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Dr. Jitender Vikram Ved
Assistant Professor, Department
of Physical Education, Pandit
Deen Dayal Upadhyay
Government College
Mehroni, Lalitpur, Uttar
Pradesh, India

Analysing the performances of basketball players from Uttar Pradesh universities

Dr. Jitender Vikram Ved

Abstract

The objective of the present paper was to examine the performance of Basketball players in Uttar Pradesh Universities. In particular, it delved into the critical role played by anthropometric variables like height and arm length in the performance of these athletes. The study placed a special focus on psychological variables, including speed (measured by a 50-meter run in seconds), arm strength, self-confidence, and aggression. Additionally, it assessed performance variables such as Dribbling, Passing, and Shooting.

The analysis, results, and discussions collectively indicated that players who exhibited greater height and higher levels of self-confidence tended to excel in terms of psychological and anthropometric variables. Among all the variables considered in this study, anthropometric attributes, namely height and arm length, emerged as pivotal factors in determining performance.

This meticulous analysis and in-depth exploration of performance not only contributes to the body of knowledge in sports and physical education but also offers valuable insights for individuals involved in these domains across all levels.

Keywords: Physical fitness, speed, endurance, arm length, self-confidence, aggression, dribbling, passing, shooting and ANOVA test

Introduction

Background

Over the past few decades, sports have witnessed an unparalleled surge in popularity that spans the entire globe. This surging tide of enthusiasm shows no signs of abating, and indeed, it is poised to continue its upward trajectory well into the future. A closer examination of the historical landscape of the modern Olympic Games reveals an escalating trend in the number of sports included in the competitions. Simultaneously, the total count of participating countries and athletes has maintained a steady upward trajectory. Beyond the realm of Olympic sports, indigenous sporting endeavours have also garnered prominence within each nation's borders.

Moreover, the ever-evolving world of sports has seen the birth of several new disciplines, including activities like skydiving, skating, and motor racing, all of which have swiftly secured a dedicated following among the masses. The press and electronic media have played an instrumental role in this phenomenon by providing extensive coverage to sports, effectively becoming the conduits that transmit the thrill and spectacle of sporting events to millions of viewers across the globe.

In the contemporary landscape, sports have transcended their role as mere pastimes, emerging as crucial social and cultural activities. The nations and societies of the world have recognized and accorded them the rightful place they deserve. The profound significance of sports in serving vital social and cultural functions cannot be overstated.

The contribution of sports to the overall well-being of human society is multifaceted, encapsulated in the following points:

- **Holistic Development:** Sports play an integral role in the all-around development of human personality.
- **Recreation and Relaxation:** They offer ample and healthy means for the recreation and relaxation of the human mind and body.
- **Rehabilitation and Social Adjustment:** Sports prove to be highly effective tools for the

Corresponding Author:
Dr. Jitender Vikram Ved
Assistant Professor, Department
of Physical Education, Pandit
Deen Dayal Upadhyay
Government College
Mehroni, Lalitpur, Uttar
Pradesh, India

rehabilitation and social adjustment of the injured, sick, and handicapped.

- **Fostering Peace and Understanding:** They provide opportunities for social interaction, thereby fostering peace and understanding among people of different backgrounds, nations, races, religions, and more.
- **Health Promotion:** Sports perform both preventive and curative functions in relation to several diseases and ailments affecting the human body and mind.
- **Excellence and Competition:** They furnish healthy and socially acceptable opportunities for people and nations to compete against each other, thereby propelling the human endeavor to attain unparalleled heights of excellence.

Sports activities are categorized into various areas, each tailored to the specific requirements and demands of distinct segments of society. These include performance sports and adventure sports, among others. Notably, performance sports have garnered a disproportionate share of publicity and importance. This realm boasts its own distinct structure and organization, a cadre of dedicated functionaries, and a specialized science exclusively dedicated to its nuances.

At its core, the principal aim of performance sports is to prepare athletes for the attainment of peak sporting performance. This pursuit of excellence is the driving force behind the dedication, innovation, and tireless effort that characterize this particular sphere of the sporting world.

