

Contribution Hand-Eye Coordination And Balance To Petanque Shooting Ability In Sports Education Students At Muhammadiyah University Of Surakarta

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Abstract.

Hand-eye coordination is a factor of physical condition that greatly affects the concentration in determining the direction of accuracy in a movement performed. Balance is the ability that each individual has to control the concentration of the brain in a movement that involves reaction action over each change in body position to be stable to get maximum accuracy. In sports talent, petanque Muhammadiyah University of Surakarta students have never been tested regarding hand-eye coordination for the accuracy of shooting movements. This research aims to determine whether or not there is a contribution of hand-eye coordination and balance to petanque shooting skills in student sports education at the Muhammadiyah University of Surakarta. In the method, this research uses a quantitative method with a correlational approach. The sample in this study was a sports education student who joined the sports talent petanque Muhammadiyah University of Surakarta as many as 15 students. This research uses the population of students, especially sports talent petanque Muhammadiyah University of Surakarta male students who number 15 students. The process of sampling used in this study is a sampling technique aimed at (purposive sampling) researchers set certain conditions. The result of data processing obtained from hand-eye coordination and balance to petanque shooting ability in 15 UMS sports education students amounted to 28.8%. The regression coefficient of the two variables against petanque shooting capability is 0.288. With the significance of multiple regressions known $F_{count} = 5,423$ smaller than the $F_{table(2;12)} = 3.88$ at the $\alpha = 0.05$. From the above results, it can be concluded that the decision H_1 was accepted and H_0 rejected. Therefore, it can be concluded that there is a contribution of hand-eye coordination to petanque shooting capabilities in At student sports the education Muhammadiyah University of Surakarta.

Keywords: Hand-eye coordination, balance, petanque shooting.

I. INTRODUCTION

Exercise is a physical activity that aims to meet the physical needs of everyone. Sports activities are not only done just to meet one's physical needs but also as an increase in stamina. Every individual who does sports in addition to meeting physical needs is also to add social insight, recreation, adding organizational agencies, expanding associations, and obtaining achievements. Exercise should be done in a sustainable or continuity manner and should also be done in the right way. Physical condition factors should also be highly concerned in doing sports activities. Physical

condition is the most important component in maintaining stamina, thus when a person or individual wants to have a good physical condition, it takes systematic and programmatic exercise [1][2]–[4]. Each individual or human age has a match in a particular sport to meet physical needs as well as for body fitness [5]–[7]. Many out there consider the sport unimportant or also just considered as a side activity because there is no free time to do sports[8]–[12][13][14],[15]. In addition to fulfilling physical health sports can also facilitate the performance of the heart in the process of pumping blood throughout the human body. Petanque sports are commonly played by hand and include traditional sports originating in France in 1907. Petanque is a dominant sport by throwing the wooden ball as close as possible to the wooden ball and the two legs inside the circle. "petanque sports game system is divided into two among others pointing and shooting"[16]. Pointing is a technique used to direct the iron ball towards the wooden ball (wooden ball) as close as possible. Shooting is a technique to direct iron ball (iron ball) that aims to keep the opponent's iron ball away from the wooden ball as far as possible. Sports Talent Interest is a forum provided by UMS sports education program for students as talent development.

According to Indarto "Sports interests and talents are the beginning of coaching. Teacher Training and Education Faculty Muhammadiyah University of Surakarta sports education study program have been created a system of selection of sports interests and talents, this is done to map the interests and potential of student sports branch towards achievement"[17]. There are several sports offered by UMS sports education programs as a development of sports talent interest, namely, volleyball, basketball, football, futsal, archery, badminton, petanque, and many more. Sports talent is implemented from the beginning of the semester to the sixth semester, as well as being a mandatory activity for students of UMS sports education program. Each sports talent in UMS sports education program has its tutor, which aims to observe students actively or not in the activity. In addition, the supervisor can also become the coach of the sporting talent if it does not have its coaches imported from outside. Sports talent is also one of the compulsory courses submitted by the study program to be taken by every student who weighs 3 credits. Sport talent courses are submitted precisely semester even that is in the sixth semester with the assessment of the results of exercises conducted by students during the first semester to semester six before final exams. In addition, sports talent is also used by students to have achievements in non-academic fields such as certificate of training and certificate of the championship. This will be an added value for students who participated in sport talent activities during the lecture. The achievements that have been obtained by sports talent petanque UMS sports education students are the 3rd double open champion in Sragen, the 2nd pom rayon champion in Solo, the 2nd champion provincial student sports week/POMPROV Central Java, and failed to go to National Student Sports Week/POMNAS because it was taken only 1st place. From the results of the championship participated by students sport talent petanque UMS has been quite

accomplished, although sports talent petanque is still young or still newly held in semester 5 by at student sports education Muhammadiyah University of Surakarta. The matches that followed the majority were still dominant in the pointing game has not been proficient in the field of shooting, because there is still minimal flying hours and also lack experience. In terms of shooting petanque sport talent students still can not be maximized and lack of ability in determining further movement or accuracy of movement. At the time of going to do shooting movements, several components can affect the shooting movement, namely, hand-eye coordination, balance, and shooting ability.

