

A Comparative Study of Arm Length for Selected Team Game and Combat Game Players

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ABSTRACT

The comparative study of arm length for selected team game and combat game players underscores the profound influence of anthropometric variations on sports performance. By examining arm length differences between players in team games and combat sports, valuable insights are gained into how physical attributes can impact an athlete's performance on the field or court. The statistical analysis involved a two-sample F-test utilizing Levene's test and T-statistics to assess the similarity in arm length between combat sports and team sports. The results upheld the equality of variance assumption, with the Levene's test yielding a value of 0.080, surpassing the significance level of 0.05. Moreover, the p-value of 0.480 indicated a significant T-value of 0.715 for the anthropometric variable of arm length in both types of sports. Consequently, the null hypothesis (H_0) asserting no disparity in the population means of arm length between combat sports and team sports was accepted based on the statistical findings.

Key Words: Team, Combat, Games, Arm Length and T-test

INTRODUCTION

Understanding the anthropometric differences between team game and individual game players is crucial for assessing sports performance. Anthropometric measurements, such as height, weight, body composition, and proportionality, play a significant role in determining the suitability of athletes for specific sports. These differences can impact an individual's ability to excel in their chosen sport, influencing factors such as agility, speed, strength, and endurance. In this study, we will explore the anthropometric disparities between team game and individual game players and analyse how these differences contribute to their performance on the field or court. (Hunter et al., 2023) Anthropometric differences have long been recognized as fundamental factors in determining athletic performance across various sports. In team games, such as basketball and football, the physical traits of players can greatly influence their ability to excel in dynamic and fast-paced environments. Additionally, the unique demands of individual sports, like tennis and golf, require specific anthropometric characteristics for athletes to achieve optimal performance. (Putra et al., 2020)

Height is a key anthropometric measurement that often distinguishes between players in team and combat sports. In team games, taller athletes may have an advantage in activities such as rebounding in basketball or winning aerial duels in soccer. On the other hand, in combat sports, height may be less of a determining factor and other measurements such as body composition and limb length could play a more significant role in an athlete's success. (Mansour et al., 2021)(Nughes et al., 2020)(Kumar, 2023)

Moreover, the impact of these anthropometric differences goes beyond physical abilities, influencing the psychological and technical aspects of sports performance as well. Understanding these distinctions can provide valuable insights for coaches, trainers, and sports scientists in optimizing training programs and talent identification processes. (Hoffman, 2020)

In the subsequent sections of this study, researcher delve deeper into specific anthropometric measurements and their implications for both team game and individual game players, shedding light on the multifaceted relationship between physical attributes and sporting success. The aim of this study was to compare arm length of selected athletes from team and combat games.

MATERIAL AND METHODS

Selection of Subject

A sample of 300 male Players whose age was in between 17 to 25 years were selected from various district of Haryana State. Out of 300, 150 male Players from each Combat and Team games was selected. Out of 300 Male Players, 50male

players from each game respectively. Combat games further delimited to Boxing, Judo and Wrestling and Team Games delimited to Cricket, Football, and Hockey.

Selection of Variable

The aim of this study was to compare arm length of selected athletes from team and individual games. Hence, the delimited variables for this study were game type and arm length.

Criterion Measure

Arm Length

Aim: The aim of this test was to measure the arm length.

Equipment's:Anthropometer Rod.

Procedure:It is the distance between acromion point and dactylion point. The subject was asked to stand in a comfortable position. One end of the anthropometric was fixed at acromion point and the anthropometric adjusted up to dactylion point.

Scoring:The reading was record up to nearest 1/10 of a centimetre.

STATISTICAL ANALYSIS

The data analysis was conducted using the Statistical Package for the Social Sciences (SPSS) software version 20.0. Descriptive statistics such as mean and standard deviation were computed, and statistical significance was determined with a p-value of less than 0.05. Independent t-test and corresponding p-values were utilized to explore the comparison between variables.

RESULTS

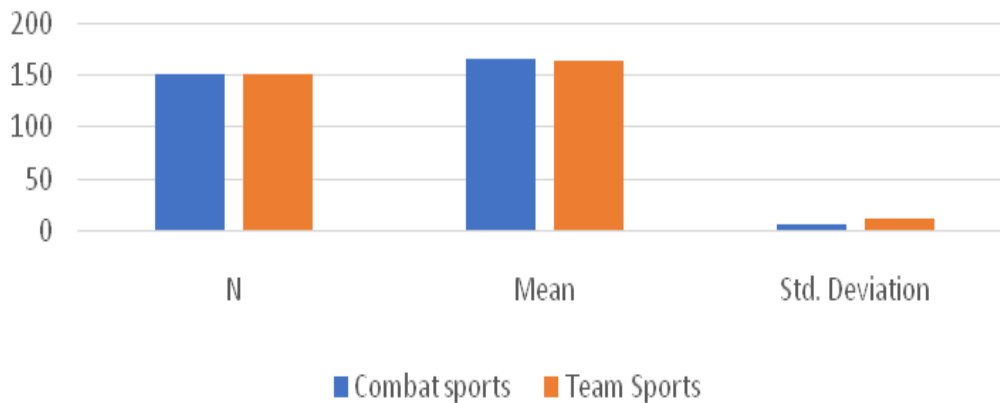


Fig. No. 1Graphical representation for Body Composition variable i.e., Arm length

Table No. 1 Descriptive statistics for Anthropometric variable i.e., Arm length

Arm length	Type of Game	N	Mean	Std. Deviation
	Combat sports	150	166.1390	7.61134
	Team Sports	150	163.3154	13.25905

Table and Figure 1 display the descriptive statistics for Arm length in centimeters, including the mean and standard deviation. Mean and std. dev. of Arm length for, combat sports was 166.139±7.61 cm. Whereas, Mean and std. dev. of Arm length for, team sports was 163.31±13.25 cm.

