

The Relationship between Arm Muscle Strength and Smash Shot Accuracy in Badminton

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Abstract

The relationship between arm muscle strength and smash accuracy in badminton. This study uses a quantitative approach through correlational techniques. The method used is a survey, with data collection techniques using tests. The population in this study were badminton athletes at PB Al Muhtadin Cipayung Depok totaling 25 male students and it was a population study. Data analysis used the product moment correlation test. The results showed that there was a positive correlation between arm muscle strength and smash accuracy. Product Moment correlation analysis obtained a value of $r_{x,y}=0.951>0.381=r_{(a=0.05)(25)}$, so this study concluded that there was a significant relationship between arm muscle strength and smash accuracy in badminton games for PB Al Muhtadin Cipayung Depok athletes.

Keywords: Arm muscle strength, Badminton, Smash accuracy.

1 INTRODUCTION

Badminton is a type of achievement sport that is very well known throughout the world (Limbong, 2021). In Indonesia, there are many great players who have won prestigious titles at the international level (Aji, 2012). To do a perfect smash hit, of course it takes repeated practice (Fattahudin, Januarto, & Fitriady, 2020; Zulhendri & Sukoco, 2021). Therefore, for those who want to have a deadly smash, focus on training using the wrist muscles (Sakurai & Ohtsuki, 2000; Ming, 1993).

Based on observations, at PB Al Muhtadin Cipayung Depok, there are still some students who are not good at smashing. The smash technique is still wrong, so that the impact on the shuttlecock is not quite right, for example the hands are not straightened when hitting, in fact there are still many players when doing the smash the shuttlecock gets stuck in the net and even goes out of the field.

Based on the identification of the problem above, the problem under study is the relationship between arm muscle strength and smash accuracy in badminton games. Based on the limitations of the problem above, the formulation of the problem in this study: Is there a relationship between arm muscle strength and smash accuracy in badminton games for badminton athletes at PB Al Muhtadin? By paying attention to the research variables as stated above, operationally this study aims to: Determine the relationship between arm muscle strength and smash accuracy in badminton athletes at PB Al Muhtadin Cipayung Depok.

2 RESEARCH METHODS

This research is a correlational research. According to Arikunto's opinion, correlational research is research conducted to find out whether there is a relationship between two or

several variables and if there is, how close the relationship is and whether or not the relationship is meaningful. The population in this study were badminton players at PB Al Muhtadin Cipayung Depok, totaling 25 students.

Measurement of arm muscle strength was carried out using a Push Up test for 1 minute using a time measuring device, namely a Stop Watch. The smash ability test is 40 times, by means of 20 times from the right and 20 times from the left.

The test was carried out 2 times to collect data for each item and the best value was taken. The first, Prerequisite Test (Normality test and Linearity Test). The normality test aims to determine whether the data distribution deviates from the normal distribution or not. Regression linearity test aims to test the error of experiments or experimental tools and test the linear model that has been taken. The second, Correlation Test. The correlation test is used to determine the relationship between each independent variable and the dependent variable whether the correlation between the variables is significant or not, so a significance test of the coefficient r is carried out with the provisions. If $r_{\text{count}} > 0$, then there is a positive correlation. If $r_{\text{count}} < 0$, then there is no positive correlation.

The correlation coefficient score uses the person product moment formula. To determine the significance of the relationship between the two variables, look at the p -value for the significance of 5%. If the p -value < 0.05 then there is a significant relationship between the dependent variable and each of the independent variables.

3 RESULT AND DISCUSSION

The research was conducted on May 8-15 2023. The research subjects were badminton players at PB Al Muhtadin, totaling 25 male players. In detail, the results of the research data for each variable are in Table 1.

Table 1. Statistical Descriptive		
Statistik	Arm Muscle Strength	Smash Accuracy
N	25	25
Mean	54.44	54.04
Median	53.00	49.00
Mode	35	38
SD	22.174	23.616
Minimum	18	26
Maximum	100	100

This study aims to determine the relationship between arm muscle strength and smash accuracy in badminton games for PB Al Muhtadin Cipayung Depok athletes. The research results are explained as follows.

Based on the results of the study showed that there was a significant relationship between arm muscle strength and smash accuracy in badminton games for PB Al Muhtadin Cipayung Depok athletes, with a value of $r_{x,y} = 0.951 > 0.381 = r_{(\alpha=0.05)(25)}$.

4 CONCLUSION

Based on the results of data analysis, description, testing of research results, and discussion, it can be concluded that there is a significant relationship between arm muscle strength and smash accuracy in badminton games for PB Al Muhtadin Cipayung Depok athletes, with a value of $r_{x,y} = 0.951 > 0.381 = r_{(\alpha=0.05)(25)}$.

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6 REFERENCES

- Aji, R. B. (2012). Nasionalisme dalam Sepak Bola Indonesia Tahun 1950-1965. *Lembaran Sejarah*, 10(2), 135-148.
- Fattahudin, M. A., Januarto, O. B., & Fitriady, G. (2020). Upaya Meningkatkan Keterampilan Pukulan Forehand Smash Bulutangkis Dengan Menggunakan Model Variasi Latihan Untuk Atlet Usia 12-16 Tahun. *Sport Science and Health*, 2(3), 182-194.
- Limbong, D. M. (2021). Pengaruh Latihan Dengan Lampu Reaksi Dan Shuttlerun Terhadap Kelincahan Gerak Kaki (Footwork) Pada Peserta Bulutangkis PB. Tj Prestasi Tebo. *Indonesian Journal of Sport Science and Coaching*, 3(2), 68-74.
- Ming, C. S. (1993). Badminton wall practice and training: A practical approach. *Journal of Physical Education, Recreation & Dance*, 64(9), 17-20.
- Sakurai, S., & Ohtsuki, T. (2000). Muscle activity and accuracy of performance of the smash stroke in badminton with reference to skill and practice. *Journal of sports sciences*, 18(11), 901-914.
- Zulhendri, Z., & Sukoco, P. (2021). Pengaruh metode latihan dan koordinasi mata tangan terhadap ketepatan drive pada ekstrakurikuler bulutangkis. *Jurnal Pedagogi Olahraga dan Kesehatan*, 2(1), 1-13.