



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2019; 4(1): 219-221

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www.theyogicjournal.com

Received: 17-11-2018

Accepted: 20-12-2018

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Comparison of physical fitness components between volleyball players and basketball players at different level of competition

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Abstract

The purpose of this study was to compare the evaluation of physical fitness components of basketball players at different level of competition. Total 60 basketball players 30 inter- college and 30 inter-universities were selected as subjects for the study. The age of subject ranged between 19 to 25 years. The physical fitness components variables were speed, agility and coordination. The data was obtained from three universities; University of Jammu, University of Kashmir and Punjabi University Patiala. The purposive sampling technique was used to attain the objectives of the study. The Unpaired 't' test was applied to compare the mean scores of the two groups. The level of significance was set at 0.05. The analysis of data revealed that the significant difference has found in variable were reaction time, balance and power.

Keywords: Inter-university and inter-college, basketball players

Introduction

Sport is as old as human society and it has achieved a universal following in the modern times. It has enjoyed a popularity, which outstrips any other form of social activity. It has become an integral part of educational process. Many participate in sports activities for the fun or for health, strength and fitness. It is taking the shape of profession, to some with high skills with ample financial benefits linked with high degree of popularity. Sports & Games have a very important role to play in the growth and development of mind and body. Indian history of sports dates back to the Vedic times when physical exercises were considered to be a mandatory part of religious rituals. Sports hold a prominent place in modern life. Millions of people participate in sport, watch and hear about them and spend billions, of dollars on sports related activities and equipments. This has led to the competitive element in sports, as now sportsmen participate to win and achieve laurels for them as well as for their country. Sports performance is indeed an aspect of complex human performance, which has several dimensions. Hence, several disciplines of sports sciences are required to work in a coordinated manner to explore the nature and the process of improving performance. In the last few decades several disciplines of sports sciences have established e.g. sports medicine, sports physiology, sports training, sports bio-mechanics, sports psychology, sports pedagogy, sports nutrition and so on. These sports sciences work as one integrated unit to give super sports performance. (Subramanian R and Senthilkumar P k 2015) [7]. Scientific research has contributed to the body of knowledge in every field and that is also true in the case of physical education and sports. Exercise Physiology is an interdisciplinary area, which has taken a prominent place in contributing scientific knowledge to physical education and sports. Scientific studies on physiological adaptation resulting from human movement are becoming increasingly important with the growing realization of the relationship of exercise to health and physical fitness. Physical movement itself is an activity in which every individual is involved, to some degree or other, throughout life. Movement is the very basis of 'life' and 'growth' besides contributing to physical fitness. (Stephen *et al.* 2002) [6]

Physical fitness has very serious implications for the health and wellbeing of all individuals. It is defined as the degree of task under specific ambit conditions, most authors define physical

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fitness as a capacity of carrying out every day activities work and play without excessive fatigue and with enough energy in reserve for emergencies has thus exhorted that physical fitness is a vital biological need, the neglect of which handicaps the total effectiveness of the individual. The same degree of physical fitness is not essential for everyone. However, everyone needs a minimal amount of fitness to be healthy and everyone is capable of achieving minimal fitness levels, all professional such as doctors, engineers, executives and others need physical fitness. However, the degree of fitness required would vary, depending upon the profession of the person concerned. The level of fitness necessary depends of factors such as the tasks you must perform and your potential for physical effort Physical Fitness varies with the individual and with the demands and requirements of specific task. The athlete must constantly work to improve his or her strength, endurance flexibility, speed and cardio respiratory efficiency, whereas the non-athlete requires less effort to maintain his or her level of physical fitness. The physical fitness various according to the circumstances of a person at different time in his or her life. There are varying degrees of physical fitness. Practically anyone can improve his or her fitness status and physical activity is essential to achieving physical fitness. There are no shortcuts physical fitness cannot be stored up, it summer and then gives up all physical activity when autumn starts will not remain physically fit. People, who are physically fit look better, feel better and possess the good health for a happy and full life physical fitness is ones richest possession it cannot be purchased, it has to be earned through daily routine of physical exercise. Physical fitness is not entirely dependent on exercise desirable health practice also play an important role. Physical fitness affects the total person their intellect, emotional stability, physical conditioning and stress levels. The load to physical fitness includes proper medical care, the right kinds of food in right amounts, good oral hygiene, appropriate physical activity that is adapted to individual needs and proper amounts of rest and relaxation. (Milanese *et al.* 2010) [5]

Physical fitness is not to be confused with health. Both are connected but not interdependent it is necessary to be fit, but not necessary to be fit to be healthy. Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. W.H.O. (1976) declares physical fitness as an important facet of health

Statement of the Problem

The problem is entitled as “evaluation of physical fitness components of basketball players at different level of competition”.

