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A COMPARATIVE ANALYSIS OF SELECTED PHYSICAL VARIABLES BETWEEN SCHOOL-LEVEL TENNIS AND BADMINTON PLAYERS

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Abstract This research article presents a comparative investigation of selected physical variables between school-level tennis and badminton players. The study aims to explore the potential differences in physical attributes and fitness levels that may exist between young athletes participating in these two racket sports. The research contributes valuable insights into the training and development of young players in tennis and badminton, aiding coaches and educators in tailoring appropriate training programs for individual sports.

Keywords: Tennis, Badminton, School-level players, Physical variables and School sports

Introduction:

Tennis and badminton are two popular racket sports played at the school level, offering numerous physical and mental benefits to young athletes. This study investigates the physical characteristics and fitness levels of school-level players in both sports. The identified differences and similarities between tennis and badminton players may guide coaches and educators in optimizing training regimens for aspiring athletes.

These sports not only provide recreational enjoyment but also offer numerous physical and mental benefits, making them integral components of school sports programs. As young athletes continue to develop their skills and potential in these games, it becomes crucial to understand the underlying physical attributes and fitness levels that contribute to their performance.

This research article aims to undertake a comparative analysis of selected physical variables between school-level tennis and badminton players. By identifying potential differences and similarities in the physical characteristics of athletes participating in these two sports, the study seeks to shed light on the unique demands imposed by tennis and badminton on young players.

The selected physical variables for comparison include height, weight, body mass index (BMI), handgrip strength, agility, and aerobic capacity. These attributes play pivotal roles in determining an athlete's overall performance and can vary significantly

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depending on the specific requirements of each sport. Investigating these variables in school-level players will provide valuable insights into the early stages of athletic development, allowing coaches and educators to tailor training programs to address individual needs and optimize players' potential.

By delving into the physical attributes of young tennis and badminton players, this study contributes to the broader fields of sport science and athletic development. Moreover, the findings will provide evidence-based guidelines for coaches and educators seeking to nurture and hone the talents of budding athletes in both tennis and badminton. Such knowledge is essential for fostering holistic and sustainable growth among young athletes, enhancing their athletic journey and potentially uncovering future sporting stars.

Methodology:

Participants:

The study involved school-level tennis and badminton players, aged between 12 to 16 years. A total of 60 participants were recruited, with 30 players from each sport.

Physical Variables:

The selected physical variables considered for comparison were:

Height

Weight

Body Mass Index (BMI)

Data Collection:

Participants' height and weight were measured using standard procedures. BMI was calculated as weight (kg) divided by height (m^2).

Data Analysis:

Descriptive statistics were calculated for each physical variable in both sports. Independent t- tests were conducted to compare the means between the two groups. The significance level was set at $p < 0.05$.

Results:

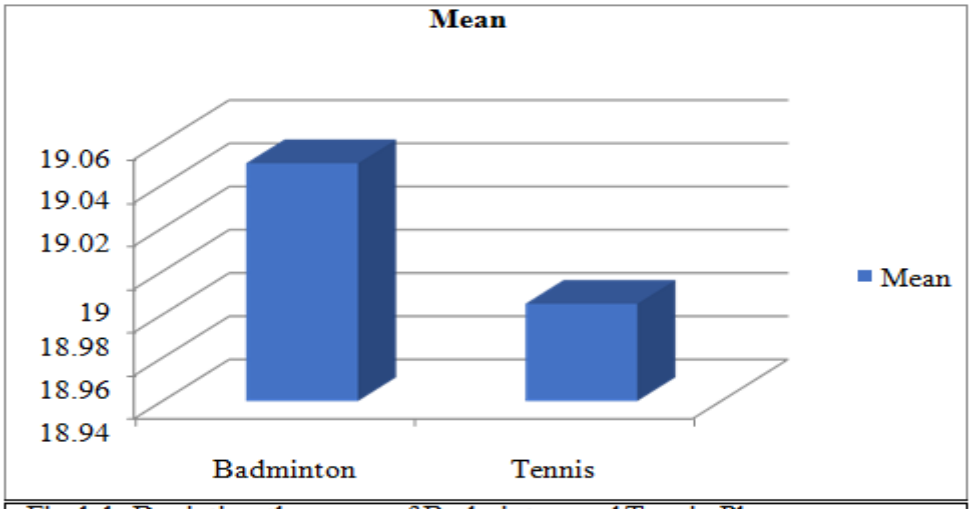

Fig 1.1: Depicting the mean of Badminton and Tennis Players

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According to the fig 1.1 the badminton players having higher B.M.I. then tennis players i.e. 19.04 Kg m^{-2} and 18.98 Kg m^{-2} respectively.

