Power and Smash: Is there a relationship? Study on Female's Volleyball Extracurricular at SMK Negeri 4 Lubuklinggau

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Power and Smash: Is there a relationship? Study on Female's Volleyball Extracurricular at SMK Negeri 4 Lubuklinggau

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Abstract

Leg muscle explosive power plays an important role in someone's success in doing smashes in volleyball games. This study reveals the level of leg muscle explosive power and smash ability and determines the correlation between the two variables. The method used is descriptive quantitative with a correlation approach. The population in this study were all female volleyball extracurricular participants at SMK Negeri 4 Lubuklinggau City. Data collection techniques and instruments used vertical jump tests and volleyball smash tests. Data analysis using SPSS software. The results showed that the explosive power of the leg muscles was at a low level, and smash ability was at a moderate level, and there was a significant positive relationship. From the results of this study, it is recommended to extracurricular coaches develop training programs that can increase muscle explosive power.

Keywords: *leg power, smash, volleyball.*

INTRODUCTION

The game of volleyball has a place in the hearts of fans. This is a general description of the position of the game of volleyball in today's society. Various football clubs from amateur to professional level keep popping up. This indicates that the public's interest in volleyball has increased (Hidayat, Kristiyanto, & Riyadi, 2021). At the level of education at the secondary school level or equivalent it also illustrates that students have an interest in pursuing the sport of volleyball (Sahabuddin et al., 2023).

At the educational level, especially in high school or equivalent, a special place or place is given for volleyball lovers, which is commonly referred to as an extracurricular sport. One of the main goals of extracurricular sports is to provide opportunities for all students to channel and develop their sports talents (Nghia, 2017). One school that is committed to developing volleyball sports talent for its students is State Vocational High School Lubuklinggau City (SMK Negeri 4 Kota Lubuklinggau).

A player must master the basics of the sport to master volleyball correctly and perfectly. One of them is the smash technique which is very useful for attacking in volleyball games. Smash is a movement that is always used in an attack that aims to win (Montesano & Mazzeo, 2018). Destroying your opponent's strategy is the main goal as

well as scoring points and winning (Suhairi et al., 2020). This helps kill the opponent's defense and scores up to 25 points to win the match.

The implementation of the smash technique is not just done, but some steps must be considered, steps when jumping, hitting the ball with the hand while flying, and good landing to avoid injury (Yulianti, 2017). To provide extraordinary smash results, smash development also requires good body condition. Body conditions include foot agility, body balance, leg, and hand strength, coordination when making movements, heart endurance as a defense in matches, body flexibility so that power is stronger in smashes, and reaction speed to overcome unexpected ball conditions (Hasugian & Siregar, 2022).

When doing a smash in volleyball, one of the explosive powers of the leg muscle plays a very important role because a better smash will come from strong leg muscles to make a good jump (Qudsi et al., 2021). If the explosive power of the leg muscles is not strong then the jump will not be optimal and the smash will not be carried out properly when attacking (Aguss et al., 2021). Smash volleyball is good, if the stronger the leg muscles, the longer the reach of the ball, and the higher the jump during the smash. Good jump resistance, speed, and flexibility that comes from movement through strong joint motion are referred to as leg muscle strength (Adnan, 2019).

Based on the results of an interview with female athlete trainer Rika Aprilia, S. Pd on April 3, 2023, information was obtained that there were 16 female volleyball extracurricular participants from seventh to ninth grade. Volleyball practice is held every Tuesday and Saturday every week. The results of observations made known some information. First, students look proficient in playing volleyball but on Smash there are still many messy students who don't know how to start, refuse to jump, and hit the ball while on the field. Second, the student's abilities varied in doing volleyball smashes. Third, some students are successful smash not right on target so that they left the field and even entered the net because their jump was not high enough. Fourth, failure to smash is also the result of a bad jump.

Based on the results of observations, researchers were interested in knowing the level of leg muscle explosive power and the level of volleyball smash ability. This study also analyzed the relationship between leg muscle explosive power and the ability to smash women's volleyball at SMK Negeri 4 Lubuklinggau City. This research can be used as a basis for developing a training program so that it is hoped that it will be able to improve the quality of the game in volleyball, especially increasing the ability to smash female volleyball extracurricular participants at SMK Negeri 4 Lubuklinggau City.

METHOD

The method implemented in this study is descriptive quantitative with a correlational approach. According to (Sugiyono, 2019) correlation research is a type of research that seeks to reveal the degree of relationship between the variables studied. This research was carried out at State Vocational School 4 Lubuklinggau City in April 2023. All 16 female volleyball extracurricular participants were involved to become the study population. The use of samples in this study refers to total sampling which is a sampling technique by including all members of the population as the research sample. To complete the required research data, several stages of the procedure must be passed including ensuring the research variables to be studied, selecting the required research instruments, coordinating with athletes and coaches for data collection, collecting explosive power data using the vertical jump test, collecting data smash ability with the volleyball smash test, data verification, data analysis, and compiling research reports. The techniques and instruments used were the vertical jump test and the volleyball smash test. To analyze research data using assistance SPSS software version 16.

RESULT

Table 1. The result of leg power

No	Interval (cm)	Category	Frequency	Percentage
1	> 43	Very well	0	0 %
2	38 - 42	Good	1	7 %
3	33- 37	Currently	6	37 %
4	20 - 32	Less	9	56 %
5	7 - 19	Less than once	0	0
	Total		16	100

Based on the results shown in Table 1, information was obtained that most of the explosive power abilities of the leg muscles were in the less category.