Material and Methods

The purpose of this study was to compare the evaluation of physical fitness components of basketball players at different level of competition. Total 60 basketball players 30 inter-college and 30 inter-universities were selected as subjects for the study. The age of subject ranged between 19 to 25 years. The physical fitness components variables were speed, agility and coordination. The data was obtained from three universities; University of Jammu, University of Kashmir and Punjabi University Patiala.

Variables and criterion measures

Physical fitness components variable: It was measured with the help of 30 yard dash Illinois agility test Eye hand coordination test

Statistical Consideration: The Unpaired ‘t’ test was applied to compare the mean scores of the two groups.

Results

The t-test was applied to the selected Body composition variables and the results pertaining to it are presented below in tables.

Table 1: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of speed in inter-university (N = 30) and inter-college (N = 30) players

Groups	Mean	SD	SEM	t-value	p-value
inter-university	6.72	0.57	0.12	2.09*	0.0425
inter-college	7.03	0.28	0.06		

Significant at .05 level of significance

$t_{.05}(58) = 2.01$

Table 1: shows that the mean of speed of inter-university and inter-college players was 6.72 and 7.03 respectively, whereas the standard deviation (SD) of speed of inter-university and inter-college players was 0.57 and 0.28 respectively. The critical value of t at 0.05 probability level is much lower (2.01) than the observed value of t (2.09*). The data does suggest that the differences between inter-university and inter-college players in regard to speed are significant.

Table 2: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of agility in inter-university (N = 30) and inter-college (N = 30) players

Groups	Mean	SD	SEM	t-value	p-value
inter-university	6.71	0.66	0.14	7.69*	0.0001
inter-college	9.24	1.31	0.29		

Significant at .05 level of significance

$t_{.05}(58) = 2.01$

Table 2: shows that the mean of agility of inter-university and inter-college players was 6.71 and 9.24 respectively, whereas the standard deviation (SD) of agility of inter-university and inter-college players was 0.66 and 1.31 respectively. The critical value of t at 0.05 probability level is much lower (2.01) than the observed value of t (7.69*). The data does suggest that the differences between inter-university and inter-college players in regard to agility was significant.

Table 3: Mean Values (\pm SD), Standard Error of the Mean and Test Statistic t of coordination in inter-university (N = 30) and inter-college (N = 30) players

Groups	Mean	SD	SEM	t-value	p-value
inter-university	22.45	3.90	0.87	4.28*	0.0001
inter-college	28.75	3.90	1.19		

Significant at .05 level of significance

$t_{.05}(58) = 2.01$

Table 3: shows that the mean of coordination of inter-university and inter-college players was 22.45 and 28.75 respectively, whereas the standard deviation (SD) of coordination of inter-university and inter-college players was 3.90 and 3.90 respectively. The critical value of t at 0.05 probability level is much lower (2.01) than the observed value of t (4.28*). The data does suggest that the differences between inter-university and inter-college players in regard to coordination are significant.

Discussion of Findings

Since the ancient times, it has been believed that a suitable physique is important to achieve success in particular sports (Powers *et al.*, 1997). Judging the performance of the human body by its size, shape and form has been a topic of great concern. Physical and physiological aspects are essential factors that have contributed to the success of national and international competition in sports. Team Basketball, like several other ball games, requires not only technical and tactical skills but also great deal of physical fitness (Marques, González-Badillo & Kluka, 2006; Marques *et al.*, 2009). During a long competitive season, typical of any European league, team Basketball coaches concentrate mainly on technical and tactical drills, reducing the volume of training devoted to strength and conditioning activities. This may lead therefore to unwanted changes in selected aspects of the optimal physical fitness profile. Several studies have been undertaken to ascertain specific physical and physiological profiles of athletes in a variety of sports. For example, with respect to team sports, player profiling by position has been studied in Basketball, field hockey, volleyball, netball, and soccer (Marques *et al.*, 2009). Successful participation in these sports requires from each player a high level of technical and tactical skills. All ball games require comprehensive abilities including physical, technical, mental, and tactical abilities. Among them, physical abilities of the players are more important as these have marked effects on the skill of players and the tactics of the teams because ball games require repeated maximum exertion such as dashing and jumping (Tsunawake, 2003) ^[9]. Such physical abilities are important for Basketball players to achieve higher levels of performance. The purpose of the study was to compare the physical fitness components of Basketball players at different level of competition. For this purpose 60 subjects (30 inter-university and 30 inter-college) aged 19-25 years participated in the study. The *purposive sampling technique was used to* attain the objectives of the study. All the subjects, after having been informed about the objective and protocol of the study, gave their consent and volunteered to participate in this study. In the present study, analysis of data revealed significant between-group differences were found for reaction time ($t=2.13^*$), balance ($t=2.05^*$), power ($t=2.02^*$), speed ($t=2.09^*$), agility ($t=7.69^*$ and coordination ($t=4.28^*$). In a perfect world, all facets of training (i.e., power, strength, speed, agility, balance, and conditioning) would be incorporated into an athletic strength and conditioning program.

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