Review of Related Literature

The Global Soar of Sports: A Holistic Study of Basketball Players in Uttar Pradesh Universities

It is a well-established fact that sports and physical education, with a particular focus on basketball, have witnessed an unprecedented surge in popularity on a global scale. Fueled by this phenomenon, a comprehensive study is currently underway in the realm of sports and physical education. This study delves into the multifaceted aspects of Physical Anthropometry, Psychology, and Performance among basketball players in the universities of the Uttar Pradesh region, India.

This academic endeavor is not an isolated one; it stands upon the foundation laid by previous scholarly investigations. Earlier studies, such as Muthu Kurumbathevar Bose's (1999) ^[1] analytical examination of physical and performance variables among university and state men's hockey players, offer insights into the world of sports. Similarly, Samuel Sabu (1999) ^[10] conducted a comparative analysis of selected physical and psychological characteristics of male soccer players in different field positions. Angyan *et al.* (2002) ^[11] delved into the trends in prevention-oriented physical education, measuring anthropometric characteristics, motor abilities, and cardiorespiratory function among medical students conducted an extensive study on anthropometric and physical performance characteristics of New Zealand rugby players spanning different age groups and genders. Meanwhile, Bossone *et al.* (2004) ^[3] explored cardiovascular responses to exercise in elite ice hockey players, emphasizing the unique strength and endurance required in this high-performance sport.

Intriguingly, McCarthys and Kelly's study shed light on the complex relationship between aggression, performance variables, and self-reported anger among high-level hockey players. This study provided a window into the intriguing interplay of psychological factors within the realm of sports,

an aspect that goes beyond mere physicality. Tim Gabbet (2007) ^[6] contributed to the understanding of sports through his research aimed at discriminating between junior basketball players of varying abilities based on physiological, anthropometric, and skill test results.

Expanded the body of knowledge in their study, which focused on the anthropometric and physiological characteristics of Indian inter-university basketball players. Their investigation sought to evaluate the anthropometric profile of these players and establish correlations with body mass index, body fat percentage, hand grip strength (right dominant), and VO2 max. This deepening understanding of both the physical and psychological aspects of athletes is pivotal, as it furnishes valuable insights and guidelines for coaches and athletes alike.

Methodology

Within this study, the methodology encompasses a comprehensive framework. It encompasses the selection of subjects, variables, data collection procedures, and statistical techniques poised for data analysis.

Objectives of the Study

The study has been structured to address the following objectives:

- **Physical Fitness Variables:** To examine differences in physical fitness variables, such as speed, endurance, and arm strength, among basketball players from various universities in the Uttar Pradesh region.
- **Anthropometric Variables:** To analyze disparities in anthropometric variables, namely height and arm length, across basketball players representing diverse universities in Uttar Pradesh.
- **Psychological Variables:** To scrutinize variations in psychological variables, including self-confidence and aggression, among basketball players hailing from different universities in the Uttar Pradesh region.
- **Performance Variables:** To assess distinctions in performance variables encompassing dribbling, passing, and shooting skills among basketball players representing various universities in Uttar Pradesh.

Selection of Subjects

This study engaged a total of 96 male university basketball players as subjects. These players actively participated in the North Zone Inter- University Basketball competition at NMAK Pataudi Sports Complex, JMI, during December 2022, representing their respective universities. The age range of the selected players was between 18 and 28 years, with 16 players chosen from each of the six basketball zones: I zone, II zone, III zone, IV zone, V zone, and VI zone. The players were drawn from eight universities, including the University of Allahabad (UA), University of Lucknow (LU), Dr. A.P.J. Abdul Kalam Technical University (AKTU), Bundelkhand University (BU), Chaudhary Charan Singh University (CCSU), Aligarh Muslim University (AMU), Chhatrapati Shahu Ji Maharaj University (CSJMU), and Banaras Hindu University (BHU). From each of these universities, 12 players were selected for the target group.

