

Relationship Between Eye-Hand Coordination, and With a Precision Service

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ABSTRACT

This study aims to determine how the relationship grip strength, eye-hand coordination, and self confidence with a service. This study was conducted to tennis athletes PTL Club Padang state University. This study used the method of sampling (census). The samples in this study are not yet 20. Data collected by the test instrument precision service, Hand Dynamometer Grip for grp strength tes instruments and eye-hand coordination questionnaires to be confident. Result of the study are (1) There significant relationship between eye-hand coordination with the precision of service by $rx_2y = 0,712$ and the contribution of eye-hand coordination service for the accuracy of 50,70%.

Keywords: *eye-hand coordination, and precision service*

1. INTRODUCTION

Tennis is one of the most popular sports in the world and is loved by many people. This game has developed into a sport that is very popular with all levels of society and is no longer a game that is only done by the upper classes. The game of tennis has rapidly become a very popular sport in Indonesia in particular and internationally in general. This game can be done in an open field or a closed field that causes excitement for the culprit. In its development the sport of tennis is not only to be able to improve health but also to achieve optimal achievement. To give birth to outstanding athletes, is not an easy job, but requires careful planning, and tiered coaching.

Of all the efforts for optimal development and fostering achievement, all that can not be separated from knowledge, the existence of infrastructure that supports and makes appropriate training methods and athletes' approach, because with the athlete's approach it is expected that the coach and the people involved in it can help solve problems that related to tennis coaching so that optimal performance can be achieved, one of them is at the UNP Tennis Court Training (PTL) club.

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 largely determined by the ability to give the racket string friction on the ball. In addition to the factors mentioned above, to produce good service punches, another factor that also influences service performance is grip strength.

The way you hold the racket is very influential on the results of the service punch. If the way to hold and grip your hand on the racket is not strong then the

resulting punch is not perfect. Strong grip and good hand eye coordination can increase the severity of the blow and can increase the rotation during service. The expected service in playing tennis is a service that is quite effective in efforts 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 fairly hard blow, fast and leads to the target field that is difficult to reach the opponent.

In doing service, not only grip strength is needed, but athletes must also have good coordination, especially eye and hand coordination. In making 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 of the ball in performing service well and efficiently.

The role of the eye is to be able to know the direction where the ball will be hit and to see the position where the place or empty space so that athletes can create opportunities to get points. Sharpness and wildness 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.

In addition to techniques and physical conditions, psychological aspects that also often affect athletes are self-confidence factors. Without having full confidence, athletes will not be able to achieve achievement, because there is a mutual relationship between the

motive for achievement and confidence. Confidence is someone capable and able to achieve certain achievements, if the achievement is already high then the individual concerned will be more confident. If an athlete's confidence has grown, then the athlete will give value (price) to the self-image that the athlete has felt. Pricing for his abilities is based on his belief in his ability to complete certain tasks. Furthermore, these values or self-esteem will confirm the picture of physical and spiritual (mental) values that refer to the athlete himself. This has led to the growth of the athlete's self-concept in his capacity as a tennis athlete.

Based on the results of the above analysis it can be concluded that self-confidence is an extraordinary potential possessed by someone to take an action. The higher the athlete's confidence, the athlete will be easier to perform service techniques well and efficiently.

From the observation of researchers, as well as questions and answers with Hendri Irawadi, M.Pd, as head coach at PTL UNP, said that especially the accuracy of athlete service at PTL UNP tennis clubs is still low. This can be seen from the implementation of the services carried out, where many of the services were carried out late or could not put the body position where it should be. 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 still weak grip strength, hand eye coordination and self-confidence that affect the accuracy of the service so that the service performed often fails and adds numbers to the opponent. Whereas in other physical conditions, the athlete's propensity can master the material well. Difficulties experienced by athletes in general in the movement to perform services. This is likely the low physical condition factor of an athlete that determines the accuracy of service.

Based on the background of the problems that have been raised before, then the problem of this research is formulated as follows? (1) Is there a significant relationship between eye-hand coordination with the accuracy of the service of tennis athletes at the PTL Club Padang State University?

