

Contribution of Grip Strength and Eye-Hand Coordination Towards Service Accuracy in Tennis Athletes Kota Pariaman Tennis Club (KTC)

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Abstract

The problem in this study is that the achievements of KTC tennis athletes have not been very good. This achievement is not yet so well due to many factors, but based on observations and interviews with club coaches the most dominant factor is the low service accuracy of KTC Pariaman athletes. For this reason, it is necessary to conduct a study with the aim to find out whether there is the Contribution of grip strength and eye-hand coordination to the accuracy of service in the City Pariaman Tennis Club (KTC) tennis athletes. This type of research is correlational. The study population was all KTC Pariaman tennis athletes, amounting to 32 people. Sampling in this study was carried out by purposive sampling technique, amounting to 20 people. Data was collected using a test of all three variables. Grip strength variable data is taken using a test tool called the Handgrip Dynamometer, hand eye coordination variable using the Ballwerfen Und-fangen test and service accuracy using the Hewitt tennis achievement test. Data analysis techniques are product-moment correlation, and multiple correlation. The results of the data analysis show that: 1) The strength of grip provides a significant contribution to the accuracy of the service of KTC Pariaman tennis athletes, with a contribution of 23.5%, 2) Eye-hand coordination provides a significant contribution to the accuracy of the service of KTC Pariaman tennis athletes, with contributions 25.3%, 3). The strength of grip and eye-hand coordination both contributed significantly to the accuracy of the service of KTC Pariaman tennis athletes, with a contribution of 33.1%.

Keywords: grip strength, hand-eye coordination, service accuracy

INTRODUCTION

In this modern life, humans cannot be separated from sports. Both as an arena for achievement and as a need to keep the body healthy. One branch of sports that has developed quite well in West Sumatra is Field Tennis. The development of this sport can be seen from the increasing number of tennis clubs that have sprung up in cities and districts in West Sumatra. The increasing number of tennis clubs in West Sumatra championship activities are increasingly being held both at the regional and national levels, starting from the early age championships, age groups and national championships are also held.

The technique of punching in the sport of tennis which must be mastered by a tennis player such as serve, ground stroke, lob, smash, and volley. According to Magheti (1990: 32) states that "Beatings in tennis can be divided into four types, namely service, forehand drive,

backhand drive and volley". While Lardner (1996: 35) argues that "There are six basic types of punches in tennis, namely forehand, backhand, service, volleyball, lob and smash".

From the opinions of the experts above can be seen several types of stroke techniques in tennis, one of which is service punches. Service is the first hit in a game, but is also often used as a weapon to get points. The success of the service is determined by several factors that influence it, such as: accuracy (timing), balance (balance), coordination, concept of movement, racket grip technique, the direction of the ball toss and standing position. In addition to the factors mentioned above, to produce good service punches, the main factor that also influences service delivery is the grip strength.

The way you hold the racket is very influential on the results of the service punch. If the method of holding and holding hands on the racket is not strong, then the resulting punch is not perfect. Strong grip can increase the severity of the blow and can increase the spin of the ball when doing service.

Strength when holding a racket is very influential on the results of service punches. In the service stroke the grip strength is the dominant component. Because the greater the grip strength, the racket will not be released or thrown and the greater the power generated in making service punches. In this case it is seen that grip strength is a dominant factor in achieving service accuracy.

The expected service in playing tennis is an effective service in an effort to generate numbers with the fall of the ball far from the reach of your opponent, so you can add numbers. The service is done of course with a hard, fast blow and leads to the target field that is difficult to reach the opponent.

In service, not only grip strength is needed, but athletes must also have good coordination, especially eye and hand coordination. In doing service, the movement of the punch and the direction of the ball toss must be able to be integrated in such a way as to become a good and harmonious whole, so that it produces good results as well. This is where the role of eye and hand coordination is in determining the punch and toss direction of the ball in performing service well and efficiently to achieve the accuracy of the desired direction.

The role of the eye is to be able to know the direction where the ball will be hit and can see the position where the place or empty space so that athletes can create opportunities to get points. The sharpness of the eye in observing the situation in the field is very important. By only relying on the ability of the hand to hit without looking at the situation of the opponent's field area and toss direction, it is very difficult for a player to do it. For that we need good coordination between eyes and hands.

From the observation of researchers, as well as interviews with Mr. Ibradison, as head coach at KTC Pariaman said, especially the accuracy of athlete service at the KTC Pariaman tennis club is still low. This can be seen from the implementation of services carried out, where the timing is not exactly when doing service punches, and can not place the body position where it should be after making service punches. There are still many services out, involving on the net, not on target and not powered. Some factors that are suspected to affect

the accuracy of the service are the weak grip strength and hand eye coordination that affect the accuracy of the service, so that the service performed often fails and adds numbers to the opponent. This study aims to determine the contribution of grip strength and eye-hand coordination to the accuracy of service in KTC Pariaman tennis athletes.

METHOD

Based on the problems discussed in this study, this research was conducted using descriptive research with correlation test. According to Sudjana (1992: 63) that: "Correlation research is research to find out whether there is a relationship between two variables, whether or not the relationship between the two variables is expressed in the form of a correlation coefficient."

The population in this study were all KTC Pariaman tennis athletes, amounting to 32 people. Sampling in this study was conducted by using purposive sampling technique. In this study, the sample is KTC Pariaman tennis athletes aged 16-20 years, male with 20 people.

