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The Relationship Between The Explosion Of Arm Muscles And Balance With Bullet Rejection Of Ortodok's Style

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Abstract. This study is to ascertain the relationship between arm muscle explosive power and balance. At SMK Negeri 1 Cirebon, students had a sample size of 30 participants. The influence of arm muscle explosive power tests using two-handed medicine ball throws, balance tests utilizing stork stands, and orthodox style shot put tests are the data that were collected. Through analysis of the correlation between arm muscle explosive power and conservative style shot put using the product moment formula calculation, it was determined that the correlation between arm muscle explosive power and balance had a moderate relationship. The value of count was 0.437 > rtable 0.374 and the origin there will be a significant test, and it turns out that count is greater from ttable (2,522).Greater from the relationship between the balance using conservative style at State Vocational High School 1 Cirebon, which has a moderate correlation, where by using the product moment formula calculation the value is 0.552> 0.374 and comes from a significant test, it turns out that count is larger than ttable (3.442 > 1.701), then H0 is rejected, it means that there is a significant correlation between the balance using Ortodok's Style in Cirebon students.

Key words: Arm Muscle Explosive Power; Balance; Bullet Putting; Orthodox Style

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INTRODUCTION

Physical education and sports aim to help children grow and develop naturally by the ideals of national education, namely to become fully Indonesian citizens. They are an essential component of lay education and cannot be separated from it. (Suganda, 2021). Sport has a significant role in our lives. Health advantages result from exercise. Exercise helps the body's metabolism function more efficiently, which makes the body healthier and more physically fit. Sports competitions are held, and entertainment is not only a location for leisure but also a way to keep one's health (Kurniawan et al., 2021). Exercise is crucial for maintaining fitness and is one of the best ways to lower stress. Another active habit is exercise, which increases metabolism and influences how the body's glands generate the immune system to shield the body from stress-related illnesses and maladies. As a result, it is strongly advised that everyone regularly engage in sports activities using both.

Exercise is crucial for maintaining fitness and is one of the best ways to lower stress. Another active habit is exercise, which increases metabolism and influences how the body's glands generate the immune system to shield the body from stress-related illnesses and maladies. As a result, it is strongly advised that everyone regularly engage in sports activities using both. (Febriyanto & Pd, 2021)

Sports or non-sports activities can be used to demonstrate physical activity in physical education lessons. Physical activity can be done via video conference calls utilizing WhatsApp or 160 applications during the COVID-19 epidemic. The shot put is one of the categories in throwing numbers in sports like athletics. Shot put is a movement used to throw or push a round tool (bullet) with a specific weight made of metal. To practice at home, one can modify the shot put by using bullets made of plastic balls filled with cement that have a weight close to the original metal bullet. This is done from the shoulder with one hand. As said by Nasution, (Ishak et al., 2021) The four essential components of physical fitness, technical aptitude (skills), tactical awareness, and mental toughness are necessary for success in shooting and any other sport. Shooting stages like glide, repulsion, and recovery are crucial indicators of performance in shooting sports since the aim of a shooting athlete is to constantly produce a higher shooting distance than the opposition without error.

Based on Umar in There are three different types of muscles in the human body: smooth, striated, and cardiac. Smooth muscle, so named because it appears smooth rather than transverse, is typically found in the uterine wall, genital tract, blood arteries, and intestines. Skeletal muscles are another name for them. whereas the heart's muscle is attached to its walls. The physical characteristics of the player, in particular the quality of the arm muscles' explosive power, play a crucial role in attempts to put the ball in the goal. Explosive power is a mix of speed and strength components that are released simultaneously. Due to the ability of explosive power to produce maximum power in a short amount of time, numerous methods are required to enhance this quality. (Hendry et al., 2022). Explosive power or power is a component of physical condition in which there are two main elements, namely strength and speed (Muhadi et al., 2022) Muscular explosive power is the capacity to exert the greatest amount of force in the shortest amount of time. The researcher concluded concludedric and isotonic (eccentric-concentric) exercises with dynamic concentric a strategy to develop arm muscular explosive power. Batson reported in (Lutfia Hakim et al., 2022) In response to changes in internal and external conditions, the brain's motor control, sensory, basal ganglia, cerebellum, and association areas modify or regulate the musculoskeletal (including muscles, joints, and other soft tissues) and sensory systems (vestibular, visual, and somatosensory, including proprioceptors) aspects of balance. (Sepdanius, Endang. Sazeli Rifki, Muhamad. Komaini, 2019) balance is the ability to maintain proper posture and body position when standing (static balance). Several things can affect severality to maintain their balance, including light, and r (cochlear). Athletes must perform numerous tasks in the world of sports to address or maintain their balance. (Pratiwi & Munawar, 2014) balance is a person's ability to maintain gravity while standing.

