# FAKULTAS ILMU PENDIDIKAN

# JCES

## Journal Coaching Education Sports

**Program Studi Pendidikan Kepelatihan Olahraga**
**Fakultas Ilmu Pendidikan**
**Universitas Bhayangkara Jakarta Raya**

APPKOI
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PENDIDIKAN KEPELATIHAN OLAHRAGA
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# Table of Contents

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# Contribution Of Hand Reaction Speed And Feet Movement Speed With Table Tennis Playing Skills

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***Abstract***

*Table tennis is a very unique type of small ball game. This is because table tennis uses a small ball made of celluloid, lightweight, and uses a bat to hit. This game is played on a table bounded by a net at the center of the table. The purpose of this study was to determine the contribution of hand reaction speed and footwork speed to playing tennis skills. This research belongs to the type of descriptive correlational research using a population of all male students state high school 1Marioriawa Soppeng Regency with a total sample of 40 people selected by random sampling. The data analysis technique used is the correlation analysis technique using the SPSS version 22.00 system at a significant level of 95% or 0.05. Starting from the results of data analysis, this study concludes that: (1) Hand reaction speed has a contribution to playing tennis skills by 61.6%; (2) Footwork speed has a contribution to the skills of playing tennis by 72.4%; and (3) Hand reaction speed and footwork speed have a contribution to the skill of playing tennis by 73.9%.*

***Keywords****: Speed, Foot Reaction, Footwork, Play, Table tennis*

## A. Introduction

Good exercise will make the body healthy and fit, as well as build people's ability to excel in sports. This should not be left behind. (Indresti 2017). This provides an understanding of the importance of sports education for the community. It is realized that in carrying out activities, they can be adjusted to the abilities possessed (Sari 2017).

The sport of tennis can be played by all age groups (Dahrial 2021). Tennis is a sport that knows no age or gender (Syamsuddin, Hamdiana, and Ulfa 2018). This means that it can be played by every age group, both male and female. It can be considered a recreational game (Aprianto 2016), but it can also be a sport that has techniques that must be studied and tackled seriously (trained) (Syamsuddin, Musfira, and Hammado 2020). The public's enthusiasm for this sport is quite large and can be played regardless of gender (Nopiyanto et al. 2021). It is possible that there are seeds of athletes who can be nurtured towards an achievement. The fondness for playing table tennis is shown by the number of tennis courts (Yulianto 2015), which are intentionally made to be played in the yard (Aprianto 2016). Therefore, it is necessary to hold better coaching (Sahabuddin, Hakim,

and Syahruddin 2020). To play the game, one must master basic techniques and physical and psychological conditions (Amalia 2018, Liskustyawati 2017). Readiness and steady mastery of techniques and tactics are needed in skill achievement (Nopiyanto et al. 2021). Readiness and stability determine the success of achievement (Aprianto 2016). Without mastery of technique and tactics, peak performance is difficult to achieve (Sahabuddin 2017). Efforts to realize the expected collaboration between the community and the government or the private sector through the provision of adequate facilities and infrastructure (Nurdin and Aminullah 2020) in order to improve the quality of this sport (Hammado et al. 2020).

The game of table tennis requires fast movements according to the speed of the ball (Suhendro 2016), requires precise movement control, fast reactions, and accuracy of strokes (Paksi 2016). If it is done, it will appear that the movement of the punches made is efficient (Suparman and Hasbillah 2021). Movements in playing table tennis are motor reactions (Putri and Ardisasmita 2019) resulting from the process of auditory stimulation, nerve commands through information processing

in the nervous system (Suwo 2018). The process of hitting the ball and when anticipating the opponent's blow begins with hearing the ball bounce (Dahrial 2021), attention or vision of the ball being hit, an order will arise from the spinal nerve to respond in the form of a movement to hit the ball to return the ball to the opponent (Wibowo 2015).

Effectiveness in hitting a table tennis player requires physical conditions (Sari and Antoni 2020). The ability to perform a variety of strokes such as serve, forehand, backhand, topspin, backspin, drive, and loop, can be produced well (Asri, Soegiyanto, and Mukarromah 2017). The element of the physical condition of the reaction plays a very large role in determining the quality of the movement to play tennis (Rozy 2015). Hand reaction speed in table tennis is a must for players to attack and defend at the same time (Suparman and Hasbillah 2021). Having a fast hand reaction (Irawan 2019) will make it easier to reach difficult balls placed by the opposing party and at the same time make a counterattack by hitting both forehand and backhand (Atmaja and Tomoliyus 2015). Likewise, the speed of footwork is the part that supports the movement of the rate of motion of each ball (Paksi 2016). The speed

of footwork aims to anticipate the incoming stimulus (Santoso 2015). Having the speed of foot movement makes it easier to respond (Suryati et al. 2020) in anticipating the incoming stimulus. Mastery of footwork speed will have an impact on the movements made when returning an opponent's attack or when carrying out an attack (Astrawan and Jaya 2019).

## B. Method

The research method is a descriptive correlational method, focusing on two variables, namely the independent variable consisting of the speed of the hand reaction and the speed of the foot reaction, while the dependent variable is the skill of playing tennis. The research design or research design used is correlational. The population in this study were students of SMA Negeri 1 Marioriawa in class XI, totaling 120 people. The sample used was male students, as many as 40 people from 30% of the population. The sampling technique used was random sampling. The data collected in this study included: hand reaction speed tests, footwork speed tests, and table tennis playing skills. The data analysis technique used was correlational and regression with a significant level of 95% or 0.05.

## C.  Result and Discussion

The research data obtained were analyzed by descriptive statistics which include; total value, average, range, maximum and minimum. The descriptive statistical values give a general description of the state of the data for each research variable. More details can be seen in Table 1.

**Table 1.**
**Descriptive Data Results for Each Variable**

| Variable / Statistic | N | Sum | Mean | Stdv | Min. | Max. |
|---|---|---|---|---|---|---|
| Hand reaction speed | 40 | 752,0 | 18,80 | 2,8573 | 14,00 | 24,00 |
| Footwork speed | 40 | 926,0 | 23,15 | 2,2136 | 19,00 | 27,00 |
| Skills for playing table tennis | 40 | 1278,0 | 31,95 | 2,4279 | 25,00 | 36,00 |

The results of the descriptive data analysis in table 1 are an overview of each variable studied. The data is not the answer to the hypothesis analysis about the independent variables consisting of the speed of hand reaction, and the speed of footwork on the dependent variable in the form of playing tennis skills. Furthermore, the description of the distribution of data for each research variable then tests the normality of the data using the Kolmogorov Smirnov Test (KS-Z). The results of the data normality analysis can be seen in Table 2 below:

**Tabel 2.**
**Normality Test Data Results for Each Variable**

| Variabel | K – SZ | P | α | Ket. |
|---|---|---|---|---|
| Hand reaction speed | 0,863 | 0,446 | 0,05 | Normal |
| Footwork speed | 0,946 | 0,333 | 0,05 | Normal |
| Skills for playing table tennis | 0,843 | 0,477 | 0,05 | Normal |

**1.  There is a contribution of hand reaction speed to table tennis playing skills.**

The results of the data obtained from data processing through correlation and regression analysis using the application of the SPSS program on the first hypothesis can be seen in Table 3 below:

**Table 3.**
**Results Of The Analysis For The First Hypothesis**

| VARIABEL | r/R | Rs | F | t | Sig. |
|---|---|---|---|---|---|
| Hand reaction speed (X1) | -0,785 | 0,616 | 61,037 | -7,813 | 0,000 |
| Skills for playing table tennis (Y) | | | | | |

Test result:

Based on the results of the data analysis test in Table 3 above, it shows that the speed of hand reaction to the skills of playing table tennis shows that the correlation value is -0.785 with probability (0.000) < 0.05. The value of R Square or the coefficient of determination is 0.616. The results show that 61.6% of table tennis playing skills are explained by hand reaction speed. For the Anova test or F test, the value is 61.037 with a significance level of 0.000. The probability value (0.000) < from 0.05, then the regression results can be applied to the population where the sample is taken to predict the skills of playing tennis. While the results of the t-test value obtained were -7.813, with a significance level of 0.000

which is much smaller than 0.05. So Ho is rejected and H1 is accepted or the speed of hand reaction has a significant effect on playing tennis skills. Thus it can be concluded that the speed of hand reaction has contributed to the skills of playing tennis in SMA Negeri 1 Marioriawa Soppeng Regency by 61.6%.

2. **There is a contribution of footwork speed to the skill of playing table tennis.**

The results of the data obtained from data processing through correlation and regression analysis using the application of the SPSS program on the second hypothesis can be seen in Table 4 below:

**Table 4.**
**Results Of The Analysis For The Second Hypothesis**

| VARIABEL | r/R | Rs | F | t | Sig. |
|---|---|---|---|---|---|
| Footwork speed (X2) | 0,851 | 0,724 | 99,486 | 9,974 | 0,000 |
| Skills for playing table tennis (Y) | | | | | |

Test result:

Based on the results of the data analysis test in Table 4 above, it shows that the speed of footwork on the skills of playing table tennis

shows that the correlation value is 0.851 with probability (0.000) < 0.05. The value of R Square or the coefficient of determination is 0.724. The results show that 72.4% of

table tennis skills are explained by footwork speed. For the Anova test or F test, the value is 99.486 with a significance level of 0.000. The probability value (0.000) < from 0.05, then the regression results can be applied to the population where the sample is taken to predict the skills of playing tennis. While the results of the t-test value were obtained at 9.974, with a significance level of 0.000 which is much smaller than 0.05. So Ho is rejected and H1 is accepted, or the speed of footwork has a significant effect on playing tennis skills. Thus, it can be concluded that the speed of footwork has contributed to the playing of tennis skills in students of SMA Negeri 1 Marioriawa, Soppeng Regency by 72.4%.

## 3. There is a contribution of hand reaction speed and footwork speed to table tennis playing skil

The results of the data obtained from data processing through correlation and regression analysis using the application of the SPSS program on the third hypothesis can be seen in Table 5 below:

**Table 5.**
**Results Of The Analysis For The Third Hypothesis**

| VARIABEL | r/R | Rs | F | t | Sig. |
|---|---|---|---|---|---|
| Hand reaction speed (X1) and Footwork speed (X2) Skills for playing table tennis (Y) | 0,859 | 0,739 | 52,249 | 3,010 | 0,005 |

Test result:

Based on the results of the data analysis test in Table 5 above, it shows that the reaction speed of the hands and the speed of footwork on the skills of playing table tennis shows that the correlation value is 0.859 with probability (0.000) < 0.05. The value of R Square or the coefficient of determination is 0.739. The results show that 73.9% of table tennis skills are explained by the reaction speed of the hands and the speed of footwork. For the Anova test or F test, the value is 52.249 with a significance level of 0.000. The probability value (0.000) < from 0.05, then the regression results can be applied to the population where the sample is taken to predict the skills of playing tennis. Meanwhile, the result of the t-test value is 3.010, with a significance level of 0.000, which is much smaller than 0.05. Then Ho is rejected and H1 is accepted. Or, the reaction speed of the hands and the speed of footwork have a significant effect on the skills of playing tennis. Thus it can be concluded that the reaction speed of the hands and the speed of footwork have contributed to the skills of playing tennis in SMA Negeri 1 Marioriawa Soppeng

Regency by 73.9%.

**Discussion**

**1. There is a contribution of hand reaction speed to table tennis playing skills.**

The results of the statistical analysis of the data previously disclosed show that the speed of hand reaction has a contribution to the skills of playing tennis in SMA Negeri 1 Marioriawa Soppeng Regency. Performing the skills of playing tennis, all of which require several inputs to be seen, then these inputs are integrated into motor movements as outputs so that the result is a maximally coordinated movement. The skill of playing tennis with various forehand and backhand strokes for students must be supported by the speed of reaction in carrying out every move. Every movement in table tennis is very fast and must be anticipated (Wibowo 2015). The reaction of the fast movement of the hands supports the strokes made. Hand reaction speed is a movement that occurs from information that is integrated into the movement of the limbs (Syamsuddin et al. 2018). All hand movements when striking in table tennis must be controlled with precise eyesight. The speed of hand reaction in the game of table tennis will be very influential when launching a shot or anticipating the

arrival of the ball (Suwo 2018). The returning ball will not come to the player, but the player must respond more to see the ball coming and then anticipate it being returned optimally. Therefore, students who have good hand-eye coordination will move faster to anticipate the ball in the game of table tennis.

**2. There is a contribution of footwork speed to the skill of playing table tennis**

The results of the statistical analysis data previously disclosed show that footwork speed has a contribution to the skills of playing tennis in SMA Negeri 1 Marioriawa Soppeng Regency students. The speed of the footwork supports the movement in making forehand and backhand strokes in table tennis games. Movement in very fast tennis will certainly require anticipation of movement with fast feet. Shifts made on the feet will affect the position of the body so it can perform optimal strokes. Because the position of the body will be carried over to the position of the foot movement. So the punches made will be efficient if the foot movements can be placed quickly or react by following the ball's speed (Irawan 2019). The agility of a student will have an impact on footwork. A student displays both

forehand and backhand strokes by maintaining and responding to every ball speed, which can be anticipated if he has good footwork speed. The accuracy of a hit to place on the opponent or anticipate the arrival of the ball must always move quickly. Students anticipate the arrival of the ball by adjusting their footwork (Sari 2017) so that they place a more accurate and sharper ball in their attack (Santoso 2015). The movement of each student to achieve the skill of playing table tennis is also always determined by the position of the legs or feet. As each ball is picked up, the legs will move forever to create a better ball movement, and then move back into the ready position.

**3.  There is a contribution of hand reaction speed and footwork speed to table tennis playing skil**

The results of statistical analysis showed that there was a contribution of hand reaction speed and footwork speed to the skills of playing tennis in SMA Negeri 1 Marioriawa Soppeng Regency students. The game of table tennis is one of the most agile and adaptable sports because the ball that is played is very light and fast. Movement in the game of table tennis requires a person to be able to anticipate the arrival and return of

the ball that is hit both forehand and backhand. The physical needs possessed by students at SMA Negeri 1 Marioriawa, Soppeng Regency, which are the research materials, are factors that support the achievement of playing tennis skills. Hand reaction speed, for example, is a must to have. Because the movement in the game of tennis requires a faster reaction (Suhendro 2016) to anticipate the speed of the ball's arrival and to return the ball more accurately. Likewise, the position of the foot will greatly affect the blow that is launched. The speed of the footwork affects the optimal stroke motion in the game of table tennis. Therefore, students of SMA Negeri 1 Marioriawa, Soppeng Regency, have the element of the speed of hand reaction and the speed of footwork together in good condition, able to carry out the entire series in the implementation of the technique of playing tennis skills. Every movement that occurs will always require a good response (Nopiyanto et al. 2021), from players who move quickly depending on the arrival of the ball. Thus, the reaction speed of the hands and the speed of footwork have a contribution to the skills of playing tennis.

**D.  Conclusion**

Based on the results of the research

that has been stated, it can be concluded that hand reaction speed and footwork speed have a contribution to the skills of playing tennis in SMA Negeri 1 Marioriawa Soppeng Regency.

## E. Acknowledgements

## F. Conflict Of Interset

All authors state that there is no conflict of interest in this article.

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# The Effect of Small-Sided Games Practice on the Result of Lower Passing Accuracy Using the Inner Foot

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### Abstract

*The purpose of conducting a study was to determine the effect of Small-Sided Games training on the accuracy of lower passing using the inner foot of soccer at SSB Megas II Banyuasin. The research method used is the Experiment one group pretest and posttest method. The research design used is one group pretest-posttest design. Using the total sampling technique to take a sample of 40 people. The research instrument in this study was a modified test of soccer passing accuracy. From the results of data analysis processing through the calculation of the t-test formula with the criteria tcount (11.504) > Ttable (2.002) with a confidence level of 0.95 or 95% (α = 0.05) and the number of samples (N = 40). Submitted accepted. The practice of Small-Sided Games using the inside of the foot affects the accuracy of the bottom passing. Based on the results of research on the effect of Small-Sided Games using the inside of the foot, it turned out to have a significant effect on the accuracy of lower passing at SSB Megas II Banyuasin. This research implies that Small-Sided Games using the inside of the foot can be carried out and used as an exercise program to increase the accuracy of lower passing.*

*Keywords: Small-Sided Games, Down Passing, Accuracy.*

## A. Introduction

Football is a very popular sport today. Of the many sports, football is the most popular in the world (Palmizal et al., 2020). This sport has been played in more than 200 countries in the world. The players involved in this sport also reach hundreds of millions of people (Komarudin, 2018). Football fans are estimated to make up more than half of the world's population, touching all ages from children to adults. Football itself is a sport that uses a ball in its game played by two teams facing each other, each team consisting of eleven players (Ardianta & Hariadi, 2017). The ball is played using the feet, passing each other with teammates, keeping the ball from being snatched by the opponent, and the final goal is to get the ball into the opponent's goal (Kristina, 2018). The parties who score more goals are those who win the soccer game (Susanto, 2019).

Football is a very complex sport, namely one that combines physical components, conditions, and techniques to form a beautiful game (Ardianta & Hariadi, 2017). One of the basic techniques that are often used in football is passing the ball. Passing the ball is one of the skills that must be mastered correctly by football players because in passing the ball, a player must be skilled in a placement to improve their ability to pass the ball. This ability can only be improved if the athlete has a supportive physical condition (Pujianto et al., 2020).

Based on the results of observations at SSB Megas II Banyuasin who participated in the exercise, there were 40 players, where each exercise only carried out shooting, physical, and strategy exercises. The lack of accuracy in passing practice results in deficiencies in the basic technical components of football, namely passing skills.

Of the entire sample, when underhanded passing practice used the target 10 times, only 6 (15%) players were able to pass correctly, namely past the target and right at their friends, 6 (15%) players passed past the target but at the same time, the end of the ball was not right on their friend, while 28 (70%) players could not pass correctly, namely not on target to the target.