Table 2. The result of the smash

No	Interval (cm)	Category	Frequency	Percentage
1	22-25	Very well	0	0 %
2	19-21	Good	2	12 %
3	12-18	Currently	10	64 %

4	9-11	Less	2	12 %
5	5-8	Less than once	2	12%
		Total	16	100

Based on the results shown in Table 2, information was obtained that in general, the smash abilities of extracurricular participants were in the medium category. Visually, the results of the explosive power of the leg muscles and the smash ability of the extracurricular participants can be illustrated in Figure 1 below.

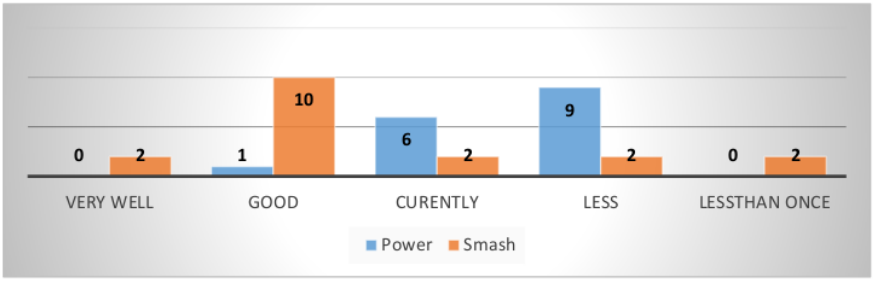

Figure 1. Graph of equations between variables

To carry out a correlation analysis between variables in this study, the initial step taken was to carry out a prerequisite test, namely the normality and linearity tests of the data using the help of the software SPSS. Test the normality of the data by using Kolmogorov-Smirnov Test whose results are presented in table 3.

Table 3. Normality Test

Kolmogorov Smirnov Test	Sig.
Test Statistic	.112
Asymp. Sig. (2-tailed)	.200[c, d]

From the Kolmogorov Smirnov test results shown in table 3, it is known that the sig. of .200 is greater than 0.05. Based on the provisions of the normality test, the data is declared normal so that it is feasible to proceed to the next stage, namely the linearity test. The results of the linearity test are shown in Table 4.

Table 4. Linearity Test

		Sig
Between Groups	*(Combined)*	.021
	Linearity	.000

	Deviation from Linearity	.868

Based on the results of the linearity test, it is known that the sig. deviation from linearity is .868, which means that the value is greater than 0.05. So, it can be concluded that the residual values are linearly distributed or there is a relationship. After the two main prerequisites are declared following the provisions, it is followed by a correlation analysis to determine the level of correlation between variables. The results of the correlation analysis are shown in Table 5.

Table 5. Correlation Test

		Power	Smash
Power	*Pearson Correlation*	1	.941**
	Sig. (2-tailed)		.000
	N	16	16
Smash	*Pearson Correlation*	.941**	1
	Sig. (2-tailed)	.000	
	N	16	16

The final result of testing using the Pearson correlation equation is .941. These results indicate that the degree of relationship between the two variables is high. From the results of significance, it is also stated that there is a close relationship between the explosive power of the leg muscles and the volleyball smash in this review with a significance value of 0.05 <0.00.

DISCUSSION

This study seeks to reveal the level of leg muscle explosive power and volleyball smash ability and to analyze the relationship between the two variables. Female volleyball extracurricular participants have leg muscle explosive power in the less category. Leg muscle explosive power is the result of a combination of strength and speed (Sihombing, 2019). So that it can be narrated in this study what is meant by the explosive power of the leg muscles is the ability of the leg muscles possessed by female volleyball extracurricular participants to make jumps as hard and fast as possible. The explosive power of the leg muscles can be seen from indicators such as the height of the jump, and how fast it responds to external stimuli (França et al., 2021).

The low explosive power of the leg muscles possessed by female extracurricular participants is in line with the results of previous research conducted by (Sari & Soegiyanto, 2022) which revealed that female volleyball extracurricular participants tend to have leg muscle explosive power in the less category. Some of the factors that cause the not optimal explosive power of the leg muscles include the lack of plyometric training. Various research results show that plyometric training has a significant impact on increasing the explosive power of the limb muscles of volleyball players (Yanti et al., 2021; Asota et al., 2022).

The results of the analysis show that female volleyball extracurricular participants at SMK Negeri 4 Lubuklinggau City have smash abilities in the medium category. Smash in volleyball is used as an effort made by players to score. For beginner volleyball players, smashing is a difficult thing to do. Several physical components need to be possessed by volleyball players to be able to do smashes including leg muscle explosive power, eye and hand coordination, accuracy, and arm muscle power (Komaini et al., 2022). If we analyze one of the factors, the low ability to smash is due to the low explosive power of the leg muscles possessed by volleyball extracurricular participants at SMK Negeri 4 Lubukliinggau City.

From the results of statistical analysis with the help of SPSS software, it is known that there is a positive significant relationship between leg muscle explosive power and smash ability. Smash is a basic technique in volleyball that is identified with fast movements and strong punches (Bujang et al., 2019). To do a smash, in general, begins with a jumping motion, which requires the explosive power of the leg muscles in the jumping motion. In another sense, if a player has good leg muscle explosive power, then the player has a great chance of being able to smash. The results of the study show that the greater the explosive level of a player, the better his ability to smash.

This study is limited to the number of variables and samples so the results of this study cannot be generalized to different sample characters. for further research to discuss the factors that influence the low level of leg muscle explosive power and smash ability. In addition, it is hoped that future researchers will use a larger sample size

CONCLUSION

Through a series of research processes to data analysis, it was concluded that female volleyball extracurricular participants at SMK Negeri 4 Lubuklinggau City had a

level of leg muscle explosive power in the low category, and smash ability in the medium category, and there was a significant positive relationship between the two variables.

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