The most crucial elements for shot put, among other well-known athletic sports, are strength and speed because weak arms make it impossible for pupils to throw the ball. bullets by utilizing quick. Strength and speed training is required for that (explosive power). Over the past four years, the SMK Negeri 1 Cirebon students' performance in the shot put has fallen short of expectations. It has been established that each time a competition selection is used at the sub-district level, it is because the children are still performing below those in the other schools, much alone those in the district. shows that when compared to using other schools, the Cirebon State 1 Vocational High School pupils' abilities are still not very good. The school's physical education teacher has made an effort to boost the shot put performance. These efforts include building the required infrastructure and facilities and conducting training using a variety of appropriate techniques. The outcome will be the ability to master the shot put movements while utilizing proper technique, but the distance of the repulsion is not what is anticipated. about the significance of this issue, it can be deduced that the shot put's outcomes are influenced by the arm muscles' strength and explosive force however further research has to be condoned to ermine the exact magnitude of the association that results from these factors. Therefore, the researchers will study shot puts. This is conceivable because physical components the primary aspects that influence shot put to action, such as arm muscle explosive strength, and balance are not given enough consideration.

METHODS

Methods include a thorough, step-by-step explanation of how the study was conducted in the section. The approach emphasizes what has been done in research to produce outcomes that are in line with the aims rather than including any theory.

According to (Suharsimi, 2010) the research method is the method used by researchers in collecting research data. The method used in this research is the correlation method. Correlational Research (relationship) between three variables, namely two independent variables and one dependent variable.

Description:

X1 = Arm muscle explosive power, measured by the Two-Hand Medicine Ball Put test,

X2 = Balance, measured by StStorktand,

Y = Orthodox style shot put, Bullet put to test. (Sepdto anius, Endang. Sazeli Rifki, Muhamad. Komaini, 2019)

The research was conducted at SMK Negeri 1 Cirebon and was carried out in January-February 2018. The test is a series of questions or exercises used to measure the knowledge skills, abilities, or talents of individuals or groups (Suharsimi, 2010).

To obtain the data needed in this study, it is necessary to use a data collection tool. Testing this measuring instrument we will get data which

is thttttttult of measurement.

Implementation of the test in this study was to use a "two hand ma medicine ball put" the distance that the ball fell to measure the explosive power of the arm muscles (Sepdanius, Endang. Sazeli Rifki, Muhamad. Komaini, 2019) "stroke stand" the longest time to maintain balance according to (Sepdanius, Endang. Sazeli Rifki, Muhamad. Komaini, 2019) and the orthodox-style shot put to test.

Doo Research Variables

In this study the researchers discussed or examined three variables, namely:

1. In the independent variable (X1) the explosive power of the arm muscles using the medicine ball put test instrument.
2. In the independent variable (X2) balance using the stork stand.
3. Dependent variable (Y) orthodox style shot put.

Population

The population is the entire research subject (Arikunto, 2015)v while the population used in this study is all students of class XI SMK Negeri 1 Cirebon. For more details, it can be seen in the following table:

Table 1. Research Population

No	Class	Male	Female	Total
1	XI AP I	15	17	32
2	XI AP 2	17	18	35
3	XI Bg 1	11	19	30
4	XI Bg 2	14	18	32
Total		57	72	129

Source: TU SMK Negeri 1 Cirebon

Based on the table it can be seen that the population in this study consisted of 4 classes with a total of 129 students, consisting of 57 male students and 72 female students.

Sample

The sample is from the object and representative being studied, in what sampling if the subject is less than 100 it is better to use a sample of 10% - 15 % or 20% - 25 % (Arikunto, 2015) the sample in this study was taken 20% of the total student population SMK Negeri 1 Cirebon, so the sample in this study amounted to 30 students. For details, it is stated in the following table:

Table 2. Research Sample

Class	Gender		Total
	Male	Female	
XI	15	15	30

Data Analysis Techniques

Obtained is still in the form of raw scores that need to be processed so that they become meaningful scores. Before the correlation test, the hypothesis test, normality test, and homogeneity test must be tested before. correlation coefficient formula product moment (Sugiyono, 2017)

RESULTS AND DISCUSSION

Researchers have researched samples that it has previously been found that students of SMK Negeri 1 Cirebon. After obtaining the data, the data is then processed and analyzed using The data obtained in this study can be obtained from the results of the arm muscle explosive power test, specifically using two two-handling ball puts and style orthodox. The study employs the correlational method, which entails an investigation into whether three or more variables are correlated with one another. The orthodox style shot put is used to indicate whether there is a relationship between arm muscle explosive force and balance.