Therefore, to achieve the target of good passing accuracy, maximum practice is needed to develop the passing

The problems experienced by SSB Megas II Banyuasin during training on Wednesday, Friday and sparring in the Air Kumbang Banyuasin area on Sunday, February 21, 2021, show that there are still many SSB Megas II Banyuasin players who are not optimal in doing

underhanded passes to their colleagues because the players are still making mistakes when passing short down and lack of technique when passing down to players, so the ball is easily snatched by the opponent. The players' inaccuracy in passing makes the ball easy to snatch by the opponent. The players also often have difficulty in implementing the possessing strategy using short passing to colleagues and other colleagues, so the strategy does not work well due to the players' under-passing that has not been on target.

The data from the observation shows the lack of accuracy of passing down in the application of passing using the inside of the foot at SSB Megas II Banyuasin. This requires a way to correct the lack of accuracy of passing down.

This small-sided game exercise is adapted to the material, taking into account the situation and conditions as well as the needs of the athlete's characteristics. So, through the Small-Sided Games, it is hoped that it will make it easier for athletes to master passing techniques in soccer games (Wea, 2020).

Based on research by (Karim, 2018) with the title The Effect of Small-Sided Games Exercises on Increasing Inner Foot Passing Accuracy in Football Extracurricular Participants at Mts Ali Maksum Bantul, analysis of research results The Effect of Small-Sided Games exercises on increasing inner foot passing accuracy on the students of Mts Ali Maksum Bantul There is a significant influence in the practice. From the study, it can be concluded that the Small-Sided Games exercise affects the accuracy of passing using the inside of the foot.

According to (Khurrohman et al., (2021), small-sided games are the right exercises to use for young players, for them to learn and develop. Each game is a combination of special techniques in football, such as dribbling, passing, and shooting.

Small-sided games are an exercise using the ball in the field, which has become a fun training approach (Wardana et al., 2018). Therefore, an integrated form of training with the ball is a priority for football athletes, especially in basic training (Komarudin, 2018).

Sets, and namely on This exercise is performed in various sets, including 2 sets, 3 sets, and 5 sets. The Small Sided Games practice is carried out 3 times in 1 week, namely on Wednesday, Friday, and Sunday. Based on the above, it is necessary to research the effect of Small-Sided Games training on the accuracy of lower passing using the inner foot of football at SSB Megas II Banyuasin.

## B. Method

The type of research used is the experiment one group pre-test and post-test design method. In this design, there is a pretest given before treatment and a posttest given after treatment. Thus, the results of the treatment can be known to be more accurate because it aims to determine whether there is an influence between the independent variables on the dependent variable (independent variables and dependent variables) (Sugiyono, 2019). The dependent variable (X) in this study is the Small-Sided Games exercise, and the independent variable (Y) is the accuracy of lower passing using the inside of the foot.

The population of SSB Megas II Banyuasin is 40 people. So the research is a population study. If the subject is more than 100 people, it can be divided into 10%-15% or 20%-25%. In this study, participants cannot be more than 100. So this research is population sampling. The sample in the study at SSB Megas II Banyuasin amounted to 40 people.

The technique used in collecting data in this research is the passing test, in which the athlete kicks the ball through the goal in the middle. There are 3 stages of data collection carried out, namely:

1. Preparation Phase

a. Managing research permits

b. Determining the research subject

c. Prepare the equipment needed for the implementation of the test.

d. prepare data collection forms.

2. Implementation Phase

  a) Prepare tools in the form of whistles, poles or cones, and soccer balls.

  b) Provide direction to participants in the form of test procedures and test assessments.

  c) Implementing Passing, how to implement it, namely:

    a. The test taker stands behind the predetermined line.

    b. At the time of hearing the whistle, the test taker kicks the ball with the best foot, using the inside of the foot towards the target.

    c. Assessment: Each student kicks five times and then adds them up.

  d) Record test results

3. Completion Phase

The completion stage is carried out by entering the test result data that has been obtained by each soccer athlete from the passing test into the passing test assessment five times, after which the results of the assessment can be concluded by looking at the results that have been achieved by the participants.

The instrument used is a modified test of soccer passing accuracy. The test is carried out to measure the technical ability

of the passing accuracy of the passing test ([Khurrohman et al., 2021](#)). The test implementation procedure is as follows:

a. Destination

To find out the abilities and skills of test-takers in passing correctly and quickly.

b. Tools and facilities consisting of:

1. Field: a wall, flat, even, not slippery.
2. Whistle, soccer ball
3. Goals/cones as target markers, forms, and stationery.

c. Implementation:

1. the test taker stands behind the predetermined line.
2. At the time of hearing the whistle, the test taker kicks the ball with the best foot, using the inside of the foot towards the target.
3. Scoring: Each student kicks 5 times and then adds them up.
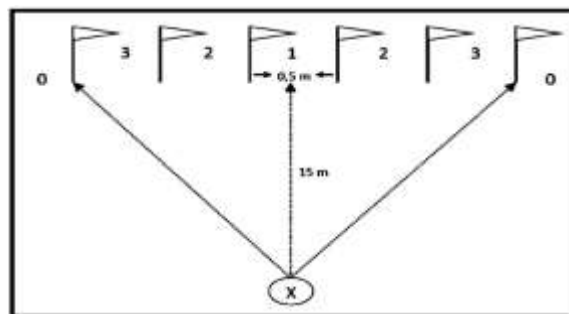


(Source: [Baskoro, 2016](#))

### *Pretest*

The pretest (initial test) conducted by the researcher was to provide a direct assessment of the soccer players of SSB MEGAS II BANYUASIN. With this, the researchers conducted a soccer passing accuracy test for each player to measure the accuracy of the bottom passing. implementation stage:

a. Prepare tools in the form of whistles, poles or cones, and soccer balls.

b. Provide direction to participants in the form of test procedures and test assessments.

c. Implementing Passing, how to implement it, namely:

1) The test taker stands behind the predetermined line,

2) At the time of hearing the whistle, the test participant kicks the ball with the best foot, using the inside of the foot towards the target.

3) Scoring: Each student kicks five times and then adds them up.

### Treatment

Small-Sided Games 3 vs 2 + 1

1. The 30 x 10m court is divided into two-possession areas.

2. The initial 3vs2 situation in the 15x10m area. From the picture above, the blue player can seize control of the red player's ball. They move the ball to move to the control area and create a 3vs2 situation in their area.

3. Do as many as 2–5 sets with a duration of 5 minutes between sets, with a rest between sets of 1 minute.

**Posttest (Final Test)**

The Posttest (final test) was conducted by researchers to provide a direct assessment of the soccer players of SSB Megas II Banyuasin. With this, the researchers conducted a soccer passing accuracy test for each player to measure the ability of the bottom passing accuracy. implementation stage:

a. Prepare tools in the form of whistles, poles or cones, and soccer balls.

b. Provide direction to participants in the form of test procedures and test assessments.

c. Carrying out passing, the

implementation method is:

1) The test taker stands behind the predetermined line,

2) At the time of hearing the whistle, the test participant kicks the ball with the best foot, using the inside of the foot towards the target.

Scoring: Each student kicks five times and then adds them up.

## C. Result and Discussion

### Pretest

The results of the study of 40 athletes or samples were obtained from SSB Megas II Bnyuasin with SPSS calculations. Pretest data obtained: the highest data is 11, while the lowest data is 4. The mean is 7.08, the standard deviation is 1.803, and the slope of the curve is 0.269. In posttest data obtained, the highest data obtained is 13, while the lowest data obtained is 6. The mean is 9.43, the standard deviation is 1.810, and the slope of the curve is 0.005. It can be seen that the normality test of the pretest data in table 4.1 was completely normal.

**Table 4.1**
**Distribution List of Pretest Results of Lowe assing Accuracy Using the Inner Ft**

| Hasil | Fi | Xi | Fi.Xi | $Xi^2$ | Fi.$Xi^2$ |
|---|---|---|---|---|---|
| 4 - 5,2 | 8 | 4,6 | 36,8 | 21,16 | 169,28 |
| 5,3 - 6,5 | 7 | 5,9 | 41,3 | 34,81 | 243,67 |
| 6,6 - 7,8 | 10 | 7,2 | 72 | 51,84 | 518,4 |
| 7,9 - 9,1 | 9 | 8,5 | 76,5 | 72,25 | 688,5 |
| 9,2 - 10,4 | 8 | 9,8 | 49 | 96,04 | 480,2 |
| 10,5 - 11,7 | 1 | 11,1 | 11,1 | 123,21 | 123,21 |

| Total | 40 | 47,1 | 286,7 | 399,31 | 2.223,36 |

Based on the table above, it can be explained that the results of 4-5.2 have a frequency (Fi) of 8, a mean value (Xi) of 4.6 values of (Fi. Xi) 36.8 a mean squared value ($[Xi]^2$) 21.16 and the value of (Fi.$[Xi]^2$) 169.28. The results from 5.3-6.5 have a frequency (Fi) of 7, the mean (Xi) 5.9 the value of (Fi. Xi) 41.3 the mean squared Xi$]^2$ 34.81 and the value of ( Fi.$[Xi]^2$) 243.64. The results 6.6-7.8 have a frequency (Fi) of 10, the mean (Xi) 7.2 the value of (Fi. Xi) 72, the mean squared ($[Xi]^2$) 51.84 and the value of (Fi. Xi]^2) 518.4. Results 7,9-9,1 have a frequency (Fi) of 9 mean values (Xi) 8,5 values of (Fi.Xi) 76,5 mean squared ($[Xi]^2$) 72,25 and values of ( Fi.$[Xi]^2$) 688.5. The results 9.2-10.4 have a frequency (Fi) of 8 mean values (Xi) 9.8 values of (Fi. Xi) 49 mean squared ($[Xi]^2$) 96.04 and a value of (Fi. Xi]^2) 480.2. the results of 10.5-11.7 have a frequency (Fi) of 1, the mean (Xi) of 11.1 the value of (Fi. Xi) 11.1 the mean of squared ($[Xi]^2$) 123.21 and the value of (Fi.$[Xi]^2$) 123.21.

Based on the table above, the list of frequency distributions resulting from the Pretest of Lower passing accuracy using the inside of the foot can be described in a histogram as follows:



Source : Histogram Distribution Pretest 2021

Based on the table above, it can be explained that the results of 4-5.2 have a frequency (Fi) of 8, a mean value (Xi) of 4.6 values of (Fi. Xi) 36.8 a mean squared value ($[ Xi]^2$) 21.16 and the value of (Fi.$[Xi]^2$) 169.28. The results from 5.3-6.5 have a frequency (Fi) of 7, the mean (Xi) 5.9 the value of (Fi. Xi) 41.3 the

mean squared Xi〗^2 34.81 and the value of ( Fi.〖Xi〗^2 ) 243.64. The results 6.6-7.8 have a frequency (Fi) of 10, the mean (Xi) 7.2 the value of (Fi. Xi) 72, the mean squared (〖Xi〗^2) 51.84 and the value of (Fi. Xi〗 ^2) 518.4. Results 7.9-9.1 have a frequency (Fi) of 9 mean values (Xi) 8.5 values of (Fi. Xi) 76.5 mean squared (〖Xi〗^2) 72.25 and values of ( Fi.〖Xi〗^2) 688.5. The results 9.2-10.4 have a frequency (Fi) of 8 mean values (Xi) 9.8 values of (Fi. Xi) 49 mean squared

(〖Xi〗^2) 96.04 and a value of (Fi. Xi〗 ^2) 480.2. the results of 10.5-11.7 have a frequency (Fi) of 1, the mean (Xi) of 11.1 the value of (Fi. Xi) 11.1 the mean of squared (〖Xi〗^2) 123.21 and the value of (Fi. Xi〗^2) 123.21.

Based on the table above, the list of frequency distributions resulting from the Pretest of Lower passing accuracy using the inside of the foot can be described in a histogram as follows:

**Table 4.2**

**The distribution table of the results of the posttest accuracy of passing down using the inside of the foot**

| Result | Fi | Xi | Fi.Xi | $Xi^2$ | $Fi.Xi^2$ |
|---|---|---|---|---|---|
| 6 – 7,2 | 6 | 6,6 | 39,6 | 43,56 | 261,36 |
| 7,3 – 8,5 | 7 | 7,9 | 55,3 | 62.41 | 436,87 |
| 8,6 – 9,8 | 9 | 9,2 | 82,8 | 84,64 | 761,76 |
| 9,9 – 11,1 | 12 | 10,5 | 126 | 110,25 | 1.323 |
| 11,2 – 12,4 | 5 | 11,8 | 59 | 139,24 | 696,2 |
| 12,5 – 13,7 | 1 | 13,1 | 13,1 | 171,61 | 171,61 |
| Total | 40 | 59,1 | 375,8 | 611,26 | 3.650,8 |

Based on the table above, it can be explained that Results 6-7.2 have a frequency (Fi) of 6 mean values (Xi) 6.6 values from (Fi. Xi) 39.6 the mean squared value (〖Xi〗 ^2) 43.56 and the value of (Fi.〖Xi〗^2) 261.36. The results from 7.3 to 8.5 have a frequency (Fi) of 7, the mean (Xi) 7.9 the value of (Fi. Xi) 55.3 the mean squared (〖Xi〗^2) 62.41 and the value of ( Fi.〖Xi〗^2) 436.87. The results from 8.6-9.8 have a frequency (Fi)

of 9, the mean (Xi) 9.2 the value of (Fi. Xi) 82.8, the mean squared (〖Xi〗^2) 84.64 and the value of ( Fi.〖Xi〗^2) 761.76. The results 9.9-11.1 have a frequency (Fi) of 12, the mean value (Xi) of 10.5 the value of (Fi. Xi) 126 the mean squared (〖Xi〗^2) 110.25, and the value of ( Fi.〖Xi〗^2) 1.323. The results of 11.2-12.4 have a frequency (Fi) of 5 mean values (Xi) 11.8 values of (Fi. Xi) 59 mean squared (〖Xi〗^2) 139.24 and values

of (Fi. Xi⟧^2) 696.2. The results of 12.5-13.7 have a frequency (Fi) of 1 the mean (Xi) 13.1 the value of (Fi. Xi) 13.1 the mean squared (⟦Xi⟧^2) 171.61 and the value of ( Fi.⟦Xi⟧^2) 171.61.

Based on the table above, the frequency distribution list of the results of the posttest accuracy of passing down using the inside of the foot can be described in a histogram as follows:
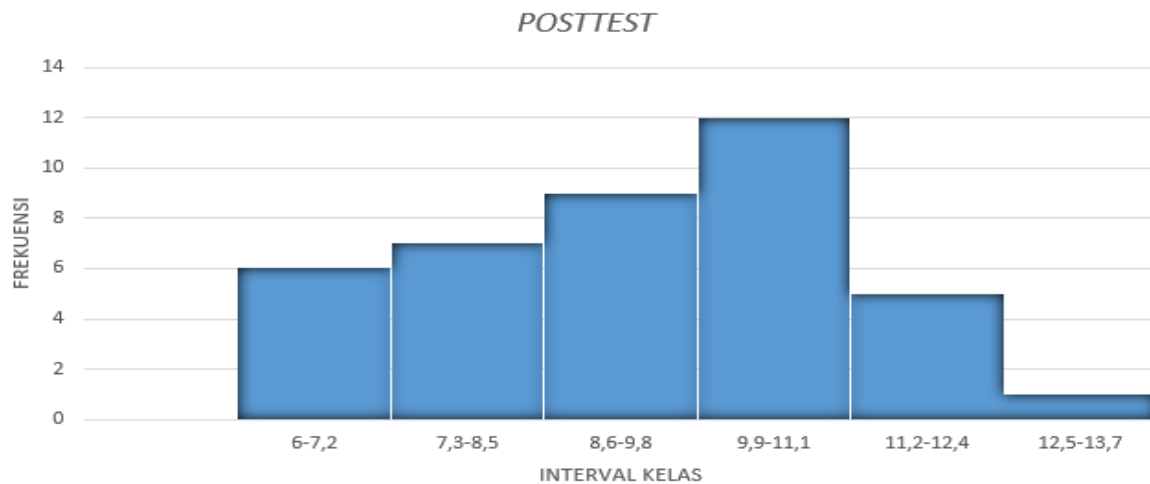


Source: Histogram distribution Posttest

Based on the histogram above, it can be explained that the median value of 6.6 has 6 people. The median value is 7.9, meaning there are 7 people. The median value is 9.2. There are 9 people. The median value of 10.5 is 12 people. The median value of 11.8 is 5 people. The median value of 11.8 is 5 people. The median value of 13.1 is 1 person.

Normality test

The normality test aims to test whether the variable data has a normal or abnormal distribution. Good data is defined as having a normal or close to normal data distribution. To test normality, the researcher analyzed using Shapiro-Wilk. Because the number of sample data was less than 50, the normality test used Shapiro-Wilk with the acquisition of a Pretest value of 0.063 and a Posttest value of 0.0124. Then this number is greater than the research alpha (0.05), which means that the two variables are normally distributed. So the results obtained are as follows:

### Table 4.3 Normality Test

| Value | Shapiro-WILK | | |
|---|---|---|---|
| | Statistic | Sig | Information |
| *Pretest* | 0,948 | 0,063 | Normal |
| *Posttest* | 0,956 | 0,124 | Normal |

Using the data used in the table above, it can be explained that the acquisition of the pretest score is 0.063 and the posttest value is 0.0124. Then this number is greater than the research alpha (0.05), which means that the two variables are normally distributed.

**Homogeneity Test**

### Table 4.4

### Homogeneity Test Calculation Results

| Variable | Significance | Result |
|---|---|---|
| Bottom Passing Accuracy Using the Inner Foot | 0,597 | Homogen |

Based on the table above, it can be seen that the significant calculation is 0.597 > 0.05, which means that the sample variance is homogeneous, so the hypothesis stating the variance of the existing variables is accepted. It can be concluded again that the population variance is homogeneous.

