Correlation between Power of Limb Muscle with Smash Skill Kedeng on Sepaktakraw

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Abstract: This study aims to determine the correlation between power of limb muscle (X) with smash skill kedeng on sepaktakraw (Y). The research was conducted in the gymnasium of sepaktakraw State University of Makassar South Sulawesi in March 2017. The sample of the study is 38 students on student activities sepaktakraw Faculty of Sport Science, State University of Makassar. This method used in this study is an associative quantitative descriptive method with correlation analysis models. The collecting data uses test and measurement techniques as a primary data through some tests, namely smash skill kedeng test and power of limb muscle test. The results of this study finds that the correlation table generates a probability value of 0.05 is greater than the probability value sig or [0.000 < 0,975], significant meaning and have a positive correlation to smash kedeng with the level of relations is (r) 0,975 showed a very strong positive correlation and coefficient of determination (Kd) or Pearson correlation by: Kd = r 2 x 100%, (0.975) 2 x 100% = 0,950,0 x 100 = 95.0, which means smash skill kedeng determined by power of limb muscles and the rest influenced by another factor of 5,0.

1 INTRODUCTION

Sepaktakraw is one sport that has been played and recognized by the world community. Especially in Indonesia, sepaktakraw has been used as a sports education, recreation and achievement. As a sporting achievement and therefore, we need to increase the quality and quantity of coaches, athletes and organizational management was good early on, especially the development of students is an asset most essential and the potential to be developed, so the achievement sepaktakraw nationally is very well.

Sepaktakraw is a historic sport, culture of the nation, and the state of nature as well as the results of the Earth Indonesia (Achmad, 2015). Sepaktakraw or sepak raga was played in the era of the kingdom of Sriwijaya, Majapahit and Gowa. In Indonesia there are many naming of sepaktakraw as in Minangkabau called football Rago, in Riau with high Rago name. Bengkulu named smacking, in Nias called fa Rago / Famai Rago, Southern Sulawesi named marraga or maddaga while in Makassar "addaga" (Syam). The basic technique in a game that is servicing sepaktakraw, soccer precepts and smash. Smash skills kedeng including mastery skill category in sepaktakraw with appropriate backs performed as a player to attack the opponent's area by means back to the net.

Sepaktakraw sport in Indonesia has existed since 1971 was marked by the establishment of sports organizations (Engel, 2010). Performing with power requires a combination of aerobic and anaerobic fitness that can be accentuated with special methods. An example is a single speed bike which encouragesthe muscles contract more forcefully (Lemond, 2015). High intensity training (HIT), involves using high training loads throughout the year and performing all working sets to at least positive failure (Bompa, 2015)

Poor strength in the lower extremities results in loss of stability when landing, and high-impact forces are excessively absorbed by the passive restraints of the body (James, 2012). Early fatigue also becomes a problem for athletes without adequate development of lower-extremity strength. These factors will result in the deterioration of performance during exercise and will cause the athlete to approach overuse levels much more rapidly, thus subjecting the athlete to possible injury (Donald, 2013)

Structure and composition are separate yet interrelated aspects of the body that contribute to what has been defined as physique (Widiastuti, 2015).

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Body composition, the third aspect of physique, refers to the amounts of the various constituents in the body (Shephard, 2000). Results of the study states that the measurement of activity performance for persons with upper limb amputation is needed. And the Conclusions is: Analyzes support reliability and construct validity of the T-MAP, level of evidence: 2c "outcomes" research. Based on the background mentioned, as well as the identification of the problem definition problem in this research is formulated as follows.

This research aimed to study and respond the hypothesis of is there a positive correlation between the power of limb muscle with smash skill kedeng on sepaktakraw. The benefits of this research can be reviewed from two aspects are theoretical and practical.

2 METHODS

2.1 Participants

Faculty of Student Activities office Makassar is one of the coaching centers and exercise sepaktakraw which serve as a platform of education and training talented students as a form of training delivery system to achieve the desired result (outstanding athlete). It is as research objects chosen by the researchers because already fostering achievement for students of sport science faculty. Sampling using total sampling that examines the total population were 38 male students with characteristics of age between 20 -22 years, height between 160-170 and weight between 50-70 kg.