2. RESEARCH METHODS

a. Eye-Hand Coordination

1) Definition of Coordination

Coordination is an embodiment of the regulation of motor processes, especially the work of muscles. This is in accordance with Kiram's opinion which explains that, "Movement coordination is an embodiment of regulation of motor processes, especially for the workings of muscles that are regulated through the nervous system or called intra muscular coordination. This control process is always guided by the planning of

programmed movements. While the regulation referred to is the process of rearranging the course of a movement which is always guided by a movement program "

Jonath and Krempel in Syafruddin said that "Coordination is the cooperation of the central nervous system as a system that has been harmonized by the process of stimulation and obstacles and skeletal muscle when the direction of movement is directed". Meanwhile Darwin and Basa, explained 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 purpose". Meanwhile, according to James Tangkudung coordination is the ability to carry out movements with various levels of difficulty quickly and efficiently and with full accuracy. From some of the opinions above it can be concluded that coordination is a collaboration between the nervous system and the means of motion in completing the tasks of movement into a movement that is harmonious and efficient.

2) Types of Coordination

Syafruddin divided 2 types of coordination, namely: (1) Coordination of inter muscles, namely coordination of muscles that work together in making a movement. The cooperation referred to is the cooperation between the agonist muscle and the antagonist muscle in a directed movement, (2) Intra muscular coordination, that is coordination that works in the muscle which cannot be observed because the process occurs in human muscle "

Whereas Bompa, classifies coordination namely, "(1) General coordination is the basis for developing specific / specific coordination, (2) Specific coordination is motor coordination which is more closely related to skills". From some of the opinions of the experts above it can be concluded that coordination is a process of muscle cooperation that will produce an organized and directed movement, which aims to shape the movements needed in the implementation of a technical skill.

3) Factors that influence coordination

Coordination is a process of cooperation of muscles that will produce a movement that is arranged and directed and influenced by several factors aimed at forming the movements needed in the implementation of a technical skill. Bompa said that coordination was influenced by several factors: "(1) Power of thought, famous athletes are not only impressive with amazing skills or great motor skills, but also with ideas and ways to solve complex problems and tactics, (2) Skill and accuracy of sensory organs, motor analysis and kinesthetic sensors and rhythm balance of muscle contractions are important factors, (3) Motor

experience, reflected by a variety of high skills is a determining factor in the ability of various coordination someone, or one's ability to learn quickly, (4) The level of development of biomotoric abilities such as strength, speed, endurance, and flexibility is an effect on coordination ".

4) Coordination Function

In connection with the coordination function, Kiram further stated that with the coordination: "(1) can carry out the movement effectively, and efficiently. Effective in this regard is related to the efficient use of time, space and energy in carrying out a movement. While efficient relates to the effectiveness traversed in achieving goals, (2) can utilize physical conditions optimally in solving a movement, (3) requirements to improve the quality of the implementation of the movement, (4) requirements to be able to master certain sports motor skills ".

5) Eye-Hand Coordination

Jonath in Alkhotdri said "Coordination is cooperation between the central nervous system and the muscles involved in a contraction". Syafruddin said "Coordination is the ability to complete motor tasks quickly and directed which is determined by the process of controlling and regulating the movement and cooperation of the central nervous system". On the other hand Kiram said "Coordination is a reciprocal relationship between the central nervous system with the locomotion in regulating and controlling the impulses and work of muscles for the implementation of a movement".

From some of the above opinions it can be concluded that coordination is a cooperative relationship between the central nervous system of the locomotor when contracting in completing motor tasks correctly and directed. In every sports activity, the ability to coordinate greatly determines success in completing motor tasks according to the demands of the sport.

In playing tennis, especially when performing service punches, hand-eye coordination has a large influence on the accuracy of the service, because the hand-eye is an optical device that functions for vision and the hand is the upper arm. These two organs work together in achieving the goal of movement because they are both connected by the nervous system.

The sharpness of the eye in seeing stimuli such as seeing a ball in tennis is called dynamic visual acuity. Rahantoknam, elaborating "The sharpness of the eye in seeing a moving object is an important skill, justifying the many contributions to motor skills".

