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## THE INFLUENCE OF PRACTICE METHOD ON VOLLEYBALL NORMAL SMASH ABILITY VIEWED FROM LEG MUSCLE POWER

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### ABSTRACT

Background, students sport achievement in volleyball achievement development activity is not maximum nowadays. This can be proved from volleyball competition result that had been followed by them have not shown satisfying result. This research means to (1) Examine the difference of the influence of part whole part and whole part whole practice method on volleyball achievement development student, (2) Examine the difference of leg muscle on normal smash of volleyball achievement development student, (3) Examine the influence of interaction between practice method and leg muscle power to normal smash ability of volleyball achievement development student.

This research is experimental research that means to compare two different treatments to research subject. The research used experimental method with 2x2 factorial design. The sample are 32 using probability sampling technique. Independent variable is part whole part and whole part whole practice method. Attributive variable is high leg muscle power and low leg muscle power. Dependent variable is volleyball smash ability. Data collection techniques in this research are pretest and posttest. Data analysis technique used is Varians analysis (ANAVA). Population in this research is student in volleyball achievement development activity Sebelas Maret University.

The Result of this research that student group is given whole part whole practice method have better result compared with student group that is given part whole part practice

one (104,37 > 81,75) toward volleyball smash result. In student group having high leg muscle power has better result compared with student group having low leg muscle (112.31>70.87) toward volleyball smash result. There is interaction between practice method and leg muscle power toward volleyball smash result.

The Conclusions of this research, there is different influence between volleyball smash practice using part whole part and whole part whole practice method toward volleyball smash result. Furthermore, there is different influence between sample group with high level of leg muscle power and low level of leg muscle power toward volleyball smash result. Last, there is interaction influence between leg muscle power and practice method to volleyball smash result.

**Key words : Practice Method, Leg Muscle Power, Smash Ability**

## **INTRODUCTION**

Student sport achievement in volleyball achievement development activity currently has not been maximal. This can be proved by POM UNS 2015 (Students Sport Week) sport event, both boy and girl have to satisfy with 3<sup>rd</sup> position. Moreover, in other sport event that conducted in PTN and PTS, UNS also has not reached optimal result. This can be proved by volleyball competition and race result that have been followed have not showed satisfying result. Achievement that gotten is the reflection of development process so that if the achievement is not maximal, there is possibility of problem occurs in development process. The development as meant can be done in basic skill aspect of athlete that trained from young age.

To increase volleyball achievement can be done in correct and efficient motion technique. The motion can be said efficient if the motions coordinated well and combine to produce needed motion to finish certain assignment, and exploit it with well direction, and use minimum force as possible. This is in line with Drowatzky (1981 : 34 ) “three main components that support efficient motion are physical health and motion ability, ability of sensory also process – perceptual process.” On the other hand, what is meant by correct motion technique is if an athlete is able to perform well and correct game or style in certain sport.

According to Bompa (1994), technique covers whole technique structure and the parts that is integrated thoroughly also efficient motions of an athlete in his effort doing sport exercise. Volleyball game is group sport game that is played by two teams in each field that is separated with net, with the purpose can drop to floor or field of opponent and prevent the

same effort from the opponent ( PBVSI, 2004 : 7 ). The mastery of volleyball game basic technique is one of components that also can determine the winner from a game. Ahmadi ( 2007 : 20 ) believes that techniques in volleyball game consist of serve, low passing, high passing, block, and smash.

Rehearsal process to be skillful in technique that strengthens basic skill is needed. Good rehearsal is rehearsal that is fun and having high creativity skill to create rehearsal form variation. Correct basic technique direction from early is needed so that basic skill in playing can be mastered well. The process of learning basic skill in playing needs to be paid attention carefully in execution, moreover volleyball smash ability that is very important and needed especially in forming attack to the opponent team in order to reach the win. Based on researcher's observation, volleyball achievement development students still need sharpness and accurateness also effective motion in doing one of basic techniques that is volleyball smash ability. Another problem that is usually found in field is the many coaches when giving training not based practice program even there are some of the coaches who do not make any practice program, so that the practice material that given is not arranged systematically, this is one of the factors that can make the achievement is not maximal.