Researchers see when in the game, sports talent petanque UMS students still many mistakes and shortcomings when performing techniques in shooting games. One of them is shooting game techniques and also components of physical condition, among them are handballs and balance that is less than sports talent petanque students during training and matches. Petanque sports require a high accuracy that petanque players must have to aim the ball (iron ball) in the desired direction. According to that coordination is the ability to perform movements by combining several abilities precisely and controlled rhythms to produce effective and efficient motion". Hand-eye coordination is a factor of physical condition that greatly affects the concentration in determining the direction of accuracy in a movement performed. In sports talent, petanque UMS students have never been tested regarding hand-eye coordination for the accuracy of shooting movements. From there, the shooting ability of UMS petanque sport talent students is very weak and requires special experience and tricks to be able to perform good shooting movements. In addition to good hand-eye coordination, some things also affect the movement of good and correct shooting, one of which is the factor of physical balance or balance. Balance is the ability that each individual has to control the concentration of the brain in a movement that involves reaction action over each change in body position to be stable to get maximum accuracy. In addition, the balance also as a controller of the position of the body remains in a position where a person will perform a series of movements repeatedly. Based on the main purpose of motion mechanics of petanque sports games including into sports that have the aim of obtaining good balance and accuracy" [18]. It can be interpreted that shooting movements are done by using balance and precision to get maximum points to achieve victory.

II. METHODS

In the method, this research uses a quantitative method with a correlational approach. The sample in this study was a sports education student who joined sports talent petanque UMS as many as 15 people. The hand-eyed coordination variable uses a catch ball throw with 20 pitches on two occasions, a balance using the Stork Stand Test with three chances taken from the longest time in the test. Data collected or obtained from tests and measurements performed are processed using calculations with

SPSS 22.0 application. This research has been conducted in the Petanque Field of Muhammadiyah University of Surakarta, Gatak Pabelan, Kartasura, Sukoharjo, Central Java, on 8 - 9 June 2021 during the training schedule. This research uses the population of students, especially sports talent petanque Sports Education UMS male students who number 15 students. The process of sampling used in this study is a sampling technique aimed at (purposive sampling) researchers set certain conditions. According to (Riduwan, 2019) "purposive sampling is a sampling technique used by researchers with various provisions and considerations for a specific purpose".

III. RESULT AND DISCUSSION

A. RESULT

In this study, three hypotheses will be tested for truth, these tests are based on the assessment of simple regression coefficients and multiple regressions through multiple regression analysis. The purpose of the hypothesis test is to establish a basis so that it can collect evidence in the form of data in determining the decision to reject or accept the truth of the statements or assumptions made. Furthermore, regression analysis was carried out to determine the contribution and influence of each independent variable with the dependent variable. Regression analysis used is regression analysis (R) at a significant level of 95% or α 0.05. It is intended to determine the contribution of eye-hand coordination and balance to the petanque shooting ability of UMS sports education students. The results of statistical calculations on the research hypothesis can be described as follows. Test results contributed to the coordination of the hand to petanque shooting capabilities

Table 1. Test results of regression significance of the results between hand-eye coordination to petanque shooting ability in UMS sports education students

Number of observai (n)	Rsquare (R_{y1})	F-count	F-table
15	0,287	5,240	4,67

Hand-eye coordination was the first variable in this study which contributed 28.7% given table 1. the results of the regression significance test are known $F_{count} = 5,240$ greater than the $F_{table (1:13)} = 4.67$ in $\alpha = 0.05$, it can be concluded that the regression coefficient between eye coordination to petanque shooting ability in UMS sports education students is accepted. With the above results, it can be pediatric conclusions H_1 accepted and H_0 rejected. Or it can be mentioned with the better coordination of the eyes of the hand, the better the shooting capability petanque. Test results contribute balance to petanque shooting capability:

Table 2. Test results of regression significance result between balance to petanque shooting ability in UMS sports education students