Then the hand is an upper limb, hand movements are included in the motor system. The hand will do its job such as doing service when it has received stimulation from the brain through the nerve unit of the

hand muscle. Thus the eye receives stimuli to be sent to the brain through the nervous system that connects it and the brain gives commands to the hands through the nerves of the arm muscles doing motor tasks.

b. Service Accuracy

From the definition stated above it can be made clear that the accuracy intended here is an attempt to control the direction of service in accordance with the objectives to be achieved. To make it difficult for opponents to try to return the ball from the service hit, don't let the opponent guess and can find out where the ball will fall in the service room. ball back. So the accuracy of service is the skill in placing the ball in a difficult place against an opponent. Accuracy means right or hit the target. Direct the ball to certain places in the opponent's service room and give the ball to the ball ".

In accordance with the mindset, the hypotheses in the research are arranged as a temporary answer as follows: There is a relationship between grip strength and the accuracy of PTL tennis athlete service at Padang State University. There is a relationship between eye-hand coordination with the accuracy of the service of PTL tennis athletes at Universitas Negeri Padang. There is a relationship between self-confidence and the accuracy of service of PTL tennis athletes at Universitas Negeri Padang. There is a relationship between grip strength, eye-hand coordination and self-confidence together with the accuracy of the service of PTL tennis athletes at Padang State University.

3. RESULTS AND DISCUSSION

This study aims to find scientifically accurate answers about:

1. Relationship between grip strength and accuracy of service of PTL club tennis athletes at Padang State University.
2. The relationship between eye-hand coordination with the accuracy of service of PTL club tennis athletes at Padang State University.
3. The relationship between self-confidence and the accuracy of the PTL club tennis athlete service at Padang State University.
4. The relationship between grip strength, eye-hand coordination and self-confidence together with the accuracy of the service of the PTL club tennis athletes at Padang State University.

This study uses a descriptive method with a correlational approach that is connecting one variable with another variable to understand a phenomenon by determining the level or degree of relationship between these variables. The variables used to measure the relationship between the independent variables, namely:

eye-hand coordination (X1) with the accuracy of service at PTL Padang State University tennis athletes as (Y).

This research was carried out at the UNP PTL Tennis Court, Air Tawar Barat Village, Padang city, West Sumatra Province in 2013 Where the PTL UNP tennis club conducted training. Research time is divided into two stages namely; the first phase of the research instrument trial plan was carried out in March 2013, the second phase of the research was conducted in April 2013. And the time of data collection was carried out in accordance with the training schedule of the PTL UNP tennis club, starting at 3:00 pm until completion.

Sampling is done using saturated sampling (census) techniques. The sample in this study was 20 people. The research instruments were Ballwerfen Und Fangen for the eye-hand coordination instrument test, and the service accuracy test.

Data collection is done to obtain empirical data as material to test hypotheses. Data collected in this study include: eye-hand coordination test data and service accuracy test data.

This analysis includes testing the analysis requirements and testing the research hypothesis. This test was carried out at a significance level of 0.05. Thus the results of the research tested can be concluded. Testing requirements analysis, namely: Test for normality to test the assumptions of population normality, with the Kolmogorov-Smirnov test using SPSS 13 for Windows. Homogeneity test with the Barlet test. Because the variance was tested more than two and the Linearity test was carried out using the Anova test with the SPSS 13 for Windows program.

After the analysis requirements are fulfilled, the research hypothesis testing is continued. Analysis techniques with regression and correlation analysis techniques. Testing the first hypothesis, the second hypothesis and the third hypothesis. The data obtained were processed using the product moment correlation technique. This is in accordance with the type of research conducted, the data obtained are normally distributed then product moment correlation is used.

4. CONCLUSIONS AND SUGGESTIONS

The results of the study are (2) There is a significant relationship between eye-hand coordination with service accuracy with $r_{xy} = 0.712$ and the magnitude of the contribution of eye-hand coordination with service accuracy of 50.70%.

From the results of testing the proposed hypothesis it is proven that the variable eye-hand coordination with the accuracy of the service both partially and jointly affects the accuracy of the service. Then the results of this study can be concluded as follows:

1. There is a significant relationship between eye-hand coordination and service accuracy.

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