The 30 samples used in this study were collected on the campus of SMK Negeri 1 Cirebon. The research was conducted in three meetings. At the first meeting, participants were given directions before testing the explosive strength of the arm muscles using a two-handed medicine ball that was thrown three times and then rejected. The second meeting was instructed to do a balance test by standing three times. The third meeting carried out the orthodox style shooting test three times after receiving the Directive.

With both hands holding the medicine ball in front of their chest while seated on a bench, students test their arm muscles' explosive power. When they are unable to maintain their upright posture, they must use both double arms to throw the medicine ball straight. This test was repeated three times to obtain the findings with the greatest distance repulsion, as this distance repulsion was determined by the explosive capacity of the arm muscles in both male and female students. After the first test was completed, the data was taken, then the researcher conducted a second test with balance using a stork stand with the student standing on one dominant leg, the other leg placed

beside the knee, and the hand on the waist. The test was conducted three times to obtain the findings. When the teacher says "yes," the student lifts his heel off the ground and holds that position for as long as possible without moving or placing his heel down. results of achieving gender equality among students. The data gained from the test results were utilized for data processing after the data was collected through the arm muscle explosive power test, specifically using a two-hand medicine ball put, and the second data was taken through a balance test, specifically the stork stand.

Data Analysis

After the researcher described the results researchers from each variable, then proceed with calculating the correlation value between the variable arm muscle explosive power (X1) and balance (X2) with orthodox style shot put (Y). To calculate the correlation between the three variables. from the data, then it is proposed to find the variable coefficient of arm muscle explosive power (X1) within orthodox shot put (Y).

The correlation between arm muscle explosive power (X1) and orthodox style shot put (Y) is r(X1Y)= 0.437 which is greater than the r table which is only 0.361 for a sample of 30. To see how big the relationship is between the two variables, the researcher relies on the guidelines for the interpretation table for the value of r y only 0.361 for a sample of 30. To see how big the relationship between the two variables is, the researcher refers to the guideline for the interpretation table of the r-value made by Sugiyono (2010: 231), where the value is 0.437 in the interval between 0.40 to 0.599 which states that the relationship between the two variables is moderate. The next step is to find the equilibrium variable (X2) with the orthodox style of shot put (Y) on *the moment product*. Based on the data that has been obtained from the two variables above, it must be entered into the data r(X1X2) to be able to find the correlation data of multiple products, so before entering the multiple correlation formula, it must find the formula for r(X1X2)

After analyzing the variable arm muscle explosive power (X1) with orthodox style shot put (Y)) and balance variable (X2) with orthodox style shot put (Y) then calculate between arm muscle explosive power (X1) and balance (X2) with orthodox style shot put (Y) at SMK Negeri 1 Cirebon students by calculating correlation Sugiyono's guideline (2010: 233). The correlation between arm muscle explosive power (X1) and balance (X2) with an orthodox shot put (Y) in students is Ry.X1.X2 = 0.549 which is larger than the table which is only 0.374 for a sample of 30. Furthermore, to find the significant level between the arm muscle explosive power and balance with orthodox style shot put in the students of SMK Negeri 1 Cirebon, the researcher used the county from Sugiyono (2010: 230)

For the test rule ifcountt >tablee, then reject h0 which means it is significant,t, and ifcountt < ttable, accept h0 which means it is not significant. Based on the existing calculations, for an error of 5% for two parties and dk = n-1 = 29 so that the ttable is 1,699, it turns out that the count is 3,411 greater than ttable 1,701, then h0 is rejected, meaning that there is a significant relationship between muscle explosive power arm with orthodox style shot put in SMK Negeri 1 Cirebon students.

DISCUSSION

1. The relationship between the explosive power of the leg muscle and d(Y*putshot*).

The results of calculations using the *product moment* show that the correlation value between the arm muscle explosive power variable (X1) and the orthodox style shot put variable (Y) is 0.437, the value indicates a moderate level of relationship based on the value of the interpretation table of the r value of Sugiyono (2010: 231) because it is between 0.40 – 0.599. To find the significant value between the two research variables, compare the arithmetic distribution table *t*, at 0.05 one-sided test with degrees of freedom dk = n – 2 = 28, so that the ttable 1.701.

