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The Relationship between Wrist Flexibility and the Ability to Hit Dropshot Badminton Players

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Abstract. This study investigates the relationship between wrist flexibility and the dropshot ability of badminton players. The PB For this study, 15 badminton players from Manisa Sidrap were selected using the total sampling technique. To analyze the data, Pearson product moment correlation analysis was used. The findings of the correlation test showed a significant relationship between wrist flexibility and badminton players' dropshot ability ($0.002 < 0.05$). With a value of 0.224, the direction of the connection produced a positive correlation, suggesting that wrist flexibility and badminton players' dropshot ability, which ranges from 0.200 to 0.399, have a weak overall association.

Keywords: Wrist Flexibility, Dropshot, Badminton

1 Introduction

Badminton is one of the most popular sports in the world, with 200 million fans worldwide. It originated in China and was invented in England (Phomsoupha & Laffaye, 2015). There are five divisions in this sport: mixed doubles, women's singles and doubles, men's singles and men's doubles. Since badminton was introduced as an Olympic sport in 1992, its popularity and participation have grown. Anyone can participate in this sport, regardless of age or level of experience (Shariff et al., 2009). Since there is no physical contact with other players, badminton is regarded as a very safe individual non-contact sport (Backx et al., 1989). In badminton competitions, one to three matches are typically played across four or five days (Phomsoupha & Laffaye, 2020). A few fundamental badminton skills are smash, netting, serve, and drop shot (Sadzali et al., 2022).

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In badminton, the drop shot technique ¹ is one of the basic skills that requires high accuracy and good motion control. Drop shots are used to direct the shuttlecock to fall close to the net in the opponent's area, so that the opponent is forced to move forward and is in a disadvantageous position. Drop shots are shots that cause the shuttlecock to fall as close to the net as possible (Budiwanto, 2013). The shuttlecock bounces in a gentle curve on its court and after crossing the opponent's court will fall as high as possible with the net. A good drop shot is if the ball falls close to the net and does not cross the double line (Aksan, 2012). Success in performing an effective Dropshot requires a balance between strength, coordination, and flexibility, especially in the wrist.

⁵ Wrist flexibility plays an important role in determining the angle, speed, and control of the shot, which are important aspects in producing an accurate and unpredictable Dropshot. With optimal flexibility, players can make more precise movements, so that the shuttlecock can be directed precisely and produce the desired effect. Conversely, lack of flexibility in the wrist can reduce the athlete's ability to adjust the angle and speed of the shot, resulting in decreased accuracy and effectiveness of the Dropshot.

However, although the importance of wrist flexibility in badminton has been recognized, studies specifically exploring the direct relationship between wrist flexibility and Dropshot ability are still limited. A deeper understanding of this relationship is expected to provide valuable input for coaches and athletes in designing more effective training programs that not only improve flexibility but also overall Dropshot ability.

2 Method

This study is a correlational study. Fifteen badminton players from PB Manisa Sidrap make up the population and sample of the study. Using the complete sampling technique, the sample was chosen. Two test instruments were used to collect data. A protractor is used to gauge wrist flexibility, and a badminton dropshot power/skill test is performed to gauge PB Manisa Sidrap players' dropshot stroke proficiency. The normality test and the Pearson product moment correlation test are the traditional assumption and hypothesis tests used in this study's data analysis methodology.

3 Result

Descriptive Test of Wrist Flexibility

Table 1. ¹ Descriptive Results of Wrist Flexibility

Variables	N	Min	Max	Mean	Standar Deviasi
Wrist flexibility	15	132	173	162	11,9

The average score for the descriptive study of a badminton player's wrist flexibility was 162 degrees, with a standard deviation of 11.9 degrees. A badminton player's wrist flexibility ranges from 132 degrees at the lowest to 173 degrees at the highest.

Descriptive Test of Dropshot Ability

1 Table 2. Results of the Descriptive Test of Dropshot Ability

Variabel	N	Min	Max	Mean	Standar Deviasi
Dropshot	15	10	28	17,5	4,8

According to the findings of the descriptive analysis, the average score of the badminton player's dropshot skill was 17.5 points, with a standard deviation of 4.8. The Dropshot skill of a badminton player can be as low as 10 points or as high as 28 points.

