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EFFECT OF EXERCISE AND METHOD OF SKILL JUMPING *togok* FLEXIBILITY SMASH BADMINTON

(Experimental Study With Plaiometrik And Exercise Exercise Circuit in Men Student Achievement Coaching Badminton at the Faculty of Education Universitas Tunas Pembagunan Surakarta, 2019)

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ABSTRACT

The purpose of this study to determine: (1) Badminton smash jumping skill difference between the model and the model plaiometrik exercise circuit training. (2) The interaction between the model with flexibility exercises *togok* against jumping smash badminton skills. (3) The difference between the skills of jumping smash badminton plaiometrik practice models and models of circuit training for athletes who have a high *togok* flexibility. (4) The difference between the skills of jumping smash badminton plaimetrik practice models and models of circuit training for athletes who have a low *togok* flexibility.

The research was conducted at the Badminton courts of the Faculty of Education Universitas Tunas Pembangunan Surakarta. The method used is an experiment with a 2x2 factorial design. The research variables consisted of five variables: the independent variable plaiometrik training method and circuit training method, namely flexibility *togok* attributive variable high and low *togok* flexibility, as well as the dependent variable jumping smash bulutangkis. The samples were 50 people from 50 students of coaching badminton achievement FKIP UTP Surakarta. Test data collection techniques and test measurement instruments. Technique of data analysis of variance (Anova) in both directions and test Lilliefors (Sudjana, 1992: 466-468)

The results of the data analysis performed using two-way Anova can either (1) Differences smash jumping skills with training methods plaiometrik badminton and circuit training method. (2) the interaction between the practice and flexibility *togok* against jumping smash badminton skills. (3) The difference in skills training methods plaiometrik smash jumping and circuit training method for athletes who have a high *togok* flexibility. (4) Difference smash jumping skills training methods plaiometrik and circuit training method for athletes who have a low *togok* flexibility.

Keywords: Exercise Plaiometrik, circuit training, flexibility *togok* , Jumping Smash

A. PRELIMINARY

Based on the facts on the ground, the development achievements of the athletes Indonesia can be seen through a sporting event that is generally followed both at national and international level, namely PON, Sea Games, Asian Games and the Olympics. Based on data from KONI, PON XVIII had last been held in 2012 in Riau Province with the overall champion won DKI (Jakarta) Jakarta. In the international arena, Indonesia decreased performance in sports. Improved started in the Asian Games in 2010, Indonesia was ranked 15. It is expected that the Indonesian Sea Games XXVI in which the host and qualify as the overall winner.

This phenomenon occurs because the badminton training process that has not maximize the utilization of sport science and technology progress optimally. One example is a training method smash badminton given yet optimally based on scientific studies such as the use flexibility *togok* . In badminton training methods also going on exercises that do not correspond to the distance and time, exercise intensity, dose of exercise that is not balanced with the recovery of origin.

As it is known that a few decades ago, precisely in the era of the 80s Liem Swie King which is one player best badminton world famous trademark that is at the time of jumping smash (smash, jumping), known as King Smash, as well as in the era 90s we had the famous badminton player to smash 1000Watt that Haryanto Arbi.

Smash a blow overhead (above) which is directed downwards and done with full force. This punch is identical as punch attack. Because the main goal is to turn off your opponent. Punch smash is a form of hard knocks that are often used in the game of badminton. Characteristics of this blow was hard, the pace of his way quickly toward the floor shuttlecock field, so this blow require aspects of leg muscle strength, shoulder, arm and wrist flexibility and harmonious coordination of body movements.

Smash can only be done from an overhead position. The ball was hit with a strong but must be considered to set the tempo and balance before trying to speed up the smash. The most important characteristic of a good overhead smash hit is the speed and angle of the racquet downward. The ball hit in front of the body further away from punches clear or drop. Surface racket directed to drive the ball further down. So smash an overhead blow (up) which is directed downwards and done with full force. Identical as punch punch smash attack. Punch smash is a form of hard knocks that are often used in the game of badminton. Punch smash is a very powerful weapon to collect the numbers in a game of badminton, due to the nature of the fall of the ball fast and sharp (Poole, 2007: 35).