2.2 Procedures

This research used correlation analysis (Carroll, 2005) model that aims to measure the level of direct and indirect correlation between one variable to another variable (variable X with variable Y). Retrieval of data held in the sports hall sepaktakraw Faculty of Sport Science, State University of Makassar, South Sulawesi province.

2.3 Instruments

Collecting data in this study using the technique of test and measurement and documentation primarily through skills tests smash kedeng and power of limb muscle. The analysis technique used in this study is hypothesis filing descriptive statistics inferential. Before testing the hypothesis test is conducted prior requirement that descriptive analysis of the data, the frequency distribution analysis, the data normality test, tests of significance, the level of correlation analysis test and hypothesis testing.

3 RESULTS AND DISCUSSION

3.1 Descriptive Data

Descriptive data analysis performed on each of the variables studied. Descriptive analysis of data can be seen in the following table.

Table 1: T test results power of limb muscle with smash skill kedeng on Sepaktakraw.

Model	r	T_{count}	T_{table}	Result
Smash Skill Kedeng on Sepaktakraw	0,55	5,880	2,024	H_1 accepted

Table 2: Descriptive data power of limb muscle and smash skill kedeng on sepaktakraw.

Statistics		
N	Power of Limb Muscle	Smash skill Kedeng on Sepaktakraw
Mean	114.08	18.74
Std. Error of Mean	.823	.279
Median	113.50	19.00
Mode	115	19
Std. Deviation	5.074	1.719
Variance	25.750	2.956
Range	17	6
Minimum	106	16
Maximum	123	22
Sum	4335	712

Table 3: Summary results of the normality test power of limb muscle and smash skill kedeng on Sepaktakraw students.

Kolmogorov-Smirnov Test			
		Power of Limb Muscle	Smash skill Kedeng on Sepaktakraw
N		38	38
Normal Parameters[a]	Mean	114.08	18.74
	Std. Deviation	5.074	1.719
Most Extreme Differences	Absolute	.096	150
	Positive	.084	.150
	Negative	-.096	-.113
Kolmogorov-Smirnov Z(Test Statistic)		.591	.923
Asymp. Sig. (2-tailed)		.875	.362
a. Test distribution is Normal.			

Table 4: F-test the power of limb muscle to smash skill kedeng on sepaktakraw.

Varians	DF	F_{count}	F_{table} (α = 0,05)	Sig
Regresi Residual	3 34	74,55	2,88	000
Total Reduksi	37	-	-	-

Table 5: The results of correlation power of limb muscle and smash skill kedeng on sepaktakraw.

Correlations			
		Power of Limb Muscle	Smash Skill kedeng on Sepaktakraw
Power of the Limb Muscle	Pearson Correlation	1	.975**
	Sig. (2-tailed)		.000
	N	38	38
Smash Skill kedeng on Sepaktakraw	Pearson Correlation	.975**	1
	Sig. (2-tailed)	.000	
	N	38	38
**. Correlation is significant at the 0.01 level (2-tailed).			

3.2 Discussion

Description on the overall results of hypothesis testing showed a significant positive correlation. The first about data analysis for variable power of limb muscle X1 with a mean score of 114,08, the range of 17, minimum score 106 and score maximum 123, it indicates that the students of the faculty of sport sciences who practice in the bureau activities of university students sepaktakraw have the ability power of limb muscle with an average of 114 or 52.6%, with the number of frequency of 20 people.

This means that the power of the limb gives the effect of 95.0% against kedeng on sepaktakraw smash skills. This shows that power of leg muscle contributes strongly to the skill of doing smash kedeng. It is means if the better power of leg muscle, so the better the ability to do smash kedeng, and vice versa if the power of leg muscle of an athlete is low then the ability to smash also low (Brow, 2005). This can be seen when athletes are able to perform sharp smash and plots smash (plash) directed.

Descriptive analysis of data obtained by the mean power of limb muscle of 114,08, standard deviation of 5.074, 25.750 variance, maximum score 123, minimum score 106, range 17, median 113.50, Mean smash skill kedeng of 18.74, standard deviation of 1.719,variance of 2.956, maximum score 22, minimum score 16, range of smash skills kedeng 6, median 19,00.