Thus, it means that the relationship between the explosive power of the arm muscles and the orthodox style of shot put shows a significant relationship. Correlation analysis can be continued by calculating the coefficient of determination, by squaring the found coefficient x 100%, which is 0.4372 = 0.190 x 100% = 19.00%. This is related to the variable contribution of arm muscle explosive power with orthodox style shot put in SMK Negeri 1 Cirebon students is 19.00%.

Thus, the researcher concludes to reject (H0) which means there is a significant relationship between the explosive power of the arm muscles and the orthodox style of shot put in the students of SMK Negeri 1 Cirebon.

2. The relationship of balance (X22.) with orthodox style shot put (Y)

Furthermore, through the analysis of each variable, the researcher can put forward further discussion on the analysis of the calculation of correlation values between variables (*rxy*). The results of the calculation using the *product moment* show that the correlation value between the balance variable (X2) and the orthodox style shot put variable (Y) is 0.552. This value shows a moderate level of relationship based on the interpretation table value of the r value of Sugiyono (2010: 231) because it is between 0.40 - 0.599.

To find the significant value between the two research variables, compare the arithmetic 3.442 with the value in the t distribution table, at 0.05 one-sided test with degrees of freedom dk = n-2 = 28, so that the t table = 1.701 is obtained.

Thus, it means that the relationship between balance and shot put shows a significant relationship. Correlation analysis can be continued by calculating the coefficient of determination, by squaring the coefficient found x 100% to be $0.552^2 = 0.305$ x 100% = 30.50%. This is related to the contribution of the balance variable to the orthodox style of shot put by the students of SMK Negeri 1 Cirebon, which is 30.50%.

Thus, the researcher concludes to reject (H0) which means that there is a significant relationship between balance and orthodox style shot put in the students of SMK Negeri 1 Cirebon.

3. The relationship between arm muscle explosive power (X1) and balance (X2) with orthodox style shot put (Y)

After calculating arm muscle explosive power (X1) with (Y) and calculating balance (X2) with (Y) then discusses the analysis of calculations between (X1) and (X2) with (Y) and the results of calculations with multiple correlations based on the Sugiyono alloy (2010: 233), this shows that the correlation value between arm muscle explosive power and balance variables with an orthodox shot put of 0.549.

To find the significant value between the two research variables, compare the arithmetic 3.411 with the value in the *t distribution table*, at 0.05 one-sided test with degrees of freedom dk = n – 2 = 28, so that *t* table = 1.701 is obtained. Thus, it means that the relationship between arm muscle explosive power and balance with orthodox style shot put shows a significant relationship. Correlation analysis can be continued by calculating the coefficient of determination, by squaring the coefficient found x 100% to be $0.549^2 = 0.301$ X 100% = 30.10%. This is related to the variable contribution of arm muscle explosive power and balance with orthodox style shot put at SMK Negeri 1 Cirebon students is 30.10%.

Thus, the researcher concludes to reject (H0) which means there is a significant relationship between arm muscle explosive power and balance with orthodox style shot put in SMK Negeri 1 Cirebon students.

CONCLUSION

Based on the results of the measurement and processing as well as the analysis obtained, the results of the research and discussion can be concluded:

1. From the results of the analysis it can be concluded that the relationship between the explosive power of the arm muscles and the orthodox style of shot put in SMK Negeri 1 Cirebon students has a strong relationship. This can be seen from the analysis of the relationship between the explosive power of the arm muscles and the orthodox style of shot put by using the product moment, we get a value of 0.727 > rtable 0.374 and from the significant test results it turns out that count is greater than ttable (5,598 > 1,701), then H0 is rejected, meaning that there is a significant relationship between the explosive power of the arm muscles and the orthodox style of shot put in the students of SMK Negeri 1 Cirebon with a contribution of 52.80%.
2. While the relationship between balance and orthodox style shot put in SMK Negeri 1 Cirebon students has a strong relationship, where by using the product moment formula calculation the value is 0.637 > ttable 0.374 and from the significant test results it turns out that count is greater than ttable (4.370 > 1.701), then H0 is rejected, meaning that there is a significant relationship between balance and orthodox style shot put in the students of SMK Negeri 1 Cirebon with a contribution of 40.50%.
3. From the two analyzes, it can be seen that the relationship between arm muscle explosive power and balance with orthodox style shot put in SMK Negeri 1 Cirebon students has a moderate relationship, where by using the double correlation formula calculation the value is 0.549> 0.374 and from the test results it turns out to be significant. If the count is greater than ttable (3.411 > 1.701), then H0 is rejected, meaning that there is a significant relationship between arm muscle explosive

power and balance with orthodox style shot put in SMK Negeri 1 Cirebon students with a contribution of 30.10%.

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