**Hypothesis testing**

The type of data in this study is paired data because the researchers used the same sample to conduct pretest and posttest research, so to manage the data, they used SPSS with the paired sample T-Test test. The data obtained is as follows:

### Table 4.5

### Paired Samples Statistics

| | | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Pair 1 | Nilai_Pretest | 7.08 | 40 | 1.803 | .285 |
| | Nilai_Posttest | 9.43 | 40 | 1.810 | .286 |

### Table 4.9
### Paired Samples Test

| | | Paired Differences | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Std. Error Mean | 95% Confidence Interval of the Difference | | | | Sig. (2-tailed) |
| | Variable | Mean | Std. Deviation | | Lower | Upper | T | df | |
| Pair 1 | Nilai_Pretest - Nilai_Posttest | -2.350 | 1.292 | .204 | -2.763 | -1.937 | -11.504 | 39 | .000 |

The t-count result from the Paired Sample T-Test test is -11,504 which can

be negative because the Pre Test value is smaller than the Post Test value so that the t count can be positive, namely 11,504. Furthermore, to find out the T_table value, it is searched based on the df value and the significance value. From these data obtained df is 39 and the value of 0.05/2 is 0.025. After looking for T_table on df 39 and sig 0.025, the value of T_table is 2.02269. So T_hitung 11,504 > T_tabel 2.002, which can be stated that H0 is rejected and Ha is accepted. Based on research by (Karim, 2018) at Yogyakarta State University with the title The Effect of Small-Sided Games Exercises on Increasing Passing Accuracy with the Inner Foot in Students Participating in Football Extracurricular at Mts Ali Maksum Bantul, analysis of research results The effect of Small-Sided Games exercises on increasing passing accuracy by the inner leg of the students of Mts Ali Maksum Bantul there was a significant effect in the exercise with a value of t_(count) 2.196> t_(table(0.05)(19))2.093, a significant value of 0.041<0.05 and an increase in the percentage of 15.79 %, so that Ha is accepted. It can be concluded that the Small-Sided Games exercise affects the accuracy of passing using the inner foot of the study, so it can be concluded again that there is an average difference between the results of the Pre Test and

Post Test exercises, which means that there is an effect of Small-Sided Games exercises on the results of Lower Passing Accuracy. Using the Inner Foot of SSB Megas II Soccer in Banyuasin.

**Discussion**

Based on the research criteria, a discussion is needed to compile the results of the research which will discuss the results of the pretest and posttest data as well as the results of the data on the effect of small-sided games training on the accuracy of lower passing using the inner foot of soccer at SSB Megas II Banyuasin with the following criteria: This research was conducted 6 weeks is in line with the opinion of Harsono (2017: 14) that technical efficiency after 6 weeks of training is aimed at physiological-psychological regeneration of the central nervous system (CNS) before the start of the training season the following year. To know the progress of the training process. Bottom passing is passing that goes along the ground and usually uses the inside of the foot, while soaring passing is passing that is on the ground (Amin, 2018). The target can be a distance or it may be a direct object that is hit. Based on relevant research by Rono et al. (2018) with the title The Effect of Small-Sided Games Practice on Passing Accuracy in Mahardhika Fc Football Players, among others:

a) Small-sided games exercises can be used to improve the accuracy of passing using the inner foot at SSB MEGAS II BANYUASIN. This can be seen from the increase in the results of the Pretest and Posttest.

b) Based on the results of the hypothesis test, namely -11,504. The result of the t-count from the test

The Paired Sample T-Test is -11,504, which can be negative because the pre-test value is smaller than the post-test value, so the t count can be positive, namely 11,504. So Thitung 11,504 > Ttable 2,002, which can be stated that H0 is rejected and Ha is accepted. So it can be concluded that there is an average difference between the results of the Pretest and Posttest exercises, which means that there is an effect of Small-Sided Games training on the results of Lower Passing Accuracy Using the Inner Foot of SSB MEGAS II BANYUASIN Football. Based on the data obtained from the pretest results, the accuracy of passing using the inner foot is 11. The highest is 11, and the lowest is 4. The mean is 7.08, the median is 7.00, then 7.00, and is 7.00. The slope of the curve is 0.269. posttest data for the accuracy of Passing uses the inner leg, the highest is 13, and the lowest is 6, the mean is 9.43, the median is 9.00, the model is 9.00, the slope of the curve is

0.005. Based on the research that has been done, the Small-Sided Games exercise can be used to improve the accuracy of Passing using the inner foot at SSB MEGAS II BANYUASIN, this can be seen from the increase in Pretest and Posttest after being given the Small-Sided Games exercise treatment.

The passing technique is a technique that must be mastered in soccer games by soccer players to facilitate the game and break through the opponent's defense line through cooperation and accuracy when passing. According to Handoko (2019: 231), football is a sport that uses a ball that is generally made of leather and is played by two teams, each consisting of eleven core players and several reserve players. Thus, it can be concluded that football is a team sport in which each team consists of eleven players who compete with each other to get as many balls into the opponent's goal as possible and defend their own goal from conceding through predetermined rules. Some basic techniques in soccer passing, kinesiological and anatomically, the muscles in the limbs that are directly involved are, in principle, the same. According to (Sukirno, 2017). The muscles that strengthen the leg muscles on the dorsal back are divided into two groups. First, the outer muscles, including

superficial muscles, include the Gastrok numerous, Soleus, and Plantaris muscles, and the muscles that are joined in the deep/deep, include the Popliteus muscle, Flexor smoothies longus, Musculus Flexor digitorum longus, and Musculus Tibialis Posterior, and the two muscles located laterally include Musculus process, Musculus process Brevis. According to (Khurrohman et al., 2021) small-sided games are the right exercises to use for young players, for them to learn and develop. Each game is a combination of special techniques in football, such as dribbling, passing, and shooting. Small-sided games are an exercise using the ball in the field, which has become a fun training approach (Wardana et al., 2018). Therefore, an integrated form of training with the ball is a priority for football athletes, especially in basic training (Komarudin, 2018).

Researchers conducted experimental research and gave small-sided games exercise treatment for 6 weeks every Wednesday, Friday, and Sunday, at meetings 1 to 5. They gave small-sided games training with an intensity of 40%, which means that the players pass 40 times. In meetings 6 to 9, the Small-Sided Games exercise is given with an intensity of 50%, which means that the players pass 50 times. At meetings 10 to 12, the Small-Sided Games exercise is given with an

intensity of 60%, which means that the players pass 60 times. At meetings 13 to 17, the Small-Sided Games exercise was given with an intensity of 70%, which means that the players did 70 passes. This study aims to improve the accuracy of passing using the inner foot of soccer. Data collection in this study was followed by 40 soccer athletes from SSB MEGAS II BANYUASIN. From the results of the pretest and posttest data, it is said to be normal because at the time of the pretest it was 0.948 and the posttest result was 0.956. Then the hypothesis was tested with the t-test statistic, and the results obtained were -11.504. The t-count result from the Paired Sample T-Test test is -11,504, which can be negative because the Pre-test value is smaller than the Post-test value so that the t count can be positive, namely 11,504. So T 11,504 > T 2,002, which in fact can be stated that H0 is rejected and Ha is accepted. So it can be concluded that there is an average difference between the results of the Pretest and Posttest exercises, which means that there is an influence of the Small-Sided Games exercise on the results of Lower Passing Accuracy Using the Inner Foot of SSB MEGAS II Football in Banyuasin in line with the thesis of Wahyu Aprianto (2020) at the University of Lampung, with the title The Effect of Small-Sided Games Exercise on

the Accuracy of Passing in Football Players, which explained that the Small-Sided Games exercise affected the accuracy of the passing of soccer players.

During the training process, this must be given and must have good training principles so that it can be carried out systematically and regularly, aiming to improve the accuracy of down passing in football. (Sukirno, 2017) reveals several efforts that can be made to improve the performance of an athlete, including physical, technical, tactical, and mental aspects. According to (Komarudin, 2018), the purpose of this exercise is to provide a form of exercise that can be used to improve the accuracy of an underpass in football. This form of exercise is useful for doing bottom passing in tight situations and a narrow area because, in the game of football, we really have to control the situation in the game, so players must do bottom passing with tight obstacles or opponents, narrow spaces, and limited motion.

## D. Conclusion

Based on the results of the research and data analysis that have been obtained above, it can be concluded that the Small-Sided Games exercise affects the accuracy of lower passing using the inner foot of soccer on soccer athletes at SSB MEGAS II BANYUASIN. The results of this study indicate that the exercises from the Small-Sided Games can be used to improve the accuracy of lower passing using the inner foot of soccer and are very effective for soccer coaches to apply to soccer athletes.

## E. Acknowledgments

## F. Conflict of Interest

No Conflict Interest

## Reference

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# Differences in the Effectiveness of Wall Pass and Short Pass Exercises in Physical Education Learning at SMP Negeri 1 Sumowono

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***Abstract***

*The research is motivated by soccer learning which needs to be improved with wallpass and short pass exercises. The problem faced is how to determine the right model of passing practice for students. This can be seen from the two techniques proposed, namely the game and the wall pass and short pass. Both techniques are assumed to be able to improve the accuracy of passing through various previous research results. The purpose of this study is to provide information about exercises that can be applied in learning football. This type of research is experimental research using a quasi-experimental research design. The experiment was carried out in grades 7 and 8, with each sample of 25 students. The data collection technique with observations was carried out using a questionnaire and carried out objectively by the observer. The data analysis technique used in this research is a test technique. Hypothesis testing is done utilizing descriptive analysis of the average difference test. These results indicate that the group that was treated using the Wall-Pass (WP) method had a significant difference from the class that was treated using the Short-Pass (SP) method. Teachers can innovatively develop teaching tools for other passing methods to improve student learning activities. Students need to help each other if they experience problems in implementing the model, and the teacher must be able to ensure that each student in the group can achieve the goal or complete the assigned task.*

***Keyword**s: Effectiveness, Wall Pass and Short Pass Exercise, Physical Education Sports and Recreation*

## A. Introduction

21st-century skills, termed the 4Cs (communication, collaboration, critical thinking, problem-solving, creativity, and innovation), are the real abilities to aim for. (Mustafa & Dwiyogo, 2020). The goal is to achieve the efficiency of the material to be studied and the effectiveness of its absorption by students. At the time of physical learning in schools, it is necessary to develop learning models to improve the quality of human resources so that they will directly improve the education system for the better (Dimyati, 2017). Learning achievement, as used by teachers in the learning process, is considered a benchmark for measuring the success of learning delivery (Ardian et al., 2019). If the achievement obtained is not on target, it can be ascertained that several factors influence it. Several factors that affect learning achievement can be caused by the application of less attractive learning methods, so students feel bored. Besides that, it can also be caused by the use of learning techniques that involve the active role of students (Saleh & Ramdhani, 2020)

The period at school shows that students still have difficulty in physical learning, especially in soccer. Students seem to have difficulty understanding the practice of learning football as well as relating to learning skills in passing, which has an impact on the lack of ability to do good passing skills. From the results of the learning evaluation of 24 students, there are still 13 students who are not optimal in applying ball passing. From the learning achievement data, it shows that the learning carried out has not been said to be complete because learning can be considered complete if the number of students who get scores above the Minimum Graduation Criteria (KKM) reaches 80% (without remedial), so a learning method that is intended for students is needed. to be able to improve physical learning outcomes and sports. This is due to the low mastery of learning methods by teachers, which can be seen from the way they provide learning that is difficult for students to understand, one of which is the material on passing in football. So it is less interesting for students to understand the concept of physical learning and sports? Based on the problems above, it is necessary to find the right solution to attract students' interest in learning football passing so that student learning achievement also increases. Football is a game that is played using the feet which are played by eleven players in 1 team by paying attention to Teamwork to score goals against the opponent's goal (Yahya et al., 2020).

(Soniawan, 2018) It states that passing in football can be interpreted as a way of passing or passing the ball to a friend, which is done with several techniques of

passing the ball using the foot. Good and correct passing is very much needed in the game of football because mastering this technique will make it easier for our friends to receive the ball (Adityatama, 2017). Like kicking, passing can also be done with the outside and inside of the foot, or with the head, or chest (if you have mastered this technique). Kicking the ball is "a movement or action performed by the foot on the ball so that it can roll or move from its original place" (Kristina, 2018).

(Suantama et al., 2018) states "a wall pass or pass one-two is a simple movement of two players. For example, when child A passes the ball to child B, then runs to a new position, this technique allows students to pass the ball well and is useful for encouraging the child's basic movements". Wall pass is the most valuable basic movement for children in the game of football. Meanwhile, according to (Ardianta & Hariadi, 2017) A wall pas is a part of an attempt to kick the ball from player 1 to another player by returning the ball from the previous player. This experience is very good for making children more skilled at learning wall passes in soccer games. In playing football, practicing passing the ball a short distance can be done with a wall pass (Suantama et al., 2018). It takes a variety of actions or results of changes from the original state

and has various forms. The variation movements include the ball when crossing the stake and children A and B moving forward through the stake so that the child can move and master the inner foot passing movement with the wall pass variation method. According to (Vinando, Insanistyo, 2018) A short pass is made by kicking the inside or outside of the foot for a short distance pass.

Passing the ball is the most dominant technique in a game. A high level of accuracy is required in passing to produce a good pass that is easily controlled by teammates (Suantama et al., 2018). (Aprianova, 2016) Expressing passing accuracy is the ability to pass the ball, which can make the direction or speed of the ball more directed to the target so that it is difficult to reach or be seized by the opponent. (Syamsudar, 2020) As in football, the good passing technique is a very important element. Passing with good accuracy is needed to build an attack to create good opportunities. The better the player's technique, the more the team's finishing will improve. Based on this, the thing to be resolved in this study is which effectiveness is better for passing using a wall pass or a short pass.

## B.  Method

This type of research is experimental research using a quasi-experimental research design. This study aims to be students of SMP Negeri 1 Sumowono with a population of 50 students. The sampling technique used was a purposive stratified technique with a specified proportionate sampling of schools and took samples disproportionately (proportionately). determine the grade level (stratified), and take all students in the class to reveal a causal relationship with learning treatment in the form of learning by using wall pass and short pass exercises. The population in this study amounted to 120 students with a sample of 50 students in this study involving the control group in addition to the experimental group. At the beginning of the study, a pretest was carried out for both the experimental group and the control group to determine normality and homogeneity. In both the experimental group and the control group, the data collection technique used was observation. The technique of collecting data by observing is done using a questionnaire and carried out objectively by the observer. Students were divided equally into two groups, A and B. Groups A and B came forward to prepare to pass using the inside of their feet, then passed the ball to group B and vice versa, group B passed the ball back until the ball crossed the funnel. Groups A

and B who have practiced, then return to the back row of each group. The data analysis technique used in this study is a test technique. Hypothesis testing is carried out by descriptive analysis of the average difference between t-tests using the Statistical Package for Social Science (SPSS) program. The average difference test based on the distribution of t values used is the Mann-Whitney U. Through this test, the significance of the difference in the mean of two groups of samples that are not related to each other can be seen.

## C.  Result and Discussion

### Result

The experiment was carried out in grades 7 and 8 with a sample of 25 students each. Of the total population. Then it was divided into 2 experimental classes, namely experimental class 1 and experimental class 2.

Students who are members of experimental class 1 and experimental class 2 are arranged heterogeneously, consisting of various levels of academic score acquisition. Before the Short Pass (SP) and Wall-Pass (WP) learning methods were carried out in experimental class 1 and experiment 2, the researchers conducted an initial ability test (pre-test). The normality test in this study used data from the pre-test, carried out to determine the distribution of the data, whether it was

normal or not. This is because the research sample was < 30 (small sample). The normality test was carried out using the One-Sample Kolmogorov-Smirnov

method using the SPSS 23.0 program. The results of the normality test of the pre-test data can be seen in Table 1 below:

**Table 1. *One-Sample Kolmogorov-Smirnov Pre Test***

| | | Wall Pass (Pre-Test) | Short Pass (Pre-Test) |
|---|---|---|---|
| N | | 75 | 75 |
| Normal Parameters[,b] | Mean | 6.51 | 6.09 |
| | Std. Deviation | 1.528 | 1.435 |
| Most Extreme | Absolute | .190 | .177 |
| Differences | Positive | .190 | .177 |
| | Negative | -.109 | -.103 |
| Test Statistic | | .190 | .177 |
| Asymp. Sig. (2-tailed) | | .000[c] | .000[c] |

The assumption approach used to test the normality of the data has a value of 0.05. If the significance value of normality is less than the value of, it can be said that the data is not normal (non-parametric). Based on the results of the data in table 1, the Asymp value. Sig. (2-tailed) experimental class 1 < value (0.000 < 0.05), it can be concluded that the data distribution of experimental class 1 is not normal (non-parametric). Sig. (2-tailed)

experimental class 2 < value (0.000 > 0.05), it can be concluded that the data distribution of experimental class 2 is not normal (non-parametric). The homogeneity test was carried out by researchers to determine whether or not there was a similarity in the variation of the distribution of experimental class 1 and experimental class 2. If the significance value < (0.05) then the variations in the experimental class 1 and the experimental class 2 were not the same.

**Tabel 2. Uji Variasi Homogenitas Pre Test**

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| ,005 | 1 | 18 | ,745 |

Based on table 2, the significance value of the homogeneity test variation > value (0.745 > 0.05), so it can be concluded that experimental class 1 and experimental class 2 are homogeneous

samples and suitable for research. The average similarity test was carried out with Mann-Whitney U. The test was carried out because the data of the sample class and the experimental class were not related or

independent. The assumption made is that the two samples have no relationship. With the normality test and homogeneity test, the data distribution is included in parametric inferential statistics (difference test). With these characteristics, Mann-Whitney U is feasible to use.