The role of physical capacity in supporting performance in sports such as badminton game, actually do not need to be debated but it is almost certain that that has a high level of physical kemempuan would be more likely to excel. This is because without adequate physical ability, the techniques of movement in the game of badminton as well as smash technique can not be done perfectly. Likewise if his physical ability is good then the implementation of the technique

will be done perfectly. As stated by bompa that the first and foremost factor that must be addressed in sporting achievement is a physical problem. If the athlete is good physically then others such as engineering,

Therefore, it is obvious and can not be denied that the physical ability especially emphasized in the body that plays an important role in performing the smash hit is needed, such as hand reaction speed, flexibility pergelangantangan, flexibility and explosive power of *togok* hand.

To improve the physical condition can be performed with a variety of training methods, including training methods plaiometrik and circuit training method. From some of the training methods used by the trainers there is disagreement and applications to improve the skill smash. So from the clash of ideas that researchers want to examine more deeply how much difference between the two methods of practice to improve skills, especially in jumping smash smash.

In addition, in order for a method of exercise can contribute greatly to a result of exercise, it takes several contributing factors that can influence the process of the exercise of which is flexibility *togok* backwards.

B. LITERATURE REVIEW

1. Skill Games Smash In Badminton

a. games Badminton

Bulutangkis is a sport that belong to the group of sports games. Badminton game can be played inside and outside the field, on the field bounded by the lines in length and widths. Badminton courts are divided into two equal and separated by a net hanging net poles planted on the sidelines. Equipment used was a racket like a club and "*shutlecock*"as a batted ball. Sutrisno and Muhajir (2013: 72)

Permainan begins by presenting the ball or *service*,who hit the ball on the plot *service*Right to plot *service*right opponent, so the road crosses the ball. Badminton game is usually played by: (1) A man against man (men's singles), (2) A woman against a woman (women's singles), (3) A pair of men against a pair of men (men's doubles), (4) Couple a pair of women against women (doubles), and (5) a pair of male / female against a male / female (mixed doubles).

b. Badminton skills

Badminton skills is the ability of a badminton player in using the technique, tactics, as well as elements that are owned by a badminton player. If aspires to become an elite badminton players or excel, it must master the basic assortment bulutangakis play properly. Therefore, only the capital practicing diligent, disciplined, focused under the guidance of qualified coaches well, can master many basic techniques to play badminton properly anyway. However, in order to play badminton, a player must be able to hit anyway, either from above or from below. The types of punches that must be mastered is the service, lob, dropshot, smahs, netting, underhand, and drive. All of these types of punches must be made using the correct grip and footwork. (PB PBSI 2001-2005: 10

c. Smash punches

In a practice game, hit a smash can be done in silence, standing or while jumping. Therefore, it can be shaped punch punch smash smash is full, cut smash hit, punch smash-hit backhand smash circle overhead. The smash stroke technique gradually every player must master it perfectly. Its benefits are so large to increase the quality of the game. With the smash good quality, for the numbers can be obtained by any badminton players, because most of the figures in the game of badminton in the can from the players managed to smash it well.

According to Poole (2007: 36), the smash hit a forehand, shuttlecock must be struck down, therefore, try to hit the heights as much as possible. Field racket pointing down at the time of contiguity racket with shuttlecock, and when it should be done when the shuttlecock is in front of the body. Rotary movement of the forearm and wrist with a fast and powerful, so that the shuttle hurtling straight toward the bottom. For that there are a few things to note: (1) touch the shuttlecock at the time in front of the body, to do with the arms back, (2) at the time of contiguity, wrist and forearm should rotate very quickly, (3) at the time of contiguity , the field of racket is in a flat position slightly pointing down, (4) strike the shuttlecock with a bang, (5) do not do more to smash the back of three-quarters of the field. Because shuttlecock speed decreases rapidly over long distances. The stages of movement forehand smash badminton according to Grice (2008: 86), as follows:

d. analysis Smash

Permaian smash in badminton is a very hard blow and swooping down leads to the opposite field. This punch can be done precisely when the shuttlecock is in front soar overhead and directed by and directed downward swoop in hard, sharp or steep. Therefore smash is a labor movement that aims to turn off the opponent's defense, it is to note is the speed, power and precision in directing the ball to the opponent's smash.

e. jumping Smash

Jumping Smash is the development of two types of smash described above where this species is more famous smash smash smash a la king or king. Because this is done by Liem smash Swie King in the 80s. Jumping smash smash is the development of normal with the intent to produce a point. Smash this kind performed while jumping in the hope of taking the highest point yamg anyway. Hitting the shuttlecock at the highest point is intended to create a sharper angle perkenaan and dived into the opposite field.