Based on those problems, the researcher compares part whole part and whole part whole method toward volleyball smash ability viewed from leg muscle power. Based on both practice method will be compared which one is having big influence toward the increase of volleyball smash ability result.

## **RESEARCH METHOD**

### **1. Research Design**

This research used an experimental method and a 2x2 factorial design (Sudjana, 1992). The study was conducted from november, 2017 to januari, 2018.

### **2. Population and Sample**

Population in this research is student in volleyball achievement development activity Sebelas Maret University. The samples of the research amounted to 28 people that were obtained by using purposive sampling (Suroto, 2004).

### **3. Study Variables**

Based on Sugiyono (2011: 38) variable is everything that form anything that set by the researcher to be learnt so that can get information about that problem then drawn the conclusion. Based on Sugiyono (2011: 38) independent variable is something that influencing

or becoming reason the change or the appear, while dependent variable is variable that is influenced or becoming result because of independent variable. Manipulative independent variable in this research is practice model that consist of two models, those are part whole part and whole part whole. Attributive independent variable in this research consists of high leg muscle power and low leg muscle power. Dependent variable in this research is volleyball smash ability.

#### **4. Operational Definition of Variables**

**Part whole part method** is the spiker do the smash technique part by part, after that they do the whole movement and then back to the part by part movement.

**Whole part whole method** is the movement of whole smash technique, then do the movement of part by part and then return to the whole movement

**Explosive power** is a component of physical condition that determine the result of performance in movements skill

**Normal smash ability of volleyball** is the spiker ability to hit the ball quickly and precisely, and than the ball fall in the opponent's area hard and sharply

#### **5. Data Analysis**

Data collection techniques in this research are pretest and posttest.. Collecting data technique in this research can be explained as: a) determine high leg muscle power group, b) determine low leg muscle power group, and c) do volleyball smash ability test. Data analysis technique used is Varians analysis (ANAVA).

### **FINDINGS AND DISCUSSIONS**

The provided data based on processing data result and interpretation using computer program *SPSS 20*.The result from this research shows that,

#### **a. Treatment group Part whole part and whole part whole method**

In this group, there are two groups, those are part whole part and whole part whole. In part whole part, it can be seen that the total score in this group in pretest is 8149 and 9457 in posttest means that there is score improvement as many as 1308. Average in this group in pretest is 509,31 and 591,06 in posttest means that there is score improvement as many as 81,75. While in whole part whole, it can be seen that the score total in this group in pretest is 8416 and 10086 in posttest means that there is score improvement as many as 1670. Average in this group in pretest is 526 and 630,37 in posttest means there is score improvement as many as 104,37.

**Table 1. Volleyball smash pretest and posttest data result description**

Practice Method (b)		Total	
		<i>Pretest</i>	<i>Posttest</i>
<i>Part Whole Part (b1)</i>	Total	8149	9457
	Average	509.31	591.06
<i>Whole Part Whole (b2)</i>	Total	8416	10086
	Average	526	630.37

**b. Leg muscle power treatment group**

In this group there are two groups, those are high leg muscle power and low leg muscle power. In high leg muscle power, it can be seen that total score in this research in pretest is 8320 and 10117 in posttest that means there is score improvement as many as 1797. Average in this group in pretest is 520 and 632,31 in posttest that means there is score improvement as many as 112,31.

While in low leg muscle power, it can be seen that total score in this group in pretest is 8245 and 9374 in posttest means that there is score improvement as many as 11129. Average in this group in pretest is 515 and 585,87 in posttest that means there is score improvement as many as 70,87. As shown in the following table:

**Table 2. Volleyball smash pretest and posttest data result description**

Leg muscle power (a)		Total	
		<i>Pretest</i>	<i>Posttest</i>
a1 (high)	Total	8320	10117
	Average	520	632.31
a2 (low)	Total	8245	9374
	Average	515	585.87

**c. High leg muscle power with part whole part method treatment group**

With deviation standard as many as 73,85, improvement happened in leg muscle power treatment power with part whole part method (a1b1) that can be seen in the following table.