**Tabel 3.** *Test Statistics Pre Test*

| No | Aspects Observed | Number of Indicators | Total Score | Max Score | $\bar{x}$ | % |
|----|------------------|:---:|:---:|:---:|:---:|:---:|
| 1. | Pre learning | 1 | 2 | 4 | 2 | 50% |
| 2. | Learning Opening | 2 | 5 | 8 | 2,5 | 62,5% |
| 3. | Explanation Of Learning Material | 4 | 11 | 16 | 2,75 | 68,75% |
| 4. | Learning Strategy | 2 | 5 | 8 | 2,5 | 62,5% |
| 5. | Utilization of Learning Media | 2 | 6 | 8 | 3 | 75% |
| 6. | Assessment of Processes and Outcomes | 3 | 8 | 12 | 2,7 | 67% |
| | **Score** | **14** | **35** | **56** | **14,7** | **100%** |

Table 3 shows the U value of 2398 and the W value of 5248. When converted to the Z value, the value is -1.592. Sig value or P-Value of 0.111 > 0.05. If the p-value > the critical limit of 0.05, then there is no significant difference between the two groups or it indicates that students can absorb the Wall-Pass (WP) and Short-Pass (SP) passing technique learning methods. The observation phase of experimental class 1 was carried out at SMP Negeri 1 Sumowono with 25 students in grades 7 and 8. The results of the observation of each student's activity were analyzed descriptively as follows:

**Table 4. Results of Observation of Learning Activities in Experiment Class 1**

| | Pre Test Passing |
|:---:|:---:|
| Mann-Whitney U | 2398.000 |
| Wilcoxon W | 5248.000 |
| Z | -1.592 |
| Asymp. Sig. (2-tailed) | .111 |

In the observation aspect of the implementation of Experiment 1 learning, the teacher has used the learning media well and is followed by the students' pre-learning readiness (discipline and readiness to receive material). The explanation of the learning material got a high score. The observation phase of the experimental class 2 was carried out at SMP Negeri 1 Sumowono with the number of students in grades 7 and 8 being 25 students. The results of the observation of each student's activity were analyzed descriptively as follows:

**Table 5. Results of Observation of Learning Activities in Experiment Class 2**

| No | Aspects Observed | Number of Indicators | Total Score | Max Score | $\bar{x}$ | Persentase |
|----|------------------|----------------------|-------------|-----------|-----------|------------|
| 1. | Pre learning | 1 | 3 | 4 | 3 | 75% |
| 2. | Learning Opening | 2 | 7 | 8 | 3,5 | 85% |
| 3. | Explanation Of Learning Material | 4 | 14 | 16 | 3,5 | 85% |
| 4. | Learning Strategy | 2 | 7 | 8 | 3,5 | 85% |
| 5. | Utilization of Learning Media | 2 | 7 | 8 | 3,5 | 85% |
| 6. | Assessment of Processes and Outcomes | 3 | 9 | 12 | 3 | 75% |
| | **Total** | **14** | **47** | **56** | **20** | **100%** |

The learning carried out by students in experiment 2 by applying the Short-Pass method has been carried out by the teacher very well and is by the steps in the lesson plan. Students have succeeded in using the technique well and enthusiastically during learning activities in gathering information, discussing, and summarizing the material. The final ability test was carried out by analyzing all aspects of the learning activity variables in experimental class 1 (Wall-Pass) and experimental class 2 (Short-Pass). The distribution of the results of the analysis of the three passing indicators of students after a learning intervention using the wall-pass method obtained the following results:

**Table 7. Statistics of the Active Implementation of the Wall-Pass Method**

| | | Cumulative Pass and turn (WP-PT) | Cumulative Accuracy passing (WP-AP) | Cumulative Passing and stopping (WP-PS) |
|---|---|---|---|---|
| N | Valid | 75 | 75 | 75 |
| | Missin | 0 | 0 | 0 |

| | g | | |
|---|---|---|---|
| Mean | 6.57 | 6.92 | 6.52 |
| Median | 6.00 | 7.00 | 6.00 |
| Mode | 5 | 6 | 5 |
| Std. Deviation | 1.587 | 1.505 | 1.703 |
| Variance | 2.518 | 2.264 | 2.902 |
| Minimum | 4 | 4 | 4 |
| Maximum | 11 | 10 | 10 |
| Sum | 493 | 519 | 489 |
| Percentiles 25 | 5.00 | 6.00 | 5.00 |
| 50 | 6.00 | 7.00 | 6.00 |
| 75 | 8.00 | 8.00 | 8.00 |

Based on the data in table 7, the average value of student learning activity at SMP Negeri 1 Sumowono using the Wall-Pass (WP) learning model is 6.67 (pass and turn + accuracy passing + passing and stopping). with an average standard deviation of 1.598 and an average data variation of 0.575. The distribution of the level of student learning activity can be seen in table 8 below

**Table 8. Activity Category Levels Using the Wall-Pass Method**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Very low | 1 | ,2 | ,2 | ,2 |
| | Low | 25 | 5,1 | 5,1 | 5,3 |
| | Currently | 115 | 23,5 | 23,5 | 28,8 |
| | Tall | 274 | 55,9 | 55,9 | 84,7 |
| | Very high | 75 | 15,3 | 15,3 | 100,0 |
| | Total | 490 | 100,0 | 100,0 | |

After the high category, the acquisition of learning activity intervention using the Wall-Pass method was in the middle, which was moderate. The distribution of the results of the analysis of the three indicators of the student's learning passing technique after the learning intervention using the short-pass method obtained the following results:

**Tabel 9. Statistik Keaktifan Pelaksanaan Metode *Short-Pass***

| | | Cumulative Pass and turn (SP-PT) | Cumulative Accuracy passing (SP-AP) | Cumulative Passing and stopping (SP-PS) |
|---|---|---|---|---|
| N | Valid | 75 | 75 | 75 |
| | Missing | 0 | 0 | 0 |
| Mean | | 6.45 | 6.33 | 6.36 |
| Median | | 6.00 | 6.00 | 6.00 |
| Mode | | 8 | 7 | 5 |
| Std. Deviation | | 1.630 | 1.528 | 1.721 |
| Variance | | 2.657 | 2.333 | 2.963 |
| Minimum | | 4 | 4 | 4 |
| Maximum | | 10 | 10 | 10 |
| Sum | | 484 | 475 | 477 |
| Percentiles | 25 | 5.00 | 5.00 | 5.00 |
| | 50 | 6.00 | 6.00 | 6.00 |
| | 75 | 8.00 | 7.00 | 8.00 |

Based on the data in table 9, the average value of student learning activity at SMP Negeri 1 Sumowono using the Short-Pass (SP) learning model is 6.38 (Pass and turn + accuracy passing + passing and stopping). With an average standard deviation of 1.626 and an average data variation of 2.651. The distribution of the level of student learning activity can be seen in Table 10 below:

**Table 10. Activity Category Level of Short-Pass Method**

| | | *Wall-Pass* (WP) | *Short-Pass* (SP) |
|---|---|---|---|
| N | | 25 | 25 |
| Normal Parameters,b | Mean | 60.04 | 57.44 |
| | Std. Deviation | 7.208 | 5.516 |
| Most Extreme Differences | Absolute | .171 | .188 |
| | Positive | .171 | .109 |
| | Negative | -.105 | -.188 |
| Test Statistic | | .171 | .188 |
| Asymp. Sig. (2-tailed) | | .026[c] | .023[c] |

After the high category, the acquisition of learning activity intervention using the Short-Pass method was in the medium value. By category, the distribution of the activity level of the Wall-Pass (WP) and Short-Pass (SP) methods has a data

distribution with a low range of variation. The second stage of the normality test was carried out in the post-test section. The initial normality test was carried out with evaluation data for learning outcomes, while the normality test at the post-test stage was carried out by tabulating data from student activity observations using two passing models, namely the Wall-Pass (WP) and Short-Pass (SP) methods. The normality test aims to test the distribution of variables. Good data normality is to have a normal data distribution or close to normal. In this study, two methods were used to determine the distribution of the data, namely statistical tests, and graph analysis. The graph analysis used is to look at the normal probability plot by comparing the cumulative distribution of the normal distribution. The normal distribution will form a straight diagonal line and plotting the residual data will be compared with the diagonal line.

**Table 11. *One Sample Kolmogorov – Smirnov Test***

|  |  | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Very low | 1 | ,2 | ,2 | ,2 |
|  | Low | 16 | 3,3 | 3,3 | 3,5 |
|  | Currently | 112 | 22,9 | 22,9 | 26,3 |
|  | Tall | 273 | 55,7 | 55,7 | 82,0 |
|  | Very high | 88 | 18,0 | 18,0 | 100,0 |
|  | Total | 490 | 100,0 | 100,0 |  |

In table 11 the equation variables have a probability level greater than 0.05 whereas the Wall-Pass (WP) and Short-Pass (SP) variables have a probability level of 0.026 and 0.023, respectively. The difference test was carried out using the Mann-Whitney U method to find out comparatively the difference between the two groups, namely the group that was treated using the Wall-Pass (WP) and Short-Pass (SP) methods.

**Table 12. *Test Statistics Passing***

|  | Cumulative Test Passing |
|---|---|
| Mann-Whitney U | 276.500 |
| Wilcoxon W | 601.500 |
| Z | -.700 |
| Asymp. Sig. (2-tailed) | .000 |

The significance value of the assumed variance similarity and the assumed variance similarity obtained a value < alpha value (0.000 < 0.050). These results indicate that the group that was treated using the Wall-Pass (WP) method had a significant difference from the class that was treated using the Short-Pass (SP) method.

**Discussion**

Based on the results of research to increase student participation in learning, teachers should apply more interesting methods. Wall-Pass is the most valuable basic movement for children in the game of football. This experience is very good for making children more skilled in learning wall passes in soccer games. On the other hand, there is also a passing learning model that can be applied, namely Short-Pass. A short pass is done by kicking the inside or outside of the foot for a short distance pass. The study was conducted in two stages: The initial ability test stage was carried out using a pre-test instrument. Experimental class 1 obtained an average value of 6.507. Experimental class 2 obtained an average value of 6.093. In the second stage, in the pre-test section, a normality test of psychomotor value data was carried out. The normality test of the pre-test results using the Kolmogorov-Smirnov method

obtained that both experimental classes had an abnormal level of data distribution (<0.05).

The two results were then tested for homogeneity using Levene Statistics. A homogeneity test was conducted to ensure that the two experimental classes had the same level of knowledge and learning ability characteristics. The final stage of the pre-test research was a different test using Mann-Whitney U on the value of psychomotor learning outcomes. The results of the equality of means from the two experimental classes showed that there was no significant difference (> 0.05). The research was conducted at SMP Negeri 1 Sumowono. The research was carried out at different times using two different models. The first experiment was an intervention using the Wall-Pass method by the steps outlined in the implementation method. The second experiment was carried out by intervention using the Short-Pass method by the steps that have been stated in the implementation method. The observation phase was carried out by giving each student distribution of active research instruments. The results of the research hypothesis assumption test showed that there was a significant difference between the use of the Wall-Pass and Short-Pass methods. The significance value of the

assumed variance similarity and the assumed variance similarity obtained a value < alpha value (0.000 < 0.050). In line with previous research which stated that the results showed that the group that was treated using the Wall-Pass method had a significant difference from the class that was treated using the Short-Pass method. From this research, it is hoped that in learning football, teachers should be able to provide creativity in providing learning material in soccer games.

## D.   Conclusion

The research was carried out at SMP Negeri 1 Sumowono, Semarang Regency, Semester 2 of the 2020-2021 academic year. The experiment was carried out in grades 7 and 8, with each sample of 25 students. From the total population, it is then divided into 2 sample classes, namely experimental class 1 and experimental class 2. The significance value of the assumed variance similarity and the assumed variance similarity is < alpha value (0.000 < 0.05). These results indicate that the group that was treated using the Wall-Pass (WP) method had a significant difference from the class that was treated using the Short-Pass (SP) method. Teachers can innovatively develop teaching tools for other passing methods to improve student learning activities. Students need to help each other if they experience problems in implementing the model, and the teacher must be able to ensure that each student in the group can achieve the goal or complete the assigned task. At an advanced stage, students must be trained to work together with their friends in a synergistic, integral, and combinative way.

## E.   Acknowledgments

## F.   Conflict of Interest

No conflict of interest

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# Implementation Of Online-Based Health Sports Education Learning For High School Students

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## Abstract

*The purpose of this study was to determine the learning of courage in SMA Negeri 1 Kejayan. The author wants to know and conduct research on the courageous learning of class X students of SMAN 1 Kejayan. This research uses a survey method. The number of samples in this study was 103 people which were calculated using the error tolerance limit formula (error tolerance). The data collection technique used is a questionnaire that is packaged into a google form. The data analysis technique used was using percentage analysis which was calculated using Microsoft Excel. The results of this study indicate that bold learning in SMAN 1 Kejayaan students has difficulty practicing in PJOK subjects, this is because PJOK subjects apply more direct practice while learning is limited to watching videos. The results of this study with answers as many as 76 respondents (94%) answered strongly agree that they have difficulty in learning PJOK bravely. It is hoped that teachers can make learning materials more interesting and can make it easier for students to take part in learning boldly. These results are expected to be a reference for teachers to make bold learning models that are more interesting.*

*Keywords: Surveys, Learning, High School Students, Online Learning*

## A. Introduction

The development of technology, information, and communication influences learning in the industrial era 4.0 (Mustafa & Dwiyogo, 2020). To be able to improve the quality of education, teachers use several technologies. Keengwe & Georgina (Khusniyah & Hakim, 2019) say that technological advances can change or provide changes to the teaching and learning process. Information technology can be used as a medium in carrying out the educational process (Budiman, 2017). Physical education plays an important role in the implementation of education as lifelong human development (Ceruso et al., 2019). Games and exercises are carried out systematically, directed, and planned through physical activity. Physical education provides students with hands-on opportunities for experiential learning (Casado-Robles et al., 2022). Building and shaping a healthy and active lifestyle is the goal of the learning experience. The physical education learning process is carried out with sports activities as activities with goals and achievements by the level of education, without neglecting the achievement of the main goal, namely students' physical fitness. (Depdiknas, 2020) The Ministry of National Education (2020) provides an explanation of physical education, which is a process of physical activity that has the aim of maintaining physical abilities and can also improve physical abilities for the better.

Physical education learning is currently disrupted due to the COVID-19 pandemic which causes learning to be done at home or online (Priono, 2021). Physical education learning involves more practical activities, thus physical education, sports, and health learning activities are disrupted due to the COVID-19 outbreak which requires students to learn from home using online methods (Kurniawan & Hasan, 2021). Online learning is learning that is done from home using the internet network (Aprilyadi et al., 2021). One of the efforts of the school to respond to the learning method from home is to do online learning. Although this method already exists, at SMAN 1 Kejayan this is the first time using online learning methods, so students are still confused in implementing this learning method. (Herlina & Suherman, 2020) said that students should do sports activities for one week as much as 3-5 times so that they can maintain their physical fitness. Because physical fitness will decrease if we stop or do less exercise.

So, it is closely related to class X SMAN 1 Kejayan students and online learning, because they are doing this online learning method for the first time. Currently, the effectiveness of online learning methods is still unknown to students. Therefore, in this study, the

researcher conducted a scientific study with the title "Survey on the Effectiveness of Online-Based PJOK Learning for Class X Students of SMA Negeri 1 Kejayan, Pasuruan Regency".

## B. Method

This study uses a quantitative descriptive research design with survey techniques. Data was collected using a questionnaire in the form of a questionnaire. Descriptive research in this case is intended to obtain information about learning PJOK online. Here is the research flow chart:

**Figure 1. Research flow chart**

Choose Problem

Study Case

Formulate the Problem

Formulate Basic Assumptions

Choose Approach

Hypothesis

Determine Variable

Determine Data Source

Compose Instrument

Collect Data

Analysis Data

Conclusion
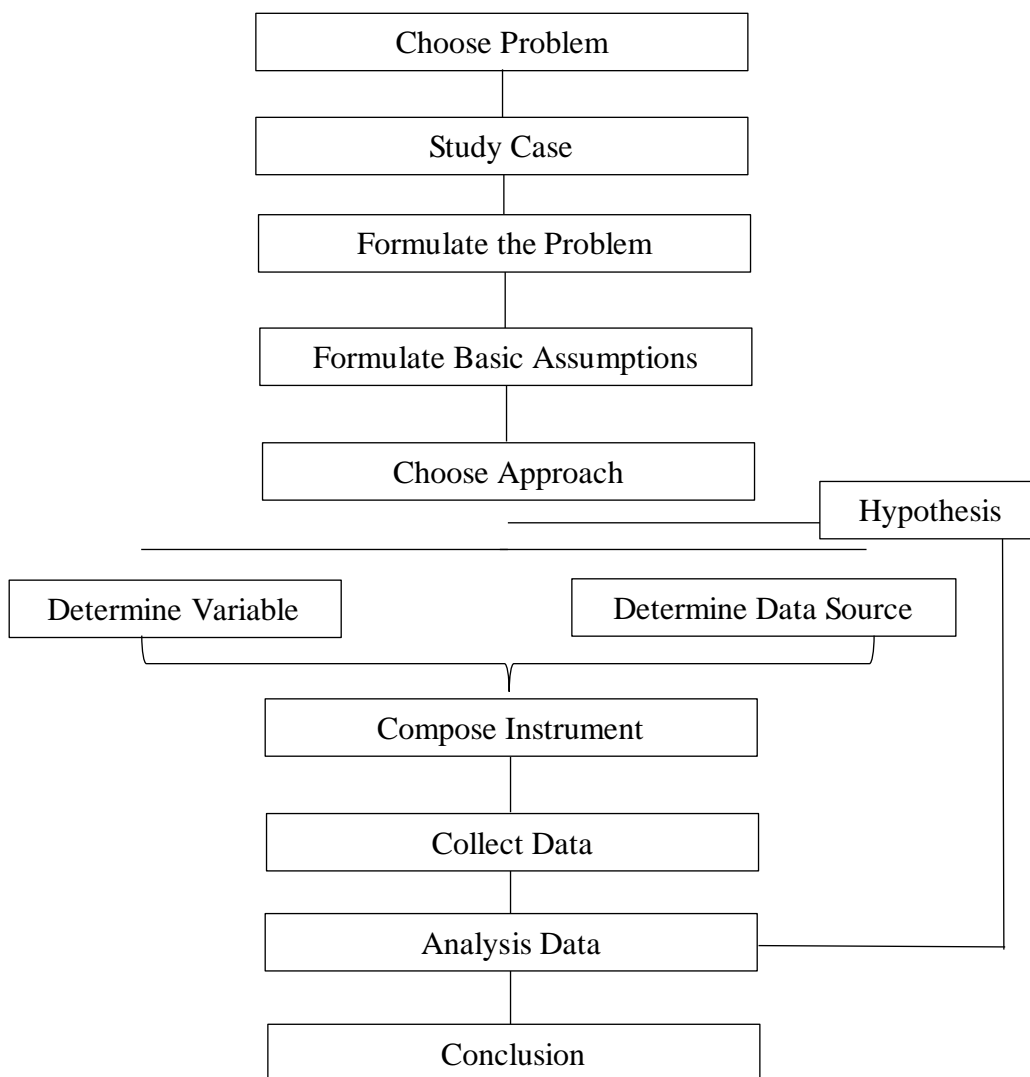
*Source: (Arikunto, 2019)*

This research was conducted in July-August 2020, located at SMA Negeri 1 Kejayan which is located at Jalan Seladi Kejayan Regency. In this study, the

population used was 140 students of SMA Negeri 1 Kejayan class X MIPA 1-4. The sample used in this study was calculated using the Slovin formula contained in (Abba, 2019) below:

$$n = \frac{N}{1 + Ne^2}$$

Description:

N: number of samples

N: number of population

E: error tolerance

After being calculated using the formula, the error tolerance limit (error tolerance) is 5%, obtaining a minimum number of 103 people according to the entire population. To obtain data, research instruments are needed. The instrument used in this research is a questionnaire. The research instrument that contains a series of statements or questions to collect data or information that the respondent must answer freely according to his opinion is called a questionnaire. A closed questionnaire or structured questionnaire (Closed Questionnaire) is a type of questionnaire used in this study. The closed questionnaire is a questionnaire in which alternative answers have been provided. In this study, the questionnaire instrument used an attitude scale or a Likert scale of 1-4 with choices of answers: strongly agree (4), agree (3), disagree (2), and strongly disagree (1). The Likert scale is used to measure attitudes, opinions, and perceptions of a person or group of people about a particular phenomenon. The questionnaires in this study were distributed online using Google Form. Google Form or Google form is the medium used to collect data. Google Form has a function as a survey tool.