Number of observai (n)	Rsquare (R_{y12})	F-count	F-table
15	0,288	4,423	3,88

Based on table 2. above the results of the regression significance test known $F_{count} = 4.423$ smaller than the $F_{table (1:13)} = 4.67$ in $\alpha = 0.05$, it can be concluded that the coefficient of regression between the balance of petanque shooting ability in UMS sports education students is 1.8%. It states that "a balance contribution to petanque shooting capabilities in UMS sports education students" is accepted. Test results contributed to hand-eye coordination and balance to petanque shooting capabilities;

Table 3. Test results of regression significance of the results between hand-eye coordination and balance to petanque shooting ability at sports Education students in UMS

Number of observai (n)	Rsquare(R_{y12})	F-count	F-table
15	0,288	5,423	3,88

Following the purpose of this review, the results of the regression signification test in table 3. obtained from hand-eye coordination and balance to petanque shooting ability in 15 UMS sports education students by 28.8%. The regression coefficient of the two variables against petanque shooting capability is 0.288. With the significance of multiple regressions known $F_{count} = 5,423$ smaller than the table $F_{(2:12)} = 3.88$ at the $\alpha = 0.05$. With the above results, it can be concluded that the decision H_1 was accepted and H_0 rejected. Or in other words the better the coordination of the eyes and balance, the better the shooting capability petanque.

B. DISCUSSION

Coordination is the ability to control several movements that are carried out to produce rhythmic, precise, and efficient movements. Someone who has good coordination will look beautiful if they perform a series of displayed movements. Hand-eye coordination is a combination of several movements performed with the eyes as the main key in the process of making movements. According to Syahban" that the coordination of the eyes of the hand is an integration between the eye as the holder of the main function and the hand as the holder of the function of performing certain movements"[20]. From there it can be interpreted that coordination is some movement that combines intending to align or movement effectively and efficiently. Balance is the ability of each individual to control the concentration of the brain in a movement that involves the reaction to any change in body position to be stable.

In addition, the balance also as a controller of the position of the body remains in a position where a person will perform a series of movements repeatedly. According to Musdalifa "based on the main purpose of motion mechanics of petanque sports games including into sports that have the aim of obtaining good balance and accuracy"[18]. It can be interpreted that shooting movements are done by using balance and precision to get maximum points to achieve victory. In petanque sports, shooting is done by throwing an iron ball towards the target with the throw forming an angle or parabola can be said. Throws made in petanque sports generally apply parabolic or soaring motion where the consistency factor of energy when throwing for

a certain distance and forming a horizontal angle[21]. Good shooting in petanque games is shooting that is done directly hit the target ball or commonly called ball to ball. Based on some of the variables above and the results of the research that has been carried out, it is known that there is a contribution of hand-eye coordination and balances to the shooting ability individually or individually, or together. Following the results of data processing conducted against 15 UMS sports education students who are samples in this study.

Where the contribution of hand-eye coordination (X_1) to petanque shooting capability (Y) is 28.7%. Furthermore, the contribution of balance (X_2) is 1.8% petanque shooting capability (Y). Meanwhile, the simultaneous contribution between hand-eye coordination (X_1) and balance (X_2) to petanque shooting capability (Y) was 28.8%. It can be concluded that hand-eye coordination and balance contribute directly individually or individually and together by petanque shooting capabilities. Judging from the results of the discussion above can be stated that hand-eye coordination and balance are two components of physical condition that must be improved in UMS sports education students for the future. In addition to the two physical components of hand-eye coordination and balance, there are components of physical condition and other techniques that affect shooting ability in petanque sports that were not studied in this study. In other words, UMS sports education students or petanque athletes should practice using good and correct techniques in playing petanque sports.

IV. CONCLUSION

Research that has been conducted on the contribution of hand-eye coordination and balance to petanque shooting ability in UMS sports education students, it can be concluded that: (i) Hand-eye coordination contributes to petanque shooting ability in UMS sports education students obtained a score of 0.287 which means 28.7% of the variable petanque shooting ability (Y) is caused by hand-eye coordination (X_1); (ii) Balance contributes to petanque shooting ability in UMS sports education students obtained a score of 0.018 which means 1.8% of the variable petanque shooting ability (Y) is caused by balance (X_2); and (iii) Hand-eye coordination and balance contribute simultaneously or together to the shooting ability of UMS sports education students obtained a score of 0.288 which means 28.8% of the variable petanque shooting ability (Y) caused by hand-eye coordination (X_1) and balance (X_2).

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