Table2- Sig. of variation between Mean of Arm length for Team sports and CombatSports

		Levene's Test		Equality of Means Test		
		Levene's F-Value	Sig.	T-Value	df	Sig.
Arm length	Assumed Equal variances	19.133	.080	.715	298	.480
	Assumed not-equal variances			.715	284.633	.482

In Table 2, one can see to determine whether the groups are similar in a two-sample F-test, researcher use Levene's test and T-statistics. The premise of equality of variance was not broken since the resulting value for the Levens test for the anthropometric variable, arm length, for both combat sports and team sports, was 0.080, which is more than 0.05. Because the p-value of 0.480 is more than 0.05, the anthropometric variable of arm length for combat sports and team sports yielded a significant T-value of 0.715. It follows that the null hypothesis (H_0) that there is no difference between the two groups' population means for the anthropometric variable (in this case, arm length) for the chosen combat sports and team sports is accepted.

DISCUSSION ON FINDINGS

When it comes to sports performance, the arm length difference among team game and individual game players can have a significant impact. In team sports such as basketball or volleyball, players with longer arms may have an advantage in spiking, blocking, and reaching for rebounds. On the other hand, in individual sports like tennis or badminton, arm length can affect the reach and the ability to cover the court effectively. (Zhao et al., 2019) (Putra et al., 2020) In team games, players with longer arms may have a greater defensive and offensive reach, allowing them to block shots, intercept passes, and secure rebounds more easily. This can give them a competitive edge over opponents with shorter arms. Additionally, in individual games, the ability to cover more ground due to longer arms can lead to better court coverage and the ability to return shots that would be out of reach for those with shorter arms. (Hoffman, 2020) (Maszczyk, 2023) The impact of arm length difference on sports performance extends beyond the physical aspect. It can also affect a player's overall strategy, positioning, and style of play. Understanding and leveraging the advantages of arm length can be a crucial factor in achieving success in both team and individual sports. (Romero et al., 2016)

Arm length plays a significant role in various sports, including team games and combat sports. The impact of arm length difference on sports performance can be observed in the way athletes execute specific movements and techniques. In team games such as basketball and volleyball, players with longer arms may have an advantage in reaching for rebounds or blocking shots at the net. Similarly, in combat sports like boxing and mixed martial arts, the reach advantage that comes with longer arms can affect the ability to land punches and defend against opponents. The influence of arm length difference on sports performance goes beyond just reach. It can also affect the biomechanics of movement, the ability to generate power, and the overall effectiveness of techniques. Understanding how to leverage arm length differences can be a crucial factor in developing strategies for both individual and team-based sports. (Zhao et al., 2019) (Lafanda et al., 2015)

There was no significant difference obtained for arm length for selected team and combat sports as per our present study because our present study focused on elite-level athletes who had already honed their skills and techniques to compensate for any arm length differences. However, it is important to note that at the developmental stage, arm length differences can have a substantial impact on an athlete's performance. For example, in basketball, players with longer arms may have a greater advantage in shooting and blocking shots, while those with shorter arms may excel in ballhandling and quick hand movements. (Sharma et al., 2017) (Romero et al., 2016) (Sk&Mridha, 2015). Regarding this research the team game athletes i.e., Cricket, Football, and Hockey were selected which doesn't involve spiking shooting skills. When examining the biomechanics of movement, longer arms can provide a greater lever arm, which can contribute to more powerful and efficient movements in certain sports. In striking sports like boxing, the ability to fully extend punches and maintain distance from opponents can be heavily influenced by arm length.

Furthermore, the impact of arm length difference extends to the psychological aspect of sports performance. Athletes with longer arms may develop different strategies and styles of play to capitalize on their physical attributes, while athletes with shorter arms may need to focus on agility, speed, and precise timing to overcome reach disadvantages. (Putra et al., 2020)

Understanding the implications of arm length differences in sports can assist coaches and athletes in tailoring training programs and game strategies to leverage these physical variations. It underscores the importance of an individualized approach to training and game planning, recognizing that each player's unique physical attributes can significantly impact their performance on the field or court.

CONCLUSION

In conclusion, the comparative study of arm length for selected team game and combat game players highlights the significant impact of anthropometric differences on sports performance. The analysis of arm length between players in team games and individual games provides valuable insights into how physical traits can influence an athlete's abilities on the field or court. In the analysis presented, a two-sample F-test was conducted using Levene's test and T-statistics to determine the similarity between groups in terms of arm length for combat sports and team sports. The equality of variance assumption was upheld as the Levene's test result for arm length was 0.080, above the significance level of 0.05. Additionally, the p-value of 0.480 exceeded 0.05, indicating that the anthropometric variable of arm length for both combat sports and team sports yielded a significant T-value of 0.715. Consequently, the null hypothesis (H_0)

stating that there is no difference between the population means of arm length for the two groups (combat sports and team sports) was accepted based on the statistical analysis. The findings suggest that in team sports such as basketball or volleyball, players with longer arms may have advantages in activities like spiking, blocking, and reaching for rebounds. On the other hand, in combat sports Boxing, Judo and Wrestling can affect reach and playfield coverage.

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