Selection of Variables

The research scholar identified a set of physical variables, anthropometric variables, psychological variables, and performance variables deemed essential for the comprehensive evaluation of basketball players. These

variables were selected based on their critical relevance to the sport of basketball, ensuring that the study would encompass a broad spectrum of factors contributing to players' performance and well-being.

Hypothesis

In the quest to unravel significant disparities within the domains of physical, anthropometric, psychological, and performance variables, the following hypothesis have been meticulously structured:

- **Physical Fitness Variables:** The statistical hypothesis posits that there may be a substantial difference among spikers, blockers, and blockers concerning their physical attributes.
- **Anthropometric Variables:** This hypothesis aims to investigate variations in anthropometric aspects, particularly height and arm length, among basketball players representing diverse universities in Uttar Pradesh.
- **Psychological Variables:** The inquiry here delves into the existence of disparities in psychological traits such as self-confidence and aggression within the ambit of basketball players from various universities in Uttar Pradesh.
- **Performance Variables:** This hypothesis endeavors to ascertain if differences exist in performance variables, encompassing dribbling, passing, and shooting skills, among basketball players hailing from different universities in the Uttar Pradesh region.

Significance of the Study

The landscape of modern competitive sports necessitates an unwavering focus on the holistic training of athletes, encompassing their physical and psychological dimensions. The exceptional performances witnessed on the competitive sports stage are, in essence, the culmination of a harmonious blend of physical preparedness, psychological readiness, and technical expertise. It is widely acknowledged that superior athletic achievements are enriched through an understanding of the physiology and biomechanics underlying human physicality.

Yet, it is equally vital to comprehend the intricacies of the physical and psychological aspects of athletes. This knowledge equips coaches and athletes with valuable information and guidelines that have the potential to

significantly enhance their training and performance.

Tools Used

The study employed two key tools to investigate the psychological aspects of the subjects:

- **Angiotribe Self-Confidence Inventory (ASCI):** This instrument was employed to gauge the levels of self-confidence among the basketball players.
- **Aggression Assessment (SCAT) Test (AVC CARRAN Test):** This test was utilized to assess the degree of aggression exhibited by the players.

Results and Discussion of the Study

This section delves into the tabulation, analysis of data, and the subsequent findings of the study. It encompasses a comprehensive examination of physical fitness-related, physiological, anthropometric, and performance variables among basketball players from select universities in Uttar Pradesh region.

In pursuit of this, statistical tools such as mean, standard deviation, the t-value test for means, and ANOVA techniques were employed. The significance levels, often represented as p -values, were scrutinized for each variable, with individual analyses conducted for every aspect.

From the ensuing analysis, several noteworthy trends emerged:

- **Speed Test:** The data reveals that there is a significant variation in speed test results among basketball players across all universities. Specifically, players from CCSU displayed a higher degree of significance in this aspect compared to their counterparts, with a p -value of 0.02.
- **Endurance Test:** A similar trend was observed in the endurance test, with CCSU players demonstrating a more substantial significance compared to players from other universities, evident from a p -value of 0.003.
- **Arm Strength Test:** In the arm strength test, UA players exhibited a significant variance in comparison to their peers, with a p -value of 0.0045.
- **Height Test:** For the height test, CCSU players once again stood out as displaying greater significance compared to players from other universities, as indicated by a p -value of 0.0023.

Table 1: Comparison of Mean \pm SD scores among Basketball Players of Universities in Uttar Pradesh Region

