out of conflict of interests, copyright violations and inappropriate or inaccurate use of any kind content related or integrated on the research work. All the published works are meeting the Open Access Publishing requirements and can be freely accessed, shared, modified, distributed and used in educational, commercial and non-commercial purposes under a [Creative Commons attribution 4.0 International License \(CC BY 4.0\)](https://creativecommons.org/licenses/by/4.0/).