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An Assessment Of The Physical Fitness Components Of Basketball Players Across Various Levels Of Competition

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Abstract: ***The aim of this research was to assess and compare the assessment of physical fitness components among basketball players competing at various levels. A total of 60 basketball players, consisting of 30 players from inter-college teams and 30 players from inter-university teams, were chosen as participants for the research. The subjects' age varied from 19 to 25 years. The variables that were measured for the physical fitness components were response time, balance, and power. The data was acquired from three universities: B.R. Ambedkar University, J.S. University, and Agarvan Heritage University. The research used purposive sampling to achieve its aims. The Unpaired 't' test was used to compare the average results of the two groups. The chosen threshold of significance was established at 0.05. The data analysis indicated a substantial difference in the variables of response time, balance, and power.***

Key Words: Physical fitness, Inter-university and inter-college, basketball, assessment, components.

Sport has been a part of human culture from ancient times and has gained widespread popularity in current times. It has seen a level of popularity that surpasses any other kind of social activity. It has become a crucial component of the educational process. Many individuals engage in sporting activities for the purpose of enjoyment or to improve their physical well-being, endurance, and overall fitness. It is becoming a vocation for those with advanced abilities and significant financial rewards associated with a high level of fame. Sports and games have a crucial part in the cognitive and physical development of individuals. The history of sports in India may be traced back to the Vedic era, during which physical activities were considered essential components of religious rites. Athletics have an important position in contemporary society.[1] A vast number of individuals engage in sports, actively observe and receive information about them, and allocate substantial financial resources towards sports-related pursuits and equipment. Consequently, the presence of a competitive aspect in sports has resulted in athletes striving to win and attain recognition for themselves and their nation. Sports performance is a component of intricate human performance that encompasses several variables.[2] Therefore, it is necessary for several fields within sports sciences to collaborate in order to systematically investigate the characteristics and methods of enhancing performance. Over the last several decades, many fields of sports sciences have been formed, such as sports medicine, sports physiology, sports training, sports bio-mechanics, sports psychology, sports pedagogy, and sports nutrition. The many disciplines within sports sciences collaborate synergistically to enhance athletic performance to an exceptional degree. The reference is cited as (Subramanian R and Senthil Kumar P.K 2015)[4]. Scientific research has significantly enhanced our understanding in many areas of study, including physical education and sports. Exercise Physiology is a multidisciplinary field that plays a significant role in advancing scientific understanding in the fields of physical education and sports. Scientific research on the physiological changes that occur as a consequence of human movement is gaining importance due to the rising recognition of the connection between exercise and health as well as physical fitness. Engaging in physical movement is a universal activity that individuals participate in to varying extents throughout their lives. Motion is the fundamental essence of existence and development, in addition to its role in promoting physical well-being. (Stephen et al., 2002)[3]

Physical fitness has significant ramifications for the health and wellness of all persons. Physical fitness is often characterized as the ability to do daily activities, work, and play without experiencing undue exhaustion, while still having enough energy in reserve for emergencies. This definition takes into account the level of effort required for a certain action under particular circumstances. It has been emphasized that physical fitness is an essential

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biological need, and neglecting it hampers the overall efficacy of the person. Not everyone need a same level of physical fitness. Nevertheless, it is important for individuals to possess a basic degree of physical fitness in order to maintain good health. Furthermore, individuals from many professions, like physicians, engineers, executives, and others, need physical fitness. Nevertheless, the level of physical fitness needed would differ based on the individual's occupation. The required degree of fitness is contingent upon elements such as the specific activities that need to be performed and an individual's capacity for physical exertion.

Physical fitness is contingent upon the unique characteristics and particular needs of each person and the tasks they are required to do.

The athlete must consistently strive to enhance their strength, endurance, flexibility, speed, and cardiorespiratory efficiency, whereas the non-athlete needs comparatively less exertion to maintain their level of physical fitness. The physical fitness of an individual varies depending on their circumstances at different stages of their life. Physical fitness exists on a spectrum with different levels of intensity.

Virtually anybody may enhance their fitness level, and engaging in physical activity is crucial for attaining physical fitness. There are no abbreviated or expedited methods. Physical fitness cannot be accumulated and maintained if one ceases all physical activity when fall arrives after being active throughout the summer. Individuals who are in excellent physical condition have a more appealing appearance, have a greater sense of well-being, and enjoy optimal health for a satisfying and complete life. Physical fitness is a valuable asset that cannot be bought; rather, it must be acquired via a regular regimen of physical activity.

Physical fitness is not just reliant on exercise; desired health practices also play a significant impact. Physical fitness has a significant impact on several aspects of an individual's well-being, including their cognitive abilities, emotional resilience, physical health, and stress levels. The burden of maintaining physical fitness include enough medical attention, consumption of suitable quantities of nutritious food, optimal dental hygiene, tailored physical exercise to meet individual requirements, and sufficient periods of rest and relaxation. (Milanese et al. 2010) [2]

Physical fitness should not be mistaken for health. Both concepts are linked, although they do not rely on each other.