The instrument used in the service accuracy test uses the Hewitt tennis achievement test in the Adnan measurement test book (2005). The purpose of this test is to determine the level of service accuracy in tennis athletes. To measure the grip strength of a tennis athlete using a test tool called the Handgrip Dynamometer. To measure the eye-hand coordination of the KTC Pariaman tennis athlete, a ball-to-wall throwing test was used from the Ballwerfen Und-fangen (Hans Dassel in Martono 2006).

The data analysis technique used in this study is correlational analysis to prove the research submitted. The correlation formula uses the Product Moment correlation formula. Before the hypothesis testing is done the analysis of the conditional test is done by testing the normality of the data using the Lilliefors test.

RESULTS AND DISCUSSION

1. Grip Strength Test Results

Frequency Distribution of Grip Strength Data

| No. | Interval Class | Absolute Frequency | Relative Frequency (%) |
|-----|----------------|--------------------|------------------------|
| 1. | 30 - 32 | 1 | 5 |
| 2. | 33 - 35 | 6 | 30 |
| 3. | 36 - 38 | 1 | 5 |
| 4. | 39 - 41 | 3 | 15 |
| 5. | 42 - 44 | 5 | 25 |
| 6. | 45 - 47 | 4 | 20 |
| | Total | 20 | 100 |

Based on the calculations listed in the above table it can be seen that: 1 person or (5%) is in the class interval 30-32, 6 people or (30%) are in the class interval 33-35, 1 person or (5%) is at interval classes 36 - 38, 3 people or (15%) are in the interval class 39 - 41, 5

people or (25%) are in the interval class 42 - 44, and 4 people or (20%) are in the interval class 45 - 47.

2. Results of Eye-Hand Coordination Test

Frequency Distribution of Eye-Hand Coordination Data

| No. | Interval Class | Absolute Frequency | Relative Frequency (%) |
|-----|----------------|--------------------|------------------------|
| 1. | 8 - 9 | 5 | 25 |
| 2. | 10 - 11 | 7 | 35 |
| 3. | 12 - 13 | 8 | 40 |
| | Total | 20 | 100 |

Based on the calculations listed in the above table it can be seen that: 5 people or (25%) are in the 8-9 class intervals, 7 people or (35%) are in the 10-11 class intervals, and 8 people or (40%) are at 12-13 class intervals.

3. Service Accuracy Test Results

Service Accuracy Data Frequency Distribution

| No. | Interval Class | Absolute Frequency | Relative Frequency (%) |
|-----|----------------|--------------------|------------------------|
| 1. | 13-14 | 3 | 15 |
| 2. | 15-16 | 6 | 30 |
| 3. | 17-18 | 3 | 15 |
| 4. | 19-20 | 3 | 15 |
| 5. | 21-22 | 4 | 20 |
| 6. | 23-24 | 1 | 5 |
| | Total | 20 | 100,00 |

Based on the calculations listed in the above table it can be seen that: 3 people or (15%) are in the class interval 13-14, 6 people or (30%) are in the class interval 15-16, 3 people or (15%) are in interval classes 17-18, 3 people or (15%) are at class intervals 19-20, and 4 people or (20%) are at class intervals 21-22 and 1 person or (5%) are at class intervals 23-24.

4. Normality Test

Test normality with Lilifors

| | Uji Lilifours | | Conclusion |
|-----------------------|----------------|--------------------|------------|
| | L _o | L _{tabel} | |
| Grip Strength | 0,1738 | 0,1900 | Normal |
| Eye-Hand Coordination | 0,1164 | 0,1900 | Normal |
| Service Accuracy | 0,1523 | 0,1900 | Normal |

Based on the description above, all data variables are normally distributed, because each probability variable meets the criteria of $L_o < L_{tabel}$. It can be said that each data is normally distributed or the population of the sample data is taken in normal distribution.

5. Hypothesis Testing

H_a who said the strength of the grip significantly contributed to the accuracy of the service KTC Pariaman tennis athletes received, consequently H_0 was rejected. H_a who said that eye-hand coordination made a significant contribution to the accuracy of the service of KTC Pariaman tennis athletes was accepted, consequently H_0 was rejected. H_a who said the strength of grip and hand-eye coordination together contributed significantly to the accuracy of the service of KTC Pariaman tennis athletes accepted, consequently H_0 was rejected.

DISCUSSION

Strength is the power used to change the state of motion or shape of an object. The way you hold a racket and the strength when holding a racket is very influential on the results of the service punch. In the service stroke the grip strength is the dominant component. Because the greater the grip strength, the racket will not be released or thrown and the greater the power generated in making service punches. Service punches also require good physical, tactic and mental health components. To achieve service accuracy, a strength grip is needed through the training process. Training according to Tangkudung (2012: 42-43) is "A systematic and practicing process that is carried out repeatedly with increasing days increasing the amount of training load and intensity of training.

In service an athlete should have good coordination, especially eye and hand coordination. According to Dervish and Basa (1992: 119), explains that, "Coordination is the ability of a person to assemble several elements of motion into one movement that is aligned and in accordance with its objectives". On the other hand Kiram (1994: 12) said "Coordination is a reciprocal relationship between the central nervous system with the means of motion in regulating and controlling the impulses and work of muscles for the implementation of a movement".

When doing service, the movement of the punch and the direction of the ball toss must be able to be combined in such a way as to become a good and harmonious whole, so that it produces good results as well. This is where the role of eye and hand coordination is in

determining the punch and toss of the ball in performing service to achieve the accuracy of the desired direction.

CONCLUSION

Based on the research results that have been described, it can be concluded that the strength of the grip gives a significant contribution to the accuracy of the service by 23.5%, eye-hand coordination provides a significant contribution to the accuracy of the service by 25.3%, the strength of the grip and eye-hand coordination together the same contributed significantly to the accuracy of service by 33.1%.

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