**Table 1. Grid of Research Instruments**

| Variable | Indicator | Question Number | Total |
|---|---|---|---|
| *Online Learning* | Student interest | 1,2,3,6,8,15,16 | 7 |
| | Learning attraction | | |
| | | 4,5,7,9,14,18,19 | 7 |
| | Online learning | | |
| | | 10,11,12,13,17,20,21 | 7 |

The data analysis technique in this research is descriptive quantitative. This quantitative description is processed by referring to the formula from (Nurrohim, 2020) as follows:

$$P = \frac{f}{N} \times 100\%$$

Description:

P: Number of percentages

f: Frequency

N  Number of case

100% : Constanta

All data analysis procedures were carried out manually using Microsoft Excel 2016. The results of the analysis will later be compared to a criteria table from (Arikunto, 2019) which has determined the assessment categories as follows:

**Table 2. Rating Category**

| Persentase | Description |
|---|---|
| 81 - 100 % | Very effective |
| 61 - 80 % | Effective |
| 41 - 60 % | Effective enough |
| 21 - 40 % | Ineffective |
| <21 % | Very Ineffective |

Source: (*Arikunto, 2019*)

## C. Result and Discussion

## Result

The results of research on student interest in taking PJOK online learning obtained the following results:

**Table 3. Frequency distribution of questionnaire answers**

| Pertanyaan | SS(5) | | S(4) | | KS(3) | | TS(2) | | STS(1) | | JUMLAH | RATA-RATA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | F | % | F | % | F | % | F | % | F | % | SAMPEL | Item |
| 1 | 45 | 56% | 34 | 42% | 1 | 1% | 1 | 1% | | 0% | 81 | 4,519 |
| 2 | 3 | 4% | 12 | 15% | 49 | 60% | 17 | 21% | | 0% | 81 | 3,012 |
| 3 | 80 | 99% | 1 | 1% | | 0% | | 0% | | 0% | 81 | 4,988 |
| 4 | 81 | 100% | | 0% | | 0% | | 0% | | 0% | 81 | 5,000 |
| 5 | 23 | 28% | 55 | 68% | 2 | 2% | 1 | 1% | | 0% | 81 | 4,235 |
| 6 | 57 | 70% | 24 | 30% | | 0% | | 0% | | 0% | 81 | 4,704 |
| 7 | 41 | 51% | 38 | 47% | 1 | 1% | 1 | 1% | | 0% | 81 | 4,469 |
| 8 | 32 | 40% | 46 | 57% | 3 | 4% | | 0% | | 0% | 81 | 4,358 |
| 9 | 20 | 25% | 56 | 69% | 5 | 6% | | 0% | | 0% | 81 | 4,185 |
| 10 | 19 | 23% | 46 | 57% | 15 | 19% | 1 | 1% | | 0% | 81 | 4,025 |
| 11 | 12 | 15% | 56 | 69% | 12 | 15% | 1 | 1% | | 0% | 81 | 3,975 | 4,198 |
| 12 | 17 | 21% | 46 | 57% | 15 | 19% | 3 | 4% | | 0% | 81 | 3,951 |
| 13 | 27 | 33% | 48 | 59% | 5 | 6% | 1 | 1% | | 0% | 81 | 4,247 |
| 14 | 49 | 60% | 31 | 38% | 1 | 1% | | 0% | | 0% | 81 | 4,593 |
| 15 | 11 | 14% | 50 | 62% | 20 | 25% | | 0% | | 0% | 81 | 3,889 |
| 16 | 4 | 5% | 11 | 14% | 44 | 54% | 22 | 27% | | 0% | 81 | 2,963 |
| 17 | 61 | 75% | 13 | 16% | 7 | 9% | | 0% | | 0% | 81 | 4,667 |
| 18 | 29 | 36% | 49 | 60% | 2 | 2% | 1 | 1% | | 0% | 81 | 4,309 |
| 19 | 10 | 12% | 41 | 51% | 3 | 4% | 20 | 25% | 7 | 9% | 81 | 3,333 |
| 20 | 13 | 16% | 47 | 58% | 18 | 22% | 3 | 4% | | 0% | 81 | 3,864 |
| 21 | 76 | 94% | 1 | 1% | 3 | 4% | 1 | 1% | | 0% | 81 | 4,877 |

Based on Table 3 regarding the distribution of the answers to the questionnaire, the following results were obtained:

### 1. Students' Interest

Based on table 3, namely "physical education is favored by students," an average answer of 4,519 was obtained. More details can be seen in the image below.

**Figure 1. Graph of Percentage of Statements of Physical Education Liked by Students**
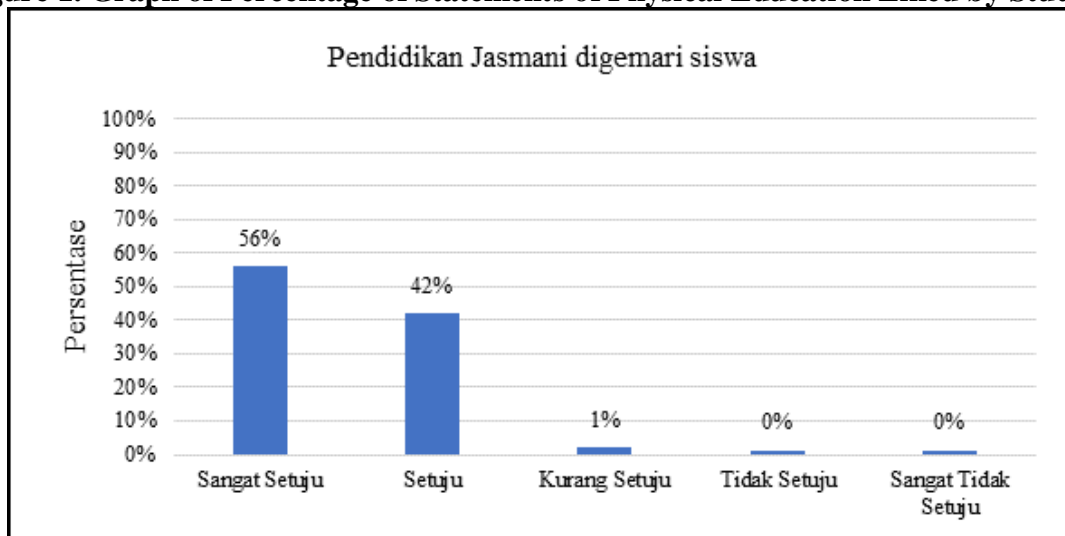


*Source: Data Processing Results in 2020*

The statement "Students do not like physical education lessons" by obtaining an average answer of 3,012.

It can be concluded that the student's interest is very large in physical education subjects. for more details can be seen in the image below

**Figure 2. Graph of the Percentage of Students' Statements They Don't Like Physical Education Lessons**
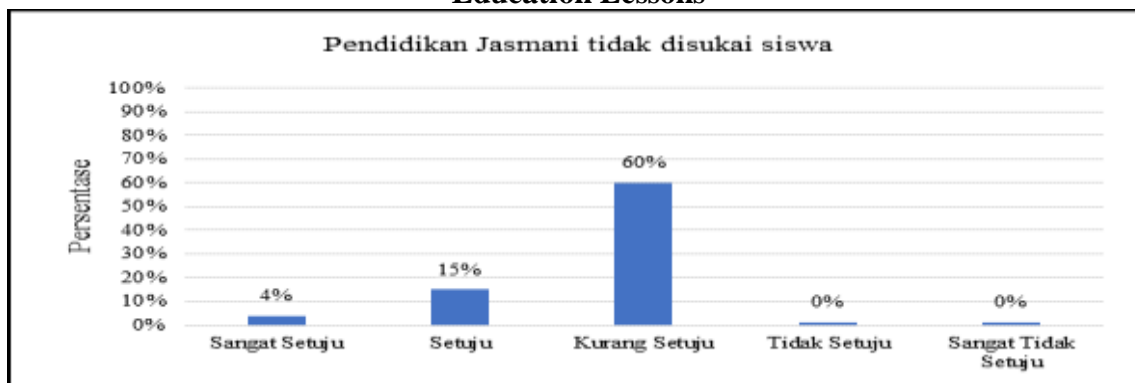


*Source: Data Processing Results in 2020*

## 2. The Attractiveness of Learning

Based on table 3 tables, namely "Students enthusiastically follow the physical education movement exemplified by the teacher" by obtaining an average answer of 4,998. for more details can be seen in the image below.

**Figure 3. Graph of the Percentage of Statements of Students With Enthusiasm to Follow the Physical Education Movements Exemplified by their Teachers**
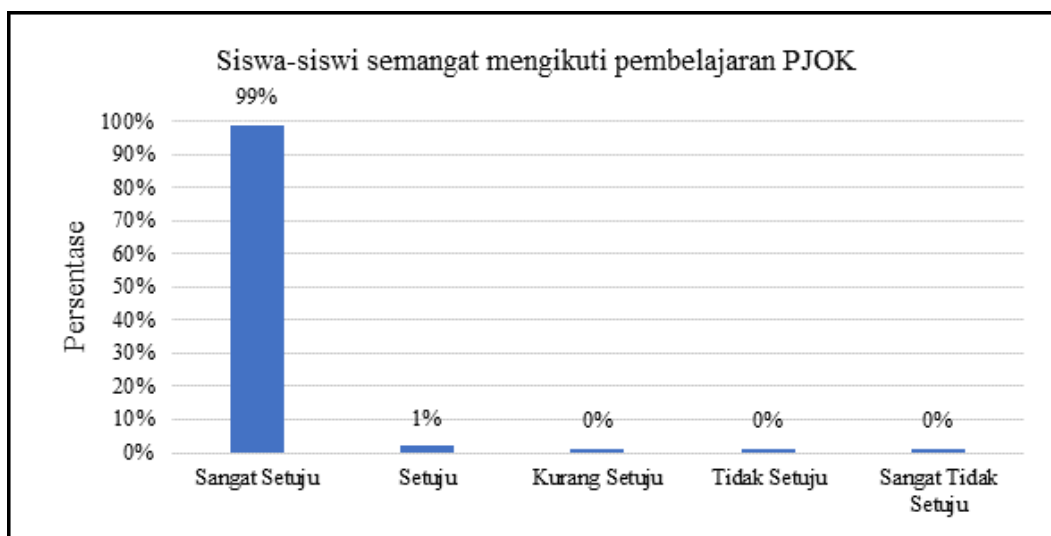


*Source: Data Processing Results in 2020*

The question "To deepen my physical education, I often watch physical education matches that are broadcast on TV" with an average answer of 4.025. for more details can be seen in the image below.

**Figure 4. Graph of Percentage of Statements to Learn More about Physical Education I Often Watch Physical Education Competitions Shown by TV**
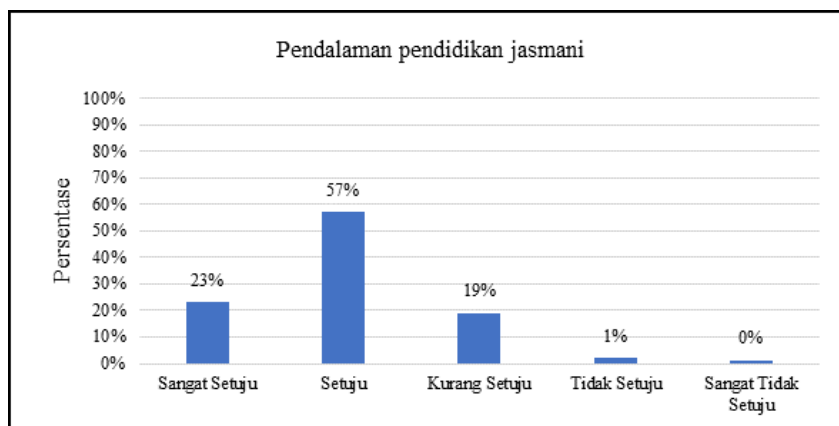


*Source: Data Processing Results in 2020*

For the question "To increase my knowledge of physical education, I read books and sports tabloids" with an average answer of 3,975. for more details can be seen in the image below.

**Figure 5. Graph of Percentage of Statements To Increase Physical Education Knowledge, I Read Books and Sports Tabloids Online Learning**
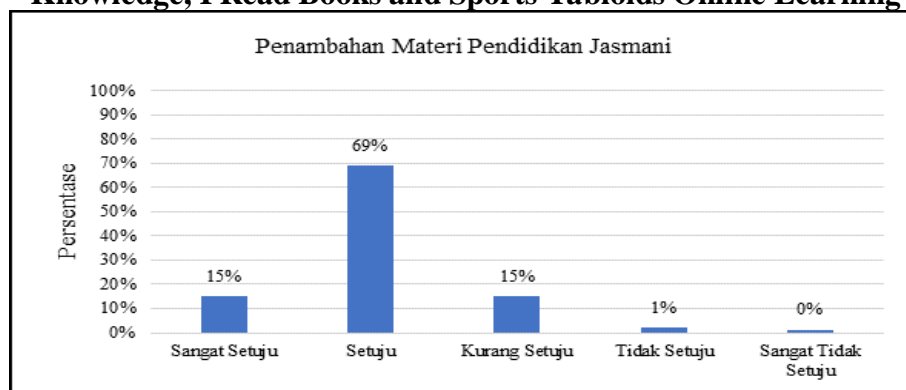


*Source: Data Processing Results in 2020*

Based on the question "In online learning, the teacher does several repetitions of the material more often to make it easier for students to understand the material," by obtained an average answer of 4,887. More details can be seen in the image below.

**Figure 6. Graph of the Percentage of Statements In online learning, teachers do some repetition of materials more often to make students easier to understand**.
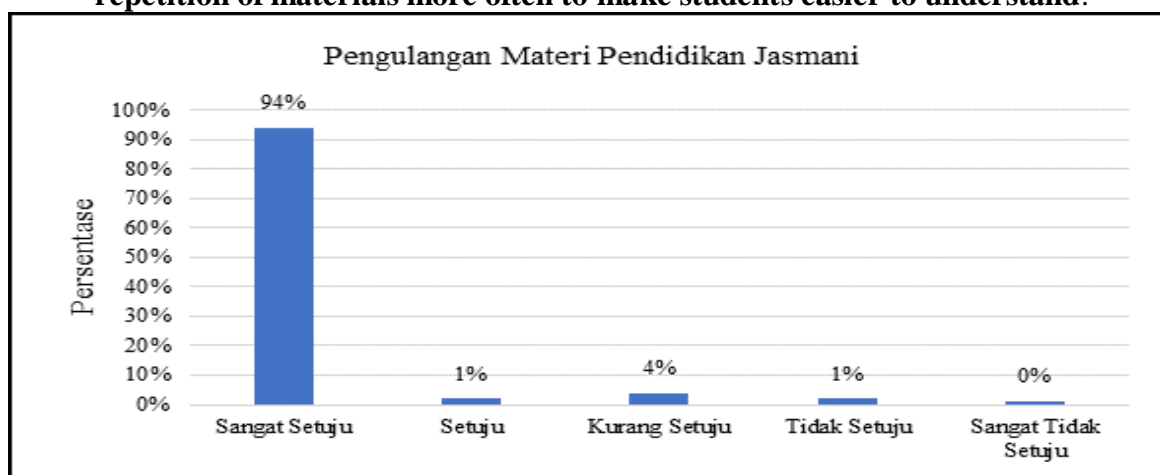


*Source: Data Processing Results in 2020*

Based on the question "Students have difficulty when they will practice directly the subject" by obtaining an average answer of 3,864. for more details can be seen in the image below.