It is necessary to maintain physical fitness, but it is not a need to be physically fit in order to be healthy. Health is a condition characterized by optimal physical, mental, and social well-being, rather than just the absence of illness or weakness. The World Health Organization (W.H.O.) declared in 1976 that physical fitness is a crucial aspect of health.

Statement of the Problem- "An assessment of the physical fitness components of basketball players across various levels of competition".

Material and Methods- The aim of this research was to assess and compare the assessment of various physical fitness components among basketball players competing at different levels. A total of 60 basketball players, consisting of 30 from inter-colleges and 30 from inter-universities, were chosen as participants for the research. The subjects' age varied from 19 to 25 years. The factors for the physical fitness components were response time, balance, and power. The data was acquired from three universities: B.R. Ambedkar University, J.S. University, and Agarvan Heritage University.

Variables and criterion measures- The physical fitness components that vary include response time, balance, and power. The measurements were conducted using the Nelson hand reaction time test, Stork balancing stand test, and Standing broad jump.

Statistical Consideration: The Unpaired 't' test was used to compare the average results of the two groups.

Results- The t-test was used to analyze the chosen Body composition variables, and the corresponding findings are shown in the following tables.

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Table 1: Reaction time in inter-university (N = 25) and inter- college (N = 25) players

Groups	Mean	SD	SEM	t-value	p-value
Inter-university	0.22	0.024	0.004	2.14*	0.0393
Inter-college	0.22	0.008	0.002		

Significant at.05 level of significance t.05 (58) =2.01

Table 1 displays the mean response time for inter-university and inter-college players, which were 0.22 and 0.23 respectively. The standard deviation (SD) of reaction time for inter-university and inter-college players were 0.022 and 0.008 respectively. The observed value of t (2.14*) exceeds the critical value of t at the 0.05 probability level. The research indicates that there were considerable disparities in response time across players from different universities and colleges.

Table 2: Statistic t of balance in inter-university (N = 25) and inter-college (N= 25) players

Groups	Mean	SD	SEM	t-value	p-value
inter-university	27.55	5.49	1.23	2.06*	0.0468
inter-college	24.11	4.82	1.08		

Significant at.05 level of significance t.05 (58) =2.01

Table 2 displays the average balance of inter-university and inter-college players, which were 27.55 and 24.11, respectively. The standard deviation (SD) of the balance for inter-university and inter-college players was 5.49 and 4.82, respectively. The observed value of t (2.06*) exceeds the critical value of t (2.01) with a probability threshold of 0.05. The data strongly indicates that there was a considerable disparity in balance between athletes from different universities and colleges.

Table 3: Test Statistic t of power in inter-university (N = 25) and inter-college (N = 25) players

Groups	Mean	SD	SEM	t-value	p-value
inter-university	2.04	0.44	0.09	2.01*	0.0498
inter-college	2.30	0.33	0.07		

Significant at.05 level of significance t.05 (58) =2.01

Table 3 displays the average power of inter-university and inter-college players, which were 2.04 and 2.30 respectively. The standard deviation (SD) of power for inter-university and inter-college players was 0.44 and 0.33 respectively. The observed value of t (2.01*) exceeds the critical value of t (2.01) with a probability level of 0.05. The data strongly indicates that there was a notable variation in power amongst players from different universities and colleges.

Discussion of Findings- Throughout history, there has been a prevailing belief that possessing a well-suited physical body is crucial for attaining success in certain sports (Powers et al., 1997). Evaluating the functionality of the human body based on its dimensions, configuration, and structure has been a subject of significant interest. The success of national and international sports competitions is greatly influenced by crucial criteria related to the physical and physiological components. Team Basketball, similar to other ball sports, demands not only technical and tactical aptitude but also a significant level of physical condition (Marques, González-Badillo & Kluka, 2006; Marques et al., 2009). Throughout an extended and intense season, which is common in European leagues, basketball coaches primarily focus on technical and tactical exercises, while decreasing the amount of training dedicated to

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strength and conditioning activities. Consequently, this might result in undesired alterations in certain elements of the ideal physical fitness profile. Multiple research have been conducted to determine the precise physical and physiological characteristics of athletes participating in various sports. Player profile by position has been examined in several team sports such as basketball, field hockey, volleyball, netball, and soccer (Marques et al., 2009). Each player must possess a high degree of technical and tactical abilities in order to successfully participate in these sports. Comprehensive talents including physical, technical, mental, and tactical skills are necessary for all ball sports.

Physical talents of the players are crucial in ball games since they have a significant impact on the players' skills and the teams' strategies. This is because ball games include repeated intense physical efforts, such as sprinting and leaping (Tsunawake, 2003)[6]. Physical prowess is crucial for basketball players to attain elevated levels of performance. The research aimed to examine the physical fitness components of Basketball players at several levels of competition. A total of 60 participants, consisting of 30 individuals from different universities and 30 individuals from different colleges, aged between 19 and 25 years, were included in the research. The research used purposive sampling to achieve its aims. Upon receiving information on the research's purpose and methodology, all participants provided their consent and willingly agreed to take part in the study. The analysis of data in this research showed significant differences between groups for response 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*). Ideally, an athletic strength and conditioning program should include all aspects of training, including power, strength, speed, agility, balance, and conditioning.

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