Terms of normality analysis of data using the Kolmogorov-Smirnov test aims to determine whether the data were normally distributed. The hypothesis will be tested with a 0.05 significance level α are: H0: If the probability < 0.05, then H0 is rejected to mean the population is not normally distributed. H1: If the probability ≥ 0.05, then H1 is accepted means that the population is normally distributed.

Normality test data smash skill kedeng on sepaktakraw (Y) Probability value of 0.362 so that the p-value = 0.362 > α 0,05). The data were normally distributed of smash skill kedeng on sepaktakraw. But Normality test data power of limb muscle (X) Probability value of 0.649 so that the P-value = 0.649 > α 0,05). The data were normally distributed of power of limb muscle.

Analysis of the correlation power of limb muscle to smash skill kedeng on sepaktakraw. In the correlation table generates a probability value of 0.05 is greater than the probability value sig or [0.000 < 0,05] H0 rejected and H1 accepted meaning significant and have a positive correlation to smash skill kedeng on sepaktakraw with the level of relations X1 with the variable Y is (r) 0.975 shows

very strong positive correlation and coefficient of determination[15] (Kd or Pearson correlation by: Kd = r2 x 100%, (0.975)2 x 100% = 0.95 x 100 = 95.0, which means smash skill kedeng on sepaktakraw determined by the power of limb muscle and the rest influenced by another factor of 5.0.

Correlation power of limb muscle with smash skill kedeng on sepaktakraw. From the calculation Thitung 4.555 > 2,024 Ttable then H0 rejected H1 accepted. This means there is a significant correlation between the power of limb muscle with smash skill kedeng on sepaktakraw. But the results from the calculation of Fhitung 74.55 > Ftabel 2.88 then H0 rejected H1 accepted. This means there is a significant correlation between power of limb muscle to smash skill kedeng on sepaktakraw. Meanwhile body size refers to the volume, mass, length and surface area of the body, whereas body structure refers to the distribution or arrangement of body parts such as the skeleton and muscle-fat distribution (Masson, 2015)

Therefore, for better results then general physical education concerns with the process of teaching-learning so that the students get a bunch of knowledge or movement skills or biomechanics value which are obtained significantly. Differences in physical education with sport education lie in the purpose and the setting of teaching and learning. And order of magnitude as those associated with uncertainties in limb lengths.

4 CONCLUSIONSS

Based on data analysis and discussion, the results of this study can be summarized as follows. The results of testing hypothesis states there is a positive correlation between power of limb muscle to smash skills kedeng sepaktakraw. This indicates that power of limb muscle strong contribution to the smash skill kedeng on sepaktakraw means the better power of limb muscle, the better the ability to smash kedeng.

REFERENCES

Achmad S. 2015. *Sepaktakraw for students.* Jakarta: Eagle Pers. 3.

Syam A. 2015. *Beach Sepaktakraw.* Jakarta: Eagle Pers. 25-27.

Engel, R. 2010. *Basics Sepaktakraw.* ASEC Internasional: PT Intan Sejati.

Lemond G., Hom M. 2015. *The Science of Fitness Power, Performance, and Endurance,* Kidlington, Oxford OX, UK. 51.

Bompa. & Carrera M. 2015. *Conditioning young athletes.* USA: Human Kinetics.75.

James T., Puspitorini W. 2012. Sports Coaching, *Sports Performance Coaching Edisi II.* Jakarta.

Donald A. Chu and Gregory D. Myer. 2013. *Plyometric,* Human Kinetics United States of America.

Widiastuti. 2015. *Sport and Measurement Sports. Jakarta: Eagle Pers.*

Shephard R.J. And Astrand. 2000. *Endurance In Sport, Blackwell Science, International, Olympic Committee, Australia.*

Carroll B. 2005. *Asssessment in Physical Education: A Teacher's Guide to the Issues,* the Taylor & Francis e-Library.

Brow, L.E & Ferrigno, V.A. 2005. *Training for spedd, agilty and quickness. Champaign,* IL: Human Kinetics, USA. 87-89, 2005.

Masson, M.-A. Bégin, M. Lopez Poncelas, S.K. Pelletier. 2015. Contribution of limb momentum to power transfer in athletic wheelchair pushing *[J] Journal of Biomechanics. European Journal of Business and Social Sciences,* Vol. 4, No. 01, p158-173.