**Figure 7. Graph of Percentage of Statements of Students Having Difficulty When Willing to Practice Directly Subjects**



*Source: Data Processing Results in 2020*

**Discussion**

Research conducted (Muharto et al., 2017) says that learning using e-learning can increase students' interest in learning. E-learning provides interactive tutorials so that students are interes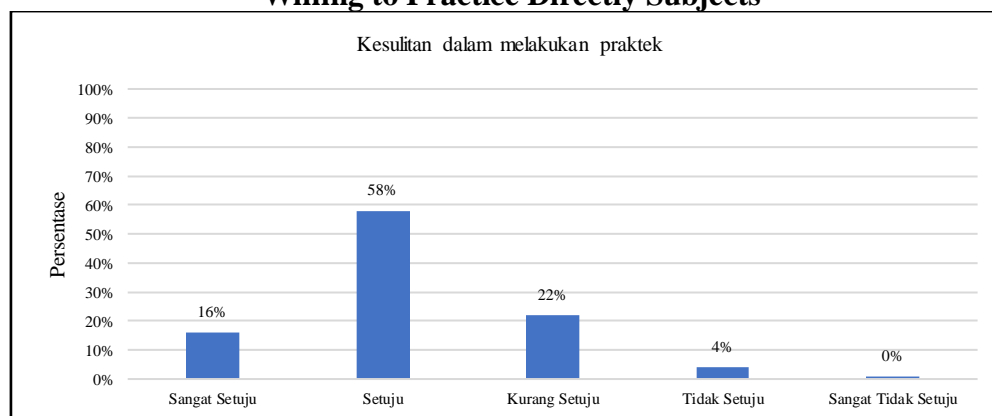ted in the media. According to (Suhada et al., 2020) the younger generation must be able to take advantage of information technology at this time to be able to do online learning. Teacher's room, Zenius, study house, quipper, etc are common applications and can be used by students. Distance learning is helped by the existence of online-based learning platforms. Conducting online learning using various media can help improve communication between teachers and those being taught. (Mustafa et al., 2019) said that the benefits of doing online learning are to be able to increase interaction between students and teachers

and also allow learning that can be done anytime and from anywhere. Research conducted by (Herlina & Suherman, 2020) learning PJOK online can involve parents as supervisors and student worksheets as a form of activity, things like this are a distance learning model and initiate a collaborative approach. To further satisfy students, it is PJOK teachers who provide motivation and support during online learning (Dewi & Sepriadi, 2021). (Nurrohim, 2020) said that learning PJOK online during the COVID-19 pandemic gave satisfaction to students because teachers were also actively helping students during online learning, in this case, the teacher played an important role in online learning. PJOK learning is taught online in public or private schools, depending on the teaching methods and media used by each school. (Defliyanto et

al., 2021).

According to some of the studies above, online PJOK learning is still effective. Materials for classroom learning are edited under the guidance of RPS, just like traditional lectures. The model prepares to learn with the appropriate syllabus, lesson plans, materials, exercises, assignments, and media. Integrative methods and a combination of conventional learning methods, strategies, and techniques are methods that can be used for this kind of learning model. So far, online learning materials are structured like this. The learning model includes internet access with multimedia layers, pages, or windows with online learning modules. Internet-based applications that can be used to teach during the pandemic are Google Classroom, Google Forms, and Whatsapp (WA) to communicate between students and teachers as learning reminders and assignments (Messakh et al., 2021).

The analysis of research results relates to the stated research objectives and can be explained together with a description of the research results. The research results obtained from the survey are in the form of data. Students' interest in taking physical education subjects at SMA Negeri 1 Kejayan is the focus of this study. Based on the results of student answers as people, it is known that students experience difficulties when practicing in PJOK subjects, this is because in PJOK subjects direct practice is prioritized in addition to theory matching. This result is reinforced by the average answer of 3,864 people with a percentage of strongly agree with 76 people or 94%. Research conducted by (Dumiyanto et al., 2021) says that learning PJOK online has a significant impact on students' movement skills. To overcome this, it is hoped that teachers will prepare better material equipped with movements to make it easier for students in the learning process, especially online because the teaching and learning process cannot be done directly. Based on the results of the research on the online-based PJOK learning survey for class X SMAN 1 Kejayan, Pasuruan Regency, it was concluded that interest in learning it was known that most students had an interest and were fond of participating in learning PJOK subjects even though it was done using the online method. This is shown by the majority of people's answers, namely 45 students or 56% of students really like PJOK subjects with an average answer of 4,519. This seems to be caused by internal factors of many students, such as the environment where many students at SMAN 1 Kejayan live and have facilities and infrastructure for daily exercises such as football and volleyball fields, this condition has a significant impact on

physical education spending in schools. . Against the background of the high interest of students in physical education classes, this is because students know that improving physical conditions can also increase knowledge and academic achievement.

In the interest in learning of class X students of SMAN 1 Kejayan, it is known that to study physical education, some students also often watch matches such as football, volleyball, and basketball which are useful for increasing their abilities and learning the movements of the players. In addition, it can be seen from the seriousness of the learning movement of the students who never give up in class and the enthusiasm of the students who want to read books related to physical education. This is evidenced by the average answer of 3,975 people, which shows that some students agree that studying physical education materials and tabloids can increase their knowledge about sports. According to (Putra et al., 2021) PJOK learning during the covid-19 pandemic has a positive and significant influence on interest in learning, learning activities, and learning outcomes. In the online learning method, due to the Covid 19 pandemic that has hit the whole world, including Indonesia, the direct teaching and learning process has stopped. To keep teaching and

learning activities ongoing, online learning is carried out. Based on the data above, it can be seen that most of the 81 students, namely 47 students or 58% agreed, 18 students or 22% said they did not agree, 13 students or 16% stated strongly agree, and 3 students or 4% said no. agree. It can be concluded that the online learning method currently applied to physical education subjects makes students feel more enthusiastic because of the new learning method. The learning method using Problem Based Learning (PBL) is one method that can make students more active, creative and innovative (Marheni et al., 2020).

**D. Conclusion**

This study concludes that the students of class X SMAN 1 Kejayan are still interested in learning PJOK subjects, even to support their ability to read books or magazines about PJOK. In addition, watching sports matches on TV is also able to increase their knowledge about sports. In conducting online or online learning, students experience difficulties in making movements directly because online learning cannot be done face-to-face or directly practice. To overcome this, it is hoped that teachers will be able to prepare additional material in the form of visual videos that display movements for students

and facilitate the online teaching and learning process.

Based on the description stated above, suggestions that can be given are:

1. The application of online learning must be carried out more programmed to increase students' interest in learning

2. Teachers should make more interesting subject matter so that students sent interest in learning is even greater.

For further research, it is hoped that additional samples will be added to expand the results of the study.

## E. Acknowledgment

## F. Conflict of Interest

In the research that has been done, there is no conflict of interest from any party.

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# Influence Of Shadow And Shuttle Run Exercises On Badminton Sports Footwork Aged 13 - 15 Years At Pb Jaya Raya Jakarta

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## *Abstract*

*This study was conducted to determine the effect of shadow and shuttle run training on badminton footwork aged 13–15 years at PB Jaya Raya Jakarta. This study uses an experimental method that utilizes a two-group pretest-posttest design. The population studied in this study were PB athletes. Jaya Raya Jakarta has a population of 30 people. A purposive sampling method was used in the study, with the following criteria: At least 75% of players were on the attendance list during the last two months of training (actively involved in training); (2) Participants are PB athletes. (3) Age 13–15 years, (4) Male gender. The sampling test in the form of a foot movement agility instrument is a circuit-based leg exercise tester. The t-test was used in the analysis of the data. The results of the research are: (1) There is an effect of shadow training on the sports footwork of children aged 13–15 years in PB. Jaya Raya Jakarta, with t count 3,289 > t table 2.26 and a significance value of 0.009 0.05, resulting in an effect of 9.55% (2) There is an effect of the shuttle run exercise on the badminton footwork of children aged 13–15 years in PB. Jaya Raya Jakarta, with a count of 4.155 > table 2.26 and a significance value of 0.002 0.05, resulting in an effect of 10.69%. (3) The shuttle run method is more effective for badminton footwork aged 13–15 years in PB Jaya Raya Jakarta than the shadow method.*

*Keywords: Shadow Exercises, Shuttle Run Exercises, Footwork, Badminton*

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**How to Cite**: Wibowo, F, P, A., Novita.,Yudhaprawira, A., Denatara, E, T., Candra, J. (2022). *Influence Of Shadow And Shuttle Run Exercises On Badminton Sports Footwork Aged 13 - 15 Years At Pb Jaya Raya Jakarta. Journal Coaching Education Sport*, 3(1), 57-68. https://doi.org/10.31599/jces.v3i1.1056.

## A. Pendahuluan

According to (Poole, 2009) badminton as a recreational and competitive sport is in great demand among young people around the world. According to (Tony, 2007), badminton is a sport that is famous in the world because badminton is very attractive to people of all ages because of its technical level, both men and women can play it both indoors and outdoors, and can be used as entertainment and entertainment. competitive match. Law No. 3 of 2005 concerning the National Sports System states that all aspects of sports are interrelated in a planned, systematic, integrausedte, and sustainable manner as a unit which includes regulation, education, training, management, guidance, development, and supervision to achieve national sports goals. in terms of performance (Presiden Republik Indonesia, 2005).

According to (Somantri & Sujana, 2009), badminton is a sport using rackets that are played by two people when playing individually (singles), and four people or two pairs when playing doubles that are opposite each other. The aim of the game of badminton is for the players to try to prevent their opponent from hitting the ball and throwing it into his playing area. The role of the feet in badminton is to support the body so that it moves quickly in all directions so that the body can be positioned effectively. Foot movement in badminton is usually called footwork.

Footwork according to (Subardjah, 2000) is the movement of the feet by changing the position of the body in such a way and placing the body more simply to get the appropriate movement in its position. An important component of badminton is that players must perform complex movements such as jumping, quick movements to reach the shuttlecock, or twisting the body and the wide steppingaintain balance. These movements are repeated throughout the game to cause fatigue in the players, which results in undirected strokes, reduced coordination, and weaker strength (Subardjah, 2000). Badminton players must be physically fit to maintain the consistency of their game. Methods to improve badminton players' footwork are step exercises, sprint shuttle runs,s and shadow.

Shuttle run is running back and forth as quickly as possible with a track length of 9.14 m and a width of 1.2 m (Iskandar & Tilarso, 1999). The focus of the shuttle run training is on increasing acceleration and deceleration (Iskandar & Tilarso, 1999). An increase in the acceleration-deceleration ratio will allow for a quick change of direction but not a loss of speed

and improve the foot's ability to move quickly and unexpectedly. The elements of movement in the shuttle run, namely running by changing the direction and position of the body, speed, and balance are an integral part of agility training, so this exercise can be used to increase agility ([Iskandar & Tilarso, 1999](#)). Footwork improvement exercises other than the shuttle run, namely shadow.

According to ([Purnama, 2010](#)) shadow is a footwork exercise model in the form of picking up and placing the shuttlecock at the edges of the badminton court, and moving to imitate the shadow movements of the six corners of the field. An attitude in which your right foot is behind you and your hands are pulled back in preparation for hitting the shuttlecock. Tahir Djide in ([Subardjah, 2000](#)) mentions that shadow badminton is one of the exercises in which athletes perform movements as if they were athletes. The player then moves to hit the shuttlecock in any part of the court that the athlete wishes. This kind of exercise must be done in a field, although it is not required. Shadow badminton is associated with the formation of the badminton stride rhythm.

PB. Jaya Raya Jakarta has produced the best athletes for Indonesia. PB. Jaya Raya Jakarta has approximately 150 athletes who are trained by 15 coaches. This club has produced the best athletes such as Markis Kido, Angga Pratama, Hafidz Faisal, Phita Haningtyas Mentari, and many others who can achieve great achievements in the international arena and make the Indonesian nation proud. The problem with PB Jaya Raya Jakarta in recent years is that many male athletes aged 13-15 years have poor footwork, so when the match results are less than optimal. Lack of variety in practice results in errors in footwork so that during the match they lose control of the field. This shortcoming motivated researchers to develop new footwork exercises and to compare the types of activities that improve footwork.

The shuttle run and shadow exercises affect the footwork of badminton athletes. This is supported by the research of Haris Rizki Amalia (2015) in his research entitled "Shadow Badminton and Ladder Training in Improving the Agility of Badminton Athletes." The results of the research show that both exercise models improve footwork, although the shadow training approach is slightly more effective but not much more effective than the ladder training method. Research by Nur Muhamad (2009) in his research entitled "The Difference in the Effectiveness of Zigzag Running and Shuttle Run Training on the Agility of My 10-12-year-old SSB Students." Data analysis showed that the

shuttle run exercise was more successful in increasing the agility of SSB MBK KU students aged 10–12 years compared to the zigzag running exercise and the control group. Based on the above background, the researchers conducted research on training program activities that were effective in improving footwork with the title "The Effect of Shadow and Shuttlerun Exercises on Footwork of Badminton Sports Ages 13-15 Years PB Jaya Raya Jakarta".

## B. Method

This research is a quantitative study to test hypotheses, which are generated by the data obtained in line with the theories and ideas that have been previously determined by using inductive and deductive methodologies. The research design is two groups pre-test-post-test design. The population in this study were PB badminton athletes. Jaya Raya Jakarta has as many as 30 people. The sampling method used purposive sampling, then the sample was determined using the following criteria: (1) a minimum attendance list of 75% (active in training), (2) players including PB badminton athletes. Jaya Raya Jakarta, (3) aged in the range of 13 to 15 years, (4) male gender, (5) minimum training duration for 6 months. According to the criteria above, only 20 male athletes are suitable. All samples obtained from

purposive sampling were subjected to a pretest.

All samples were pre-tested to determine a treatment team, pre-test scores were ranked, then paired using the A-B-B-A pattern, divided into 2 teams, each team consisting of 10 athletes. The sampling technique used in this study was ordinal pairing which was used to divide one team into 2. The sample was divided into 2 groups: team A received shadow training, while team B received shuttle run training.

Utilize the Foot Exercise Test Series to collect data for pre-or post-test. Data analysis in this study includes instrument validity and reliability tests, normality and homogeneity precursor tests, and hypothesis testing using a -test with the help of SPSS 16 software, namely by comparing the mean values between the pretest and post-test.

## C. Result and Discussion
### Result

The subjects or participants used in this study were male badminton athletes aged between 13 to 15 years at PB Jaya Raya Jakarta as many as 20 male athletes. Each participant starts by running forward and over the cone, then back, then running zigzag past the cone placed, then back, then running forward and over the cone again, then back, then running forward and over

the cone again towards the finish line. Teams were divided into two, namely team A and team B. Team A was given treatment using the shadow method, while team B was given treatment using the shuttle run method.

Validity and reliability tests were carried out before data analysis. Validity refers to the capacity of an assessment tool or instrument to accurately measure what is to be assessed. The validity of the tests based on thought and experience is classified into two categories: logical validity and empirical validity.

In this study, logical validity was used to determine the validity of the test. While

the reliability test is used to determine the dependence of the instrument. The reliability test used is a rest test from the pretest value data with the help of SPSS 16 software. Based on the output, the correlation coefficient value is 0.913. So the reliability of this instrument is also stated to be very high because 0.913 is between 0.80-1.00.

The groups were divided into two, namely team A and team B. Team A was given treatment using the shadow method, while Team B was given treatment using the shuttle run method. The results of the frequency distribution for team A can be seen in the following table.

**Table 1. Frequency distribution of team A**

| | *Pretest* | | | | | *Posttest* | | | |
|---|---|---|---|---|---|---|---|---|---|
| **No** | **Grade** | **Category** | ***f*** | **%** | **No** | **Grade** | **Category** | **F** | **%** |
| 1 | 18-19.19 | Very well | 3 | 30% | 1 | 17.25-17.88 | Very well | 4 | 40% |
| 2 | 19.2-20.39 | Well | 3 | 30% | 2 | 17.89-18.52 | Well | 4 | 40% |
| 3 | 20.4-21.59 | Currently | 3 | 30% | 3 | 18.53-19.16 | Currently | 1 | 10% |
| 4 | 21.6-22.79 | Not enough | 0 | 0% | 4 | 19.17-19.8 | Not enough | 0 | 0% |
| 5 | 22.8-23.99 | Less once | 1 | 10% | 5 | 19.81-20.44 | Less once | 1 | 10% |
| | **Total** | | 10 | 100% | | **Total** | | 10 | 100% |

Source: SPSS, 2021

Referring to table 1, it can be seen that there is a difference in the number of students who have increased scores on the post-test compared to the pretest scores. This occurs in the range of values of 18-19.19 and the range of values from 19.2-

20.39, an increase from 30% to 40%. Meanwhile, the results of the frequency distribution for team B can be seen in the table below.

**Table 2. Frequency distribution of team B**

| | *Pretest* | | | | | *Posttest* | | | |
|---|---|---|---|---|---|---|---|---|---|
| **No** | **Grade** | **Category** | ***f*** | **%** | **No** | **Grade** | **Category** | ***f*** | **%** |

| 1 | 18.16-19.19 | Very well | 4 | 40% | 1 | 17-17.48 | Very well | 4 | 40% |
| 2 | 19.2-20.23 | Well | 2 | 20% | 2 | 17.49-17.97 | Well | 2 | 20% |
| 3 | 20.24-21.27 | Currently | 2 | 20% | 3 | 17.98-18.46 | Currently | 2 | 20% |
| 4 | 21.28-22.31 | Not enough | 1 | 10% | 4 | 18.47-18.95 | Not enough | 1 | 10% |
| 5 | 22.32-23.35 | Less once | 1 | 10% | 5 | 18.96-19.44 | Less once | 1 | 10% |
| | **Total** | | 10 | 100% | | **Total** | | 10 | 100% |

Source: SPSS 2021

Referring to table 2, there is no difference in the number of students who experienced an increase in the score on the post-test compared to the pretest score. The results of the pretest and posttest scores have a value that is stagnant or the same.

**Data Analysis Results**

Data analysis begins with testing the normality of the data. This test is used to determine whether the distribution of data in a data set or variables is distributed regularly or not. This calculation uses the Kolmogorov-Smirnov Z formula with data processing using SPSS 16 software, as can be seen in the following table.

**Table 3. Normality Test**

| Group | *P* | Sig. | Description |
|---|---|---|---|
| Pretest team A | 0,989 | 0,05 | Normal |
| Posttest team A | 0,914 | 0,05 | Normal |
| Pretest team B | 0,960 | 0,05 | Normal |
| Posttest team B | 0,953 | 0,05 | Normal |

Source: SPSS, 2021

The data has a normal distribution if p has a significance value of 0.05. Referring to the results from the table, it is known that the p values in the Pretest Team A, Posttest Team A, Pretest Team B, and Posttest Team B categories all have a value > 0.05, meaning that the data has met the normality test, which is normally distributed. The homogeneity test was then carried out. The homogeneity test is used to determine the similarity of the sample, namely whether the sample variance is uniform or not. The homogeneity rule is if the p-value is > 0.05, the result is that the data is said to be homogeneous. The results of the homogeneity test of the pretest and posttest of this study can be seen in Table 4.