Based on some of these theories can be concluded that jumping smash smash is performed while jumping with the primary objective is to achieve at the highest point perkenaan kok kok spaciousness that fall more sharply and dip opponent.

2. Exercise

Exercise is often defined as a systematic process of repetition, continuous exercise, and has the main goal to improve the performance of athletes. "Exercise is physical activity that is planned, structured, repetitive, and purposive in the sence that improvement or maintenance of physical fitness is an objective" (Bozkurt, A., 2015: 631). Exercise is a physical activity that is planned, organized and carried out repeatedly, and aims to improve or maintain physical fitness in accordance with the desired objectives. The purpose of exercise is to determine what is to be achieved. At first the purpose of the exercise of a general nature, such as the condition of the heart muscle of the lungs or muscles of the body as a whole, after the purpose of the exercise is made to rise to more specialized level to achieve the highest achievement.

Exercise is a process carried out repeatedly, progressive training or work increases the potential to achieve optimal performance (Bompa and Carrera, 2015: 1). Exercise is derived from the practice, exercise and training, which actually has a different meaning. " Definition of exercise comes from the practice is an activity to improve the skills (skills) in the exercise using various tools fit the purpose and needs of branches of sport. Practice nature part of the training process that is derived from the exercise, meaning that in every process from exercise training there must be a form of exercise practice.

3. Exercise Circuit

Circuit training is a program with various types of workloads carried out simultaneously and continuously punctuated alternately resting on the type of workload. This exercise program is very good, because it can form a variety of physical conditions concurrently, for example, to develop and improve arm muscle power, speed, power, endurance, flexibility and others. Circuit training is an exercise that can be designed with an easy to apply in various sports for all aspects of the physical conditions can be developed. Circuit training consists of several posts with the intensity of 50-60% in one repetition maximum (Ahmadizad, S., et. Al., 2007: 625). At each station posts are a burden to be done. Selection of the type of training load on each post adapted to the aspects that will be the main objective to be achieved. Circuit training is a form of exercise that consists of a series of exercises in sequence and is designed to improve the quality of general physical fitness or skills related to certain sports.

4. Exercise Plaiometrik

According to Chu, DA, and Myer, GD (2013: 13), plaiometrik is an exercise that is used to boost perform and has a special feature, namely contraction of powerful muscles that are a response to dynamic loading or strain faster than muscles involved. plaiometrik was first put forward by one of the Americans who think far ahead of Athletic coach named Fred Wilt in 1975. plaiometrik word comes from the Latin is "plyo" and "metrics" which means "measurable increase" or measurable improvement. Plaiometrik exercise is a type

of exercise that uses nometrik overload the muscle stretch reflex or reflex miostatic, namely contraction eccentric or lengthening contraction where a bunch of really stretched muscle quickly and suddenly prior to the concentric contraction or shortening contraction. Plaiometrik first term comes from the Greek word "Plyethyein" which means in English augment or to Increase (enlarge or increase).

Plaiometrik is also called the stretch reflex or miotatic reflex or reflex muscle spindles. From some pengetian mentioned, it turns out although there are some differences, but the principle is almost the same. It can be concluded that plaiometrik exercise is a form of explosive muscle contraction that is a combination of isometric exercises, eccentric, isotonic, concentric and Isokinetic with dynamic loading or stretch (strain) that is faster than the muscles involved.