Variables	CCSU	BU	UA	AKTU	LU	BHU	AMU	CSJMU	p -value
Speed(m)	6.36 \pm 0.05	7.02 \pm 0.22	7.06 \pm 0.03	7.11 \pm 0.06	7.13 \pm 0.13	7.16 \pm 0.13	7.17 \pm 0.12	7.26 \pm 0.03	0.02
Endurance (mt)	3087.50 \pm 71.11	2991.67 \pm 104.08	2862.50 \pm 891.66	2762.50 \pm 190.84	2750 \pm 175.81	2658.33 \pm 205.42	2629.17 \pm 163.01	2608.33 \pm 114.48	0.003
Arm Strength (cm)	19.25 \pm 2.42	18.00 \pm 2.13	17.83 \pm 1.59	17.75 \pm 2.26	17.58 \pm 1.98	17.42 \pm 2.27	16.17 \pm 2.12	15.33 \pm 1.87	0.0045
Height (cm)	184.92 \pm 5.98	179.58 \pm 4.40	175.33 \pm 4.38	173.92 \pm 3.03	173.75 \pm 1.66	173.67 \pm 1.44	173.58 \pm 1.83	173.42 \pm 2.07	0.0023
Arm Length (cm)	78.50 \pm 3.12	76.50 \pm 4.03	76.08 \pm 3.90	75.75 \pm 4.49	75.25 \pm 5.12	74.92 \pm 4.72	74.75 \pm 4.43	74.42 \pm 4.23	0.022
Self-Confidence	31.08 \pm 1.68	29.08 \pm 1.56	28.33 \pm 2.57	27.50 \pm 2.11	27.42 \pm 2.15	27.33 \pm 2.81	27.25 \pm 2.34	26.67 \pm 2.46	0.003
Aggression	16.75 \pm 1.54	15.42 \pm 1.44	14.92 \pm 1.83	14.50 \pm 1.73	14.25 \pm 1.29	14.17 \pm 1.27	13.92 \pm 1.98	13.83 \pm 1.99	0.004
Dribbling	11.83 \pm 0.39	11.00 \pm 0.74	10.50 \pm 0.80	10.25 \pm 0.62	10.17 \pm 0.83	9.92 \pm 1.88	9.92 \pm 0.67	9.75 \pm 0.97	0.003
Passing	11.17 \pm 0.94	10.67 \pm 1.07	10.00 \pm 1.35	9.75 \pm 1.22	9.75 \pm 1.06	9.67 \pm 1.07	9.58 \pm 1.31	9.50 \pm 1.31	0.0011
Shooting	72.33 \pm 1.37	69.92 \pm 1.51	69.50 \pm 1.78	69.33 \pm 1.83	69.33 \pm 1.83	69.17 \pm 1.75	69.08 \pm 1.73	69.00 \pm 1.65	0.01

p -values significant at 0.05

- **Arm Length Test:** The data underlines the significance of the arm length test among basketball players from different universities, with CCSU players again standing out with higher significance.
- **Self-Confidence Test:** BU players emerged as more significant than their counterparts in the self-confidence test.
- **Aggression Test:** BHU players exhibited more significance than players from other universities in the aggression test.
- **Dribbling Test:** Among all universities, CCSU players showcased greater significance than others, indicating a substantial difference in dribbling skills.
- **Shooting Test:** Once again, CCSU players emerged as more significant in the shooting test.
- **Passing Test:** In the passing test, CCSU players showcased more significance than others, as evidenced by a p-value of 0.01.

Conclusions

Drawing from the extensive analysis and discussions within the preceding sections, several conclusions can be drawn:

- Players who possess greater height and self-confidence tend to exhibit superior performance across various psychological, anthropometric, and performance variables.
- Notably, among all the psychological, anthropometric, and performance variables, height and arm length emerge as particularly pivotal in determining performance levels in the game of basketball.
- The findings of this study provide a comprehensive understanding of the myriad factors influencing the performance of basketball players in the Uttar Pradesh region. They serve as a valuable resource for coaches and athletes seeking to enhance their skills and capabilities.

Recommendations of the Study

As a continuation of this research, several recommendations for further exploration have been proposed:

The current study, which focuses on the physical, anthropometric, psychological, and performance variables of basketball players in Uttar Pradesh universities, can be expanded to encompass other geographical regions within India.

Researchers with an interest in different sports can adopt a similar framework to investigate the physical, psychological, and performance aspects of athletes in their respective disciplines, employing advanced parameters for a deeper understanding.

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