**Table 4. Homogeneity Test**

| Group | df1 | df2 | Sig. | Description |
|---|---|---|---|---|
| *Pretest* | 1 | 18 | .993 | Homogen |
| *Posttest* | 1 | 18 | .740 | Homogen |

Source: SPSS, 2021

Referring to the table, it is known that the results of the pretest and posttest have a

significance value > 0.05, meaning that the data has met the homogeneity test or the data is homogeneous. Furthermore, the research hypotheses were tested using paired t-tests and independent t-tests with the help of SPSS 16. The results of hypothesis testing are presented as follows.

**Comparison of Pretest and Posttest team A**

**Table 5. Results of t-test Pre-Test and Post-Test team A**

| Group | Average | t-test for Equality of means | | | | |
|---|---|---|---|---|---|---|
| | | t. ht | t. tb | Sig | Difference | % |
| *Pretest* | 20,0520 | 3,289 | 2,26 | 0,009 | 1,915 | 9,55% |
| *Posttest* | 18,1370 | | | | | |

Source: SPSS, 2021

The results of the t-test show that the count is 3.289 and ttable is 2.26 (df 9) and the significance value of p is 0.009. Because tcount 3,289 > ttable 2,26 and the significance value is 0,009 < 0,05 so that the results show a significant difference. As a result, the alternative hypothesis (Ha) is accepted, meaning that shadow training has a significant effect on badminton footwork at the age of 13-15 years at PB Jaya Raya Jakarta. From the pre-test data has a mean of 20.0520 then at the post-test it reached 18.1370. The magnitude of the effect of the shadow practice can be seen from the average difference value, which is 1.915

The initial hypothesis reads "there is an effect of shadow training on badminton footwork at the age of 13-15 years in PB Jaya Raya Jakarta", referring to the results of the pre-test and post-test. The conclusion of this study is significant if the value of tcount> ttable and the value of sig <0.05 (Sig <0.05), as the results of the analysis, can be seen in table 5.

with a percentage difference of 9.55%.

**Comparison of Pretest and Posttest team B**

The second hypothesis reads "there is an effect of shuttle run training on badminton footwork aged 13-15 years at PB Jaya Raya Jakarta", referring to the results of the pre-test and post-test. The conclusion of this study is significant if the value of tcount> ttable and the value of sig <0.05 (Sig <0.05), as the results of the analysis, can be seen in table 6.

**Table 6. Results of t-test Pre-Test and Post-Test team B**

| Group | Average | t-test for Equality of means | | | | |
|---|---|---|---|---|---|---|
| | | t ht | t tb | Sig | Difference | % |
| *Pretest* | 20,0160 | 4,155 | 2,26 | 0,002 | 2,140 | 10,69% |

| *Posttest* | 17,8760 |
|------------|---------|

Source: SPSS, 2021

Based on the results of the t-test, it is known that the tcount is 4.155 the and ttable is 2.26 (df 9) with a p significance value of 0.002. because tcount 4.155 > ttable 2.26 and a significance value of 0.002 <0.05 so this result shows a significant difference. As a result, the alternative hypothesis (Ha) is accepted, which means that the shuttle run exercise has a significant effect on badminton footwork aged 13-15 years at PB Jaya Raya Jakarta. The pre-test data has a mean of 20.0160 then at the post-test it reached 17.8760. The magnitude of the effect of the shadow practice can be seen from the difference between the mean value, which is 2.140 with a percentage difference of 10.69%.

**Comparison of posttest team A and team B**

This Independent Sample t-Test was used to test the third hypothesis with the sound "The shuttle run training method is more effective in improving badminton footwork at the age of 13-15 years in PB Jaya Raya Jakarta than the shadow training method" which can be known through a post-test between teams A and B. The results are presented in Table 7.

**Table 7. Results of t-test of team A and team B**

| Group | Average | % | *t-test for Equality of means* | | | |
|-------|---------|---|-------|-------|-------|-------|
| | | | t ht | t tb | Sig. | Diff |
| A | 18,1379 | 9,55% | 0,742 | 2,10 | 0,468 | 0,2619 |
| B | 17,8760 | 10,69% | | | | |

Source: SPSS, 2021

Referring to the results of the t-test, it can be seen that the tcount is 0.742 the and ttable is 2.10 (df 18) with a p significance value of 0.448. Because the tcount is 0.742 < ttable 2.10 and the significance value is 0.468 > 0.05, this result shows that there is no significant difference between post-test team A and post-test team B.

Based on the results of this analysis, it shows that the increase in the percentage of Team B is better than A and the average post-test of Team B is 17.8760, and Team A is 18.1379 with an average difference of 0.2619. With this, the hypothesis reads "The shuttle run training method is more effective in improving the footwork of badminton at the age of 13-15 years in PB Jaya Raya Jakarta than the shadow training method" is accepted.

## Discussion

## Improved Team A's Footwork Movement

Based on the analysis, it was shown that the shuttle run exercise had a significant effect on increasing badminton footwork agility at the age of 13-15 years in PB. Jaya Jakarta, with t count 3.289 > t table 2.26 and a significance value of 0.009 <0.05 with an effect of 9.55%. According to Tahir Djide in (Subardjah, 2000) "shadow badminton is one of the exercises in which the athlete performs movements as if the athlete is moving to hit the shuttlecock anywhere on the court desired by the athlete." This exercise must be done on a feather court. badminton, but this is not required in the same way as setting the rhythm of steps in badminton, "float like a butterfly, sting like a bee" is a phrase often uttered by former heavyweight boxing champion Muhamad Ali. This is the most accurate explanation of the movements and techniques of hitting badminton. The shadow method is a way of footwork exercise using a racket without a shuttlecock/shadow movement with step movements to the corners of the badminton court (Poole, 2009).

## Improved Movement Team B . Footwork

Based on the analysis, it was shown that the shuttle run exercise had a significant effect on increasing the footwork agility of badminton at the age of 13-15 years in PB. Jaya Jakarta, where t count 4.155 > t table 2.26, and the significance value is 0.002 < 0.05, with a percentage increase of 10.69%. A shuttle run is a training approach that involves rapid changes in body movement from a straight route while running back and forth (Marjana et al., 2014).

According to (Remmy, 1992) The shuttle run exercise, or other names for it, is one of the ways to improve a person's agility or agility. Shuttle running practice involves running back and forth at the fastest speed possible from one place to another while covering a certain distance.

## Difference Between Team A and Team B

Based on the results of the t-test, shows that there is no difference between the two types of exercise, where the t count is 0.742 < t table = 2.10 and sig. 0.468 > 0.05, means that there is no difference between post-test teams A and B according to the results of the analysis showing that the increase in the percentage of team B is better than A, and the mean post-test team B is 17.8760, and Team A is 18.1379, with the difference in the mean is 0.2619. With this, the hypothesis which reads "The shuttle run method is more effective for improving

Footwork in badminton at 13-15 years of age than shadow training", is accepted.

It is better for team B, namely the experiment with the shuttle run and shadow training methods, compared to team A, namely the shuttle run training and the shadow reality method that occurs during learning because athletes feel bored because of the exercise being carried out. too long compared to team B. Due to this saturation, players are less committed to the sport, producing fewer results compared to team B. The shuttle run exercise with the shadow technique continues to be done with the same amount, which causes the athlete to be more bored while doing the exercise. In addition, athletes are less motivated when doing activities.

## D.  Conclusion

The study concludes that there is an effect of shadow training on badminton footwork aged 13-15 years at PB Jaya Raya Jakarta, with tcount 3,289 > ttable 2.26, and the significance value is 0.009 <0.05 with an effect of 9.55%. There is an effect of shuttle run training on badminton footwork aged 13-15 years PB Jaya Raya Jakarta, with tcount 4.155 > ttable 2.26 and the significance value is 0.002 <0.05 with an effect of 10.69%. The shuttle run method is more effective for badminton footwork aged 13-15 years at PB Jaya

Raya Jakarta than the shadow method with an average post-test difference of 0.2619.

The research suggests that it is hoped that PB Jaya Raya Jakarta badminton players, especially those aged 13-15 years, continue to improve their training to improve their badminton playing skills and achieve peak performance. To the badminton coaches of PB Jaya Raya Jakarta to always provide effective and efficient training for their players, especially those that focus on improving footwork.

success, and my beloved Mrs. Wulan Prihatin who never tires of giving positive input and the best choices for my life and success in the future.

6) Teresia Wenning Dwi Rahayu, Dita Dwi Ariani, Anastasia Mega Greta Putri, and Patricia Sari Perdana who always pray and support me in any condition.

## E. Conflict of Interest

In the research that has been done, there is no conflict of interest from any party.

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# North Sumatra KONI Communication Strategy at the XX Papua National Sports Week (PON) Athletes Pelatda

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## Abstract

*used by the Indonesian National Sports Committee of North Sumatra Province in carrying out the regional training center for athletes at the XXI National Sports Week in Papua in 2021. The research method used was a qualitative descriptive method. 6 People consist of 4 components in Pelatda activities, namely the Head of Pelatda, Wasping, Trainers, and Athletes, using a purposive sampling technique. Data collection techniques using interviews, observation, and documentation techniques. Data analysis techniques were carried out through data reduction, data presentation, and concluding. The results of this study show that the communication strategy used by KONI North Sumatra is very good, so it has a very important role in creating outstanding athletes in PON activities. The communication strategy used is to communicate directly to create closeness and establish good communication between all components of Pelatda.*

*Keywords: Communication Strategy, Organization Communication, KONI, PON XX*

## A. Pendahuluan

KONI North Sumatra has a target to improve Indonesian sports achievements to assist the government in developing community achievements in the region. Coaching, will improve human resources and build a healthy and sportsmanlike character to build positive thinking to athletes who excel. (C. A. A. Sunarno, 2017).

As stated in Law Number 3 of 2005 concerning the National Sports System, achievement sports are sports that foster and develop athletes in a planned, tiered, and sustainable manner through competitions to achieve achievements with the support of sports science and technology (Law No. 3 of 2005). KONI has a work program that is held every 4 years. The work program is the National Sports Week (PON) which is a national activity that competes for achievement sports whose participants are the best athletes from the provinces in Indonesia, thus sports achievements must be carried out and managed professionally to obtain optimal performance in the branch-Sports. Based on 2019 North Sumatra KONI data, PON implementation activities have been carried out 19 times. PON I was held in Solo (Surakarta) in 1948. Meanwhile, the upcoming PON is PON XX in 2021 in

Papua. There are 37 (thirty-seven) sports that are competed in PON Papua (Utara, 2021)

Based on KONI data, North Sumatra was ranked in the top 4 (four), namely in PON III in 1953 in Medan and PON VIII in 1973 in Jakarta. After that, North Sumatra was never again in the order of 4 (four). Efforts to enter the big four in PON are the target of the North Sumatra sports community. PON XIX West Java in 2016, North Sumatra was ranked 9 (nine) obtained from individual sports and self-defense (A Sunarno et al., 2017). The wushu sport is still the prima donna of the North Sumatra contingent at the upcoming XX Papua PON. Currently, the condition of wushu athletes is very promising to be able to donate gold, silver, and bronze medals (Agung Sunarno, 2021).

This fact shows that the development of sports achievements in North Sumatra has not been maximized. The hope at the XX PON 2021 in Papua is that North Sumatra should again excel nationally and be in the top 7 (seven) at least. This condition requires hard work for sports stakeholders, both the North Sumatra Regional Government, provincial administrators of sports, coaches, athletes, and especially North Sumatra KONI as the main mover in fostering sports achievements in North

Sumatra.

KONI North Sumatra as the coordinator of the implementation of sports achievements in North Sumatra must make real efforts in preparing its best athletes to take part in the XX PON Activities in Papua, namely Regional Training Center Activities (Pelatda). The North Sumatra KONI Pelatda Program in 2021 is a work program formed by North Sumatra KONI to make North Sumatra Province in the top 7 positions at the XX PON in Papua. The Pelatda program has main components: athletes, coaches, and supervisory & companion officers (Washing). The three components must be coherent and understand each other's duties, functions, and roles.

North Sumatra sent 184 athletes from 28 sports. For the implementation of the Pelatda towards PON XX 2021 Papua to run in a planned, directed, and maximum manner, the North Sumatra KONI sets out the stages that must be carried out in fostering athletes. The stages of coaching are packaged in the form of a training program for PON XX 2021 Papua. All sports must follow the training program that has been set by the North Sumatra KONI. Responding to the intense competition at PON XX Papua in 2021, the North Sumatra KONI conducted a series of athlete coaching through structured and

measurable exercises. A structured and measurable exercise to prepare strong and potential athletes for national-level championships who can donate medals at the XX PON in Papua 2021. The North Sumatra KONI does a lot of strategies, planning, and setting up an agenda of activities that will be carried out to achieve these goals. With the existence of an activity, planning, and strategy, communication is the main component to carry out all activities that will be carried out by each individual. For an organization, strategy has a very important function, namely as a guide in implementing a program, activity, or policy.

According to (Effendy & Uchjana, 2011), communication strategy is needed as a guide for communication planning (communication planning) and communication management (communication management) to achieve a goal. The communication strategy must be able to show how tactical operations must be carried out in the sense that the approach (approach) can be different at any time depending on the situation and conditions. KONI North Sumatra must carry out an effective communication strategy and work well together with coaches, athletes, supervisory officers, and companions (Wasping), which are the main components in the XX 2021 PON Pelatda activities in

Papua, because the communication strategy is closely related and related to the objectives to be pursued. The consequences of the problem must be taken into account, then plan how to achieve the consequences by the expected results. For achieving the desired goals, strategy selection is a crucial step, requiring careful communication planning. Because, if you choose the wrong strategy, it will be a fatal mistake and cost time, energy, and materials.

Based on the context of the problems described above, the focus of the problem in this research is: How is the communication strategy of the Indonesian National Sports Committee (KONI) North Sumatra carrying out the Regional Training Center (Pelatda) of Athletes of the XX National Sports Week (PON) in Papua in 2021?.

Based on the research context and research focus above, the research objectives are (1). To find out the communication strategy of the Indonesian National Sports Committee (KONI) North Sumatra with the Regional Training Center (Pelatda) and athletes of the XX National Sports Week (PON) in Papua in 2021. (2). To find out how the implementation of organizational communication that occurred at KONI North Sumatra in carrying out the Regional Training Center (Pelatda) of Athletes of the XX National Sports Week (PON) in Papua in 2021. (3).

To find out the obstacles to the communication process of the North Sumatran KONI organization in carrying out the Regional Training Center (Pelatda) of Athletes of the National Sports Week (PON) to XX in Papua in 2021.

Strategy is a word that comes from the Greek words "Stratos" and "again". Stratos means the army and "again" means leader. When united to lead the army. Then came the word "strategos" which means leading the army at the top level, so the definition of strategy is a military concept that is defined as the best designed to win the war (Hafied, 2014).

A group is a group of people who have a common goal, who interact with each other to achieve a common goal (the existence of interdependence), know each other, and see each other as part of the group, although each member may have a different role. This group, for example, is a family, discussion group, problem-solving group, or a committee in the middle of a meeting to make a decision. Feedback from one participant in group communication can still be identified and responded to directly by other participants (Karyaningsih & Dewi, 2018).

(Colquitt, 2014) explains that communication in organizations has four functions, namely control, motivation, emotional expression, and information. Communication acts to control member

behavior in several ways. Organizations have the authority and guidelines that must be obeyed. A worker is required to communicate regarding worker complaints to his superiors, follow job descriptions, or comply with organizational policies. These are components of the control function ([Bacheta, 2019](#)). Communication also requires a motivational factor with workers about what they have to do, how hard they are doing the task, and how to improve if it is not adjusted to what is expected. The existence of specific goals, feedback, and the development of the work, after workers do their jobs well, giving rewards for the work that has been done, will result in satisfaction in the organization. Therefore, communication provides the expression of emotional feelings and the fulfillment of social needs. Communication also facilitates decision-making. Communication also provides the information needs of individuals and groups to make things work well.

Everyone who does a job must clearly understand motivation related to satisfaction and produce an award. Motivation is a factor capable of increasing the satisfaction of a goal. The role of motivation is to be able to act in certain ways. Motivation shows the human desire to do something to fulfill the expectations that exist within him. Motivation will

determine the direction that will be taken to achieve the goals that have been determined (Stephen P. Robbins, 2001: 166).

## B. Method

The research method in this study uses descriptive qualitative methods, namely using research theory that aims to interpret phenomena. The focus of this research is to analyze the Regional Training Center (Pelatda). The research subjects in this study were the head of Pelatda (KONI management), Wasping, coaches, and athletes. This research was conducted in two locations, the first at the North Sumatra KONI office, Jalan William Iskandar Pasar V No. 9 Medan Estate, and the second location in North Sumatra Sports Center, Jln. Pancing No. 9 Medan Estate Village, which is the place for the implementation of the Pelatda activities. The location has many facilities such as a field, gorge, swimming pool, dining room, and athlete's house. Data collection techniques use interview techniques, observation, and documentation. This research uses the purposive sampling technique. There are six informants in this study. Data analysis techniques were carried out through data reduction, data presentation, and concluding.

## C. Result and Discussion

### Result

### Communication Strategy

The communication strategy carried out by KONI North Sumatra in carrying out Pelatda activities is to communicate directly by holding meetings and gathering all sports in North Sumatra Province to discuss Pelatda activities. Before the Pelatda activities are carried out, the athletes must pass the PON Pre-Qualification (Pre-PON) round. There are 2 (two) categories of Pre-PON XX, namely the 2021 Pre-PON XX National Championship and PORWIL throughout Sumatra in Bengkulu. From the results of the PON Pre-Qualification achievement, KONI North Sumatra registered athletes who excel to take part in the 2021 PON XX in Papua.

In North Sumatra, KONI plans to publish two periodicals on Pelatda activities. The first period is called the "running Pelatda." In North Sumatra, KONI assigned all sports to conduct training in each provincial branch. KONI North Sumatra also makes regular evaluations to discuss developments and obstacles that occur during the Pelatda activities. However, during the Pelatda process, the Corona Virus pandemic attacked the country of Indonesia. Therefore, the North Sumatra KONI took action on the sports branch to return the athletes to their respective homes, but the Pelatda activities were still carried out using the zoom media as a remote communication control.