1 Normality Test

One sample Kolmogorov-Smirnov

Table 3. Kolmogorov-Smirnov Normality Test

Variabel	N	Statistic	Signifikansi	Keterangan
Wrist flexibility	15	0,215	0,061	Normal
Dropshot	15	0,120	0,2	Normal

It can be inferred that the residual value of wrist flexibility is normally distributed based on the findings of the normality test using Kolmogorov-Smirnov processing with SPSS 25. The significant value of wrist flexibility is $0.061 > 0.05$. Since the Dropshot ability significance value is $0.20 > 0.05$, it can be said that the Dropshot ability value follows a normal distribution. Parametric statistical tests are used to evaluate the hypothesis since the data is normally distributed. The SPSS software aids in the analysis of data for additional research.

Table 4. Correlation Test

Correlations			
		Wrist Flexibility	Dropshot
Wrist Flexibility	1		
	Pearson Correlation	1	.224**
	Sig. (2-tailed)		.002
	N	15	15
Dropshot	Pearson Correlation	.224**	1
	Sig. (2-tailed)	.002	
	N	15	15

**. Correlation is significant at the 0.01 level (2-tailed).

- Based The Pearson correlation analysis above uses the correlation test results as the foundation for decision-making, specifically
- Based in relation to the 2-tailed significance value sig. The Sig. value (tailed-2) between wrist flexibility and dropshot ability is $0.002 < 0.05$, as can be seen from the data above. This indicates that there is a strong connection between the two variables.

- c. b. The relationship value between the wrist flexibility variable and Dropshot hitting ability is 0.224, which means that the relationship between the wrist flexibility variable and Dropshot hitting ability has a unidirectional or positive relationship, which means that if the wrist flexibility variable increases, the Dropshot ability variable decreases and vice versa.
- d. c. Based on the calculated r value (Pearson Correlation) of 0.224 obtained, the criteria for the strength of the relationship between Wrist Flexibility and Dropshot hitting ability have a weak relationship.

4 Discussion

Wrist flexibility plays a significant role in the ability to perform a Dropshot stroke in badminton. In the Dropshot movement, wrist flexibility supports players to have better control over the direction and speed of the stroke, so that the shuttlecock can fall right near the net in the opponent's area. Optimal flexibility helps athletes to create variations of strokes that are difficult to predict, making it more difficult for opponents to anticipate. This study uses the wrist flexibility factor to determine its relationship to dropshot. The results of the study showed that there was a unidirectional or positive relationship between wrist flexibility and Dropshot ability with a Pearson correlation of 0.224. This is in line with research conducted by (Syawal, 2022) which stated that wrist flexibility has a close relationship to increasing the dropshot ability of the Surya Badminton School Kolaka club badminton with a Pearson correlation of 0.73. In this study, the relationship between wrist flexibility and Dropshot ability is included in a weak relationship because there are several other factors that affect the Dropshot ability. A good and correct Dropshot stroke cannot be separated from the accuracy factor which is a form of eye, hand, and footwork coordination (Gusrinaldi et al., 2020). Based on the results of research conducted by (Jannah, 2019) it was stated that there was no contribution between wrist flexibility and Dropshot stroke ability. This may be the basis for this study why the relationship between wrist flexibility and Dropshot ability has a weak relationship level. In addition, to get good Dropshot ability, apart from coordination factors, and footwork, players must also pay attention to other important components such as physical condition, tactics, technique and mentality (Sajoto, 1990: 15). In this regard, the research results obtained can be used as an additional reference in training Dropshot abilities in badminton games, it is necessary to add various variations of movement to develop elements of wrist and arm flexibility and athlete agility in order to get optimal results.

5 Conclusion

Wrist flexibility is one of the supporting elements in performing the Dropshot stroke ability in badminton. Optimal flexibility allows players to control the direction, angle, and speed of the stroke more accurately, so that the shuttlecock can be directed precisely to the opponent's hard-to-reach area. With good flexibility, athletes can also reduce the risk of injury due to repetitive movements and pressure on the wrist joint, which is common in badminton. Therefore, developing wrist flexibility through focused and consistent training is an important aspect of a badminton training program, because it can contribute to improving the performance and effectiveness of the Dropshot stroke as a whole.

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