**Table 3. Volleyball smash improvement result after treatment given**

Sample group	Volleyball smash improvement result after treatment given	
	Improvement total	Average
a1b2	963	120,375

It can be seen from table above improvement average is happened in a1b2. Averagely this group average has highest improvement than other group, that is 963 with average improvement as many as 120,375.

**d. Leg Muscle power with whole part whole treatment group**

With deviation standard as many as 96,4, improvement is occurred in high leg muscle power with whole part whole method treatment group (a1b2) that can be seen in following table

**Table 4. Volleyball smash improvement result after treatment given**

Sample group	Volleyball smash improvement result after treatment given	
	Improvement total	Average
a1b2	963	120,375

It can be seen from table above improvement average is happened in a1b2. Averagely this group average has highest improvement than other group, that is 963 with average improvement as many as 120,375.

**e. Low leg muscle power part whole part method treatment group**

With deviation standard as many as 65,3 improvement is happened in low leg muscle power part whole part method treatment group (a2b1) can be seen from the following table

**Table 5. Volleyball smash improvement result after treatment given**

Sample group	Volleyball smash improvement result after treatment given	
	Improvement total	Average
a2b1	474	59,25

It can be seen from the table above, average improvement is happened in a2b1. Averagely this group has lowest improvement than the other groups, that is 474 with improvement score as many as 59,25.

**f. Low leg muscle power whole part whole method treatment group**

With deviation standard as many as 81,45,improvement is happened in low leg muscle power whole part whole method treatment group (a2b2) can be seen from the following table

**Table 6. Volleyball smash improvement result after treatment given**

Sample group	Volleyball smash improvement result after treatment given	
	Improvement total	Average
a2b2	655	81,875

It can be seen from the table above, average improvement is happened in a2b2. Averagely this group has improvement that is not so high, that is 655 with improvement score as many as 81,875

**CONCLUSSION**

There is different influence between volleyball smash practice using part whole part and whole part whole practice method toward volleyball smash result. Volleyball smash result in sample group that using whole part whole practice method is better compared with sample group using part whole part practice method (104.37 > 81.75). There is different influence between sample group with high level of leg muscle power and low level of leg muscle power toward volleyball smash result. Volleyball smash result in sample group with high leg muscle power is better than sample group with low leg muscle power (112.31 > 70.87). There is interaction influence between leg muscle power and practice method toward volleyball smash result. According to research result, students having high level of leg muscle power are more precise if given volleyball smash practice with whole part whole practice method, as well as student group having low level of leg muscle power is appropriate if given volleyball smash practice using whole part whole method.

1. To coach  
This research result can be used as basic to apply volleyball smash practice in volleyball achievement development JPOK FKIP SebelasMaret University, with volleyball smash practice using whole part whole practice method the result is better compared with part whole part practice method.
2. To student

Athletes especially in volleyball achievement development JPOK FKIP SebelasMaret University that having high leg muscle power are suggested to use whole part whole practice method in practicing volleyball smash, while students having low leg muscle power are also suggested to use whole part whole practice method in practicing volleyball smash.

3. To researcher

This results are hoped can be used and become consideration or reference for other researchers.

## REFERENCES

Ahmadi, N. 2007. *Panduan Olahraga Bolavoli*. Surakarta: Era Pustaka Utama PBVSI. 2004. *Jenis – Jenis Permainan Bolavoli*. Jakarta: PBVSI

Drowatzky, J. N. 1981. *Motor Learning, Principle and Practice*. Minneapolis. Minnesota: Burgess Publishing Company

Arikunto, S. 2002. *Prosedur Penelitian Suatu Pendekatan Praktek*. Jakarta: PT. Rineka Cipta

Sudjana. 2002. *Desain dan Analisis Eksperimen*. Bandung: Tarsito.

Suhadi. 2004. *Pengaruh Pembelajaran Bolavoli*. Depdikbud

Yunus, M. 1992. *Olahraga Pilihan Bolavoli*. Jakarta: Depdikbud Direktorat Jenderal Pendidikan