The second period is the full Pelatda where this activity is fully controlled by the North Sumatra KONI which aims to combine all athletes who take part in PON so that they get to know each other and the training process is combined into one. The communication strategy carried out by KONI North Sumatra was the presence of Wasping (Supervisor and Companion) who served as an extension of KONI North Sumatra with coaches and athletes. The task of a Wasping is to monitor coaches and athletes. Supervise activities directly and make reports on the training process, and make a report on the evaluation of the training program to the Head of the Pelatda. Regarding the obstacles that occur in the field that are felt by coaches and athletes, the task of a Wasping is to convey this to the Head of Pelatda.

The next communication strategy is that KONI North Sumatra has sports intelligence that can map information from the media. To determine the ability of athletes from outside the province to compete with athletes from North Sumatra Province This can map out the competitor's

position on the outside according to the existing portion of the North Sumatran athletes. With this information, KONI North Sumatra held a try-out activity, which was to determine the quality of athletes in North Sumatra Province and determine the quality of provinces outside North Sumatra.

In the process of communication strategy, there are several components in it, as stated by, stating that the best way to explain communication activities is to answer the question "Who Says What Channel To Whom With What Effect?" To get the results of a good communication strategy, everything must be related to the components that are the answer to the question in Lasswell's formula, namely who? (Who is the communicator?) Says what? (the message it states?) in which channel? (What medium does he use?) to whom? (Who is the communicant?) with what effect? (What effect is expected?).

1. Communicator

The communicator in this study is the Indonesian National Sports Committee (KONI) North Sumatra. Based on the data obtained during Pelatda activities, communicators must carry out their duties according to predetermined conditions. As stated by the first informant, KONI North Sumatra, as a communicator, makes provisions and preparations as initial

activities in communicating so that during the implementation of Pelatda activities the messages conveyed are as expected and the effects are easily accepted by Wasping, coaches, and athletes.

2. Order

In the communication strategy, the information conveyed will determine the effectiveness. In this study, the message given by KONI North Sumatra is that every component in Pelatda activities must carry out the tasks that have been set, including all sports that must-do exercises. At least 10 times a week, namely in the morning and evening, athletes must do general exercises, special exercises, and try out (trial), which is guided by a trainer and monitored by a wasp.

3. Media

The media used in this study is based on the needs of each sport. For example, futsal is an exercise simulation activity. The media used in futsal sport are video cameras and loudspeakers, and these are used as material for evaluating the sport.

4. Communicate

In this study, the communicants were washing, coaches, and athletes. The long training process will be monitored by Wasping as an extension of the North Sumatra KONI. The results of monitoring the training activities will be given to the Head of the Pelatda in the form of a report

which will be evaluated every month based on the report to the Head of the Pelatda, providing recommendations or suggestions based on the results of the evaluation to the Head of the Pelatda.

5. Effect

The effect is the end of the communication process, there is a change in attitudes and behavior toward the communicant by what has been planned, then the communication can be said to be successful.

A communicator also uses the A-A Procedure approach, or Attention to Action Procedure, commonly abbreviated as AIDDA. The approach taken by the North Sumatra KONI is attention, namely attention to all Pelatda components regarding the needs needed during Pelatda activities. It aims to generate attention, which is considered the beginning of successful communication. Then the North Sumatra KONI, together with sports and coaches, fosters interest in athletes to determine which athletes will take part in the matches that will be held. With the interest of the communicant, it will cause desire, namely the desire to compete. (Laksana et al., 2017) stated that the desire of athletes has not been considered capable of carrying out their duties properly. Therefore, it must be continued with a decision, namely the decision to communicate to take action or activities as expected by the communicator.

## Organizational Communication

Organizational communication that occurs in KONI North Sumatra is a form of vertical communication, which is a form of communication that occurs from top to bottom and vice versa. This means that the communication conveyed by the leader to subordinates and from subordinates to leaders is reciprocal. The head of the Pelatda is assisted by supervisors and assistants, or washing, coaches, and athletes, who, of course, have their respective duties and functions.

As a Head of the Pelatda, his duties and functions are to carry out the activities of the Pelatda PON XX 2021 Papua Program by the work program that has been determined, to compile and determine proposals for sports, coaches, athletes, and the Washing Team to enter the Pelatda PON XX 2021 Papua Program, and to draw up a program activity plan. The Pelatda PON XX 2021 Papua includes, among others, the Running Pelatda, the Full Pelatda, try-ins, tryouts, training camps, training abroad, and bringing in coaches from outside. In essence, the task of the Head of Pelatda is to ensure that all components of Wasping, coaches, and athletes, can run well. As a washing, he has the task of assisting the Head of Pelatda in the fields of monitoring and evaluation, as well as mentoring training programs run by athletes and coaches. After monitoring, Wasping will

make an evaluation report regularly. The report contains the performance of the coach and the training process that the athlete undergoes. The monthly report is then given to the head of the Pelatda.

As a coach, you have the task of training athletes in the field, creating good communication, understanding the character of the athletes being fostered, knowing the development of athletes' physical abilities and skills, and understanding the strengths and weaknesses of athletes. so that in the coaching process, the coach can provide treatment according to the athlete's condition, and plan and carry out trials and matches by the training program that has been prepared. A coach must be able to undergo the training process properly and decisively to produce achievements according to the objectives of KONI North Sumatra. As an athlete, you also have the task of signing the Pelatda athlete contract, complying with and carrying out all the provisions set by the Chief Executive, participating in all training programs and training provided by the trainer, taking physical and health condition tests carried out by the North Sumatra KONI, and being able to practice with the provisions made by the Head of Pelatda.

The communication process that exists between the Head of Pelatda and Wasping in a meeting situation usually uses formal communication. However, between the head of Pelatda and Wasping, the coach and Wasping, and the coach and the athletes in the field, the communication that occurs is often non-formal.

**Barriers to KONI North Sumatra in Implementing the Regional Training Center (Pelatda) of Athletes of the XXth National Sports Week (PON) in Papua in 2021**

The change of location was the obstacle experienced by the North Sumatra KONI in carrying out the Regional Training Center (Pelatda) activities. Initially, the Pelatda activities were carried out in the Hajj Dormitory. However, due to the pandemic situation, the government made the Hajj Dormitory a COVID-19 hospital. Therefore, all activities related to Pelatda were moved and temporarily stopped because the location for the transfer had not been found. The existence of a transition period made the athletes temporarily laid off for one week, and then the North Sumatra KONI was assisted by the provincial government, where the Pelatda moved to the Athlete House.

The impact of moving athletes is the lack of facilities and infrastructure needed by athletes for training. In the sport of wrestling, the training tools used by athletes are not yet qualified, such as bags,

ropes for climbing exercises, and large tires for weight training. During a pandemic, training activities are also different from the previous year. In a single sport, many athletes train with the opposite sex. Due to the pandemic situation, too much physical contact is not allowed. The sport of wrestling at PON in Papua, North Sumatra Province, participated in 2 matches based on body weight, with one male and one female. Inevitably, male and female wrestling athletes practiced together and were met. The situation was not suitable. Wrestling was a type of sport that fell. fall, hug. The training process carried out between men and women in a pandemic situation is an unethical condition and is considered by opponents to be unbalanced.

There were no out-of-town try-out activities, which in the previous year were routinely carried out. Barriers to the communication process that occurs between the Pelatda components can be said to have no significant obstacles because Pelatda activities are government activities that are well thought out.

## D.  Conclusion

The communication strategy carried out by KONI North Sumatra in carrying out Pelatda activities is to communicate directly by holding meetings and gathering all sports in North Sumatra Province.

The implementation of the organizational communication process that occurs in KONI North Sumatra is vertical communication, which is a form of communication that occurs from top to bottom and vice versa. This means that the communication conveyed by the leader to subordinates and from subordinates to leaders is reciprocal. The head of the Pelatda is assisted by supervisors and assistants called Wasping, coaches, and athletes, who, of course, have the same goal, namely to achieve achievements in PON activities in Papua 2021.

There were no obstacles to the organizational communication process in this study, but there were obstacles to the Pelatda activity process, namely the change of location, lack of adequate training equipment, unusual training processes carried out in the previous year, and the absence of trial activities outside the area due to the pandemic situation.

## E.  Acknowledgment

Thank you to all the participants who have cooperated well in carrying out this research.

## E.  Conflict of Interest

In the research that has been done, there is no conflict of interest from any party.

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# Correlation Between Kinesthetic Perception and Confidence Against Soccer Penalty Kick Results

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## Abstract

This study aims to determine the correlation between kinesthetic perception and self-confidence in the results of soccer penalty kicks by the players of the Medan State University Student Soccer Team. And to find out the joint correlation between kinesthetic perception and self-confidence on the results of the penalty kicks of the Medan State University Student Soccer Team players. The sample consisted of 30 players from the Medan State University Student Soccer Team who were selected by simple random sampling. The results of the research carried out are: In the first hypothesis there is a significant correlation between kinesthetic perception and the results of a soccer player's penalty kick at the State University of Medan obtained a t-count of 26.39 which is greater than the t-table of 1.70. The second hypothesis is that there is a significant correlation between self-confidence and achievement in the results of the soccer penalty kicks of the Medan State University team, which has a t-count of 6.59 and is greater than a t-table of 1.70. In the third hypothesis, there is a significant correlation between kinesthetic perception and self-confidence in the results of the Medan State University soccer penalty kick with a t-count of 160 which is greater than a t-table of 3.33. So it can be concluded that there is a significant relationship between variables and jointly on the penalty kick ability of the students of the Medan State University football team.

**Kata Kunci:** Football, Penalties, Kinesthetic Perception, Confidence

## A. Introduction

Football is one of the most famous and popular sports in all parts of the world. This is evidenced by the great enthusiasm of the community, both from children and parents, who are involved in this soccer game. It stated that football is one of the sports favored by the people of Indonesia, and this sport has become popular in society from the bottom to the top. As for those who are not directly involved in the game of football, they often do not miss watching it either live or through the television screen, especially when the World Cup finals are broadcast by one of the television stations. They are even willing to not sleep at night just to watch their favorite teams. The above shows that the sport of soccer is very popular with people from all walks of life in the world.

A person can play the sport of soccer if they have mastered basic technical skills and good physical abilities. In a soccer match, the players will complain about the strength of their respective teams, and this will be carried out properly. Of course, this will be determined by the technical and physical skills possessed by each individual on the team. The quality of individual abilities permanently affects the outcome of matches at various levels (Owoeye et al., 2014). Besides the technical and physical skills that determine a match, psychological

factors also greatly influence the players and the teams they are defending. Because if a player already has good technical and physical skills and is not supported by good psychological factors, it will have a big impact on his appearance online match field and this will hurt his teammates. Football is a team sport that relies on technique, tactics, and mentality to get maximum performance (Mardhika, 2017), (Kastrena, 2019). Football consists of 4 components, namely technique, tactics, physical and mental (Danurwindo et al., 2017).

In football matches, there is often physical contact between players on one team and the other team. This happens solely to maintain the prestige of the match itself and to win the match. The physical contact that occurs often results in violations between players, which result in free kicks for the injured team. This free kick can often create goals, so it will be detrimental to his team. Because this penalty kick, usually creates various forms of shots on goal, either directly or indirectly.

The violations that occur in the game of football will be able to produce several types of punishments given by the referee who leads the match. This form of punishment is usually given by direct kicks and indirect kicks, with the meaning that if a direct kick is given to a team that is

injured, then one of the injured team's players can kick the ball towards the goal, and if the ball goes in without being touched by another player, then the goal is considered valid. And vice versa, if the penalty given is in the form of an indirect kick, to be able to score a goal against the penalty given, the ball must touch at least twice of the players who are on the field, then the goal created is considered valid. If the offense involves contact, it is punished with a direct free kick (Brackenridge et al., 2020). Violations that occur outside the penalty box will result in a free-kick and a penalty kick will occur if the opposing player commits a violation in his penalty box (Pemula, 2017).

To determine whether a player has made a mistake or not is the absolute right of a referee. A referee has the policy to reprimand a player who always makes a foul. To warn a player who always makes a foul, the referee can give a warning by awarding a yellow card, indicating that the player is careful not to make the same foul. If a player who has been given a yellow card still does not heed the warning given by the referee by making the same violation, then the referee can expel the player by giving a red card.

The most dangerous form of violation is if the offense is committed by a defender within the team's 16-meter box area because the offense committed in this area will not only result in a free-kick and a card, but it will also result in a direct free-kick from the penalty point. A penalty kick is a kick that is obtained when a player from one team violates another team player in the goal area (Achmad, 2018). If a kick from this penalty point is awarded to an opposing player, it is a sign that a goal will be scored against his team. Because of this direct free kick from the penalty spot that everyone can trust with 99.9% going to a goal. If one penalty kick does not result in a goal, of course, other factors have influenced the kicker.

We can be sure that direct free kicks taken from the penalty spot will always result in goals. (Kristina, 2018) states that the biggest chance of a soccer team is when the team gets a penalty kick. However, not a few world-class players have experienced failure in taking free kicks from this penalty point.

Failure to take a penalty kick also often occurs in student soccer players at the State University of Medan, when the team gets the opportunity to kick from the penalty spot and cannot be used properly by the kicker.

The Unimed student soccer team is one of the sports fostered by Medan State University, which is one of the leading sports. The members of the Unimed student

soccer team are selected based on the selection of all active Unimed students. The Unimed student football team won 1st place in the competition between U21 students throughout North Sumatra, won the match between U21 students who won the North Sumatra-Aceh region, and at the same time qualified for the 2018 Kemenpora Cup Finals. They won 3rd place in the competition between U21 students in the Kemenpora Cup in Bandung. The failure of the Unimed U21 soccer team to advance to the final round of the 2018 competition was due to losing to the College Tinngi team from Siliwangi city via penalty kicks. In the penalty shootout in the semi-finals, several Unimed U21 players failed to execute a penalty kick against the opponent's goal. He thus eliminates hopes of advancing to the final round and having to settle for 3rd place that year. However, for the next Kemenpora Cup U21 student competition in 2019, the Unimed U21 student football team could not take part because they did not qualify from the North Sumatra region.

One of the failures of the Unimed U21 student football team in 2019 was not being able to take advantage of the penalty kick awarded by the referee. Failure to take a penalty kick when observed on the field is the result of a lack of confidence or confidence in the kicker. Besides that, it has not been able to direct the ball to areas that are difficult to reach by the goalkeeper.

This may be due to the child's lack of flying hours in penalty kicking practice so that the kicker cannot feel the movement of kicking the penalty itself.

For people to be able to take a free-kick from the penalty spot, high technical quality is needed for them to do it. Mastery of penalty kick techniques cannot be separated from the ability of players to master basic shooting techniques. The mastery of shooting skills possessed by players plays a very large role in the success of taking free kicks from the white point or penalty area. Shooting is a kick towards the goal to get the ball into the opponent's goal (Supriadi et al., 2021). The ability to do good shooting by players will be obtained by doing shooting exercises regularly. (CROSS, 2013) states that shooting practice aims to improve the athlete's ability to direct the ball according to the target, namely directing the ball to the opponent's goal.

Aspects of understanding basic technique The execution skills relate to the feeling the player/person feels when performing the neural or sensory connections associated with correct technical movements. This can be explained as a feeling or awareness of the position of the body when moving (kinesthetic perception). Perception is a process that involves the entry of messages or information into the human brain

(Suryono, 2016). (Wijayanto, 2018) states that kinesthetic perception is the process of people doing or knowing the power of and being aware of a certain movement. So, in taking a free-kick from the penalty spot, the kicker must be able to visualize where the ball should be directed, which leads to a certain target that is far from the goalkeeper's reach and can score points. So that when a player kicks at the 12 pass point (penalty), a high level of concentration is needed so that it can be interpreted that in taking a kick, someone must be able to have awareness of the position of the body and direct the ball. In other words, the perfection of a technique can usually only be done by people who are quick to detect a movement pattern and that person usually has good kinesthetic perception.

Besides kinesthetic perception, psychological factors have a very large influence on the success of taking a direct free-kick from the penalty spot. To be able to take a penalty kick is not an easy thing, because it requires strong psychological or mental factors (Kastrena, 2019). We know that the current trend of soccer power is influenced by the mental size possessed by players (Owoeye et al., 2014). As is the case with the self-confidence possessed by the player taking the penalty kick, the effect is very large, because, without the belief to be able to enter the ball into the opponent's goal, it will certainly be difficult to be able to finish it well, especially when the goal is guarded by a well-known goalkeeper. (Firmansyah et al., 2019) stated that the psychological factor that affects the success of taking a penalty kick is self-confidence. In this case, the player's confidence will have a very big role in the success of taking a free kick from the penalty spot.

From all the descriptions that have been described above, it seems that there is a very close relationship between penalty kick skills and several important elements, such as aspects of kinesthetic perception and self-confidence, but to be able to prove whether these aspects have an interrelated relationship, one the same as others, will be determined by a scientific approach through relevant and accurate research. For that researchers want to try to see the relationship through a study. Due to the limitations and considerations that exist, the study focused on aspects of kinesthetic perception and self-confidence as research variables associated with kicking skills from the penalty point of the Unimed student soccer team.

**B. Method**

This research was conducted at the Unimed multi-purpose soccer field, Jalan Willem Iskandar Pasar 5 Medan Estate. The target population in this study were all members of the Unimed student soccer team, totaling 53

people. Sampling was carried out using a simple random sampling technique, namely by drawing lots of the entire population so that a sample of 30 people was obtained. This method is carried out with the aim that each subject has the same opportunity and opportunity to be selected so that the selected sample of 30 people represents the population and avoids the subjectivity of the researcher.

By the problems and research objectives that have been described previously, the research method is a survey method and data collection techniques using tests and measurements whose purpose is to reveal a systematic, factual, and accurate picture of the phenomenon under study. This study uses two independent variables, namely kinesthetic perception and self-confidence, while the dependent variable is a penalty kick.

By the variables to be studied, there are three types of data to be collected, namely kinesthetic perception, self-confidence data, and data from penalty kicks. Kinesthetic perception data were taken using the Distance Perception Test instrument. This test instrument has a level of face validity and has a test reliability level of 0.44 obtained from the re-test. To measure the level of self-confidence using a statement in the form of a questionnaire compiled using a Likert's scale that was tested and correlated using Carl Person's Product Moment, which has a reliability (r) of 0.97. As for the penalty kick data using a penalty kick penalty test by the modified FIFA match rules (Lennox et al., 2006).