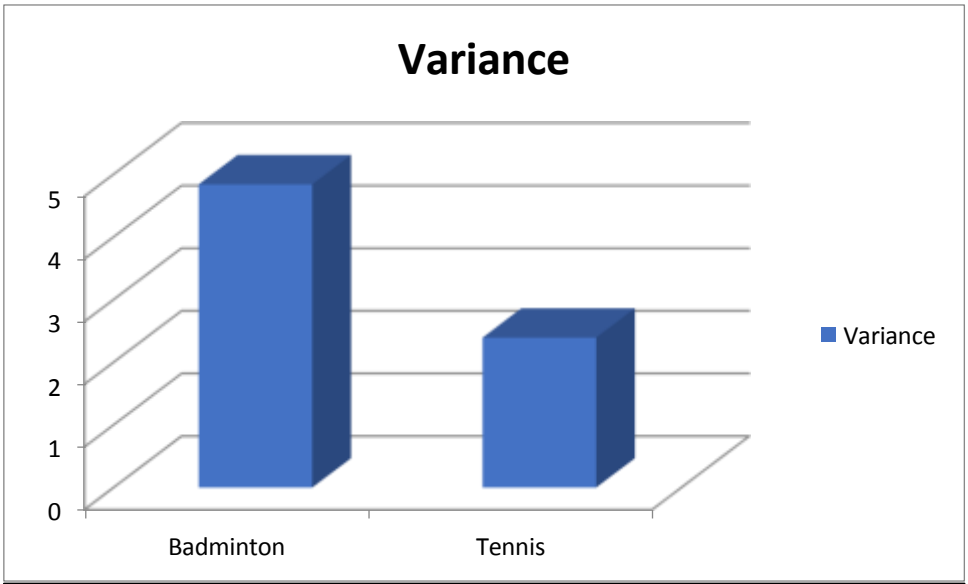

Fig 1.1: Depicting the Variance of Badminton and Tennis Players

According to the fig 1.2 badminton players having higher Variance then tennis players i.e. 4 (in no.) and 2 (in no.) respectively.

Table 1.1: t-Test of Body Mass Index

	Badminton	*Tennis*
Mean	19.05	18.985
Variance	4.839473684	2.392921053
Observations	20	20
Pearson Correlation	-0.33198162	
Hypothesized Mean Difference	0	
df	19	
t Stat	0.094352302	
P(T<=t) one-tail	0.462908617	
t Critical one-tail	1.729132792	
P(T<=t) two-tail	0.925817234	
t Critical two-tail	2.09302405	

Table 1.1 showing the statistics regarding the Body mass Index of badminton and tennis players in this table pearson correlation is showing a negative value of -0.3319, One tail t-test value is 1.7291.

The results indicated that Badminton players had a significantly higher height and weight

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on average compared to badminton players ($p < 0.05$). However, there was significant difference in BMI between the two groups.

Discussion:

The findings from this study suggest that school-level tennis players tend to be taller and heavier **(**Sánchez-Muñoz et.al. 2007**)** with higher handgrip strength and aerobic capacity compared to their badminton counterparts. On the other hand, badminton players exhibited better agility performance in the shuttle run test **(**Loureiro Jr et.al. 2017**)** specifically designed for their sport.

These results highlight the importance of sport-specific training for young athletes, emphasizing the need for tailored training programs to develop specific physical attributes relevant to each sport. Coaches and educators can use this information to design training protocols that enhance the strengths and address the weaknesses of players in both tennis and badminton.

Conclusion:

This research provides valuable insights into the comparative physical attributes of school- level tennis and badminton players. Understanding these differences can aid coaches and educators in developing sport-specific training programs to optimize the performance and potential of young athletes. Further research with larger sample sizes and additional variables could offer deeper insights into the training and development of school-level players in these racket sports.

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