5. *Togok* flexibility backward

In sports, when we talk about flexibility or flexibility (flexibility) we usually refer to the movement of the joint or joints of the body. Lentuk whether or not a person is determined by the narrowness of the space for his joints. Thus flexibility by Harsono (1988: 163) argues that Flexibility is the ability to perform the movements in the joint space. Except by the movement of joints, flexibility is also determined by whether or not elastic muscles, tendons, or ligaments. In such influence, Rani.A (1974: 450) argues that Fleksibility is a person's ability to perform movements with wide amplitude.

The quality of body flexibility is determined by the elasticity of the muscles, tendons or connective tissue. Thus it can be said that a person who has an elastic muscle has good flexibility. However, muscle elasticity may be reduced if they are not doing the exercises in the long term. DAPT exercises that increase flexibility exercises may include stretching (stretching). Can also be said that flexibility is the ability to move in space motion, as presented by Harsono (1988: 163) that flexibility is the ability to perform the movements in the joint space. Except by the movement of joints, flexibility is also determined by whether or muscle elasticity, tendons, and ligaments.

Other than that proposed by Halim (2011: 104) that flexibility is the body's ability to gain self widest supported by the extent of movement in the joints.

According to the type of flexibility Bompa (1983: 105) divides into two parts:

General flexibility, kemempuan someone in motion with wide amplitude which is very useful in the sports movement in general and to face everyday life. Special flexibility is the ability of a person in motion with an amplitude spacious and artfully in one sport.

C. RESEARCH METHODOLOGY

The method used in this study is an experimental method using a 2x2 factorial design. According Sudjana (2002: 148) factorial experiment was

ekspermen that most or all of the standard of a combined factor or crossed with all the standards of each other factors that exist in the experiment.Test data collection techniques and test measurement instruments. Technique of data analysis of variance (Anova) in both directions and test Lilliefors (Sudjana, 1992: 466-468) is to determine the effect .Penelitian training methods plyometrics and circuit training method with flexibility *togok* against jumping smash badminton.

The sample size used in this study were 40 students, which is obtained by purposive random sampling technique.

2. Discussion of Results

1. Effect of plyometric exercises and circuit training to jumping smash badminton skills.

Under the first hypothesis testing there was a real influence among a group of students who received training methods with plyometric exercises and group of students who get exercise circuit to smash badminton jumping skills. In the group of students who receive plyometric exercises have increased yields jumping smash badminton skills are better than the group of students who receive training methods with circuit training.

2. Differences jumping smash badminton skills among students with high flexibility and low *togok* .

Based on hypothesis testing to two turns no real influence among a group of students with high flexibility and flexibility *togok* *togok* lower against jumping smash badminton skills. In the group of students with high flexibility *togok* have increasing skills badminton smash jumping higher than the group of students with low *togok* flexibility. At high *togok* flexibility student group has a higher potential than the students who have low *togok* flexibility. *togok* flexibility is the modality to perform jumping skills learning badminton smash

2. The influence of the interaction between the practice and flexibility *togok* against jumping smash badminton skills.

From the summary table of results of analysis of variance of two factors, it appears that the main factors in the form of two-factor study showed significant interaction. For the purposes of testing the interaction form AB formed the table below.

Table Effect Simple, Main Effect, Interaction and factors A and B on the Result of Smash Badminton Jumping Skills.

Factor		A = Method of Exercise			
B = flexibility *togok*	extent	a1	a2	Average	a1 - a2
	b1	9,200	9600	9,400	0400
	b2	9,400	5,000	7,200	4,400

Average	9,300	7,300	8,300	2,200
b1 - b2	0200	4,600	2,000	

3. knot

Based on the results of research and data analysis has been done, it can be concluded as follows:

1. There is influence between plyometric exercises and circuit training to jumping smash badminton skills. Effect of plyometric exercise is better than circuit training to improve skills of jumping smash badminton results.
2. There is a badminton smash influence jumping skills between students who have high flexibility with flexibility *togok togok* low. Badminton smash jumping skills in students who have high *togok* flexibility is better than the students who have low *togok* flexibility.
3. There is no interaction between the practice and flexibility *togok* against jumping smash badminton skills.
   a. Students who have high *togok* flexibility more suitable if given plyometric exercises.
   b. Students who have low *togok* flexibility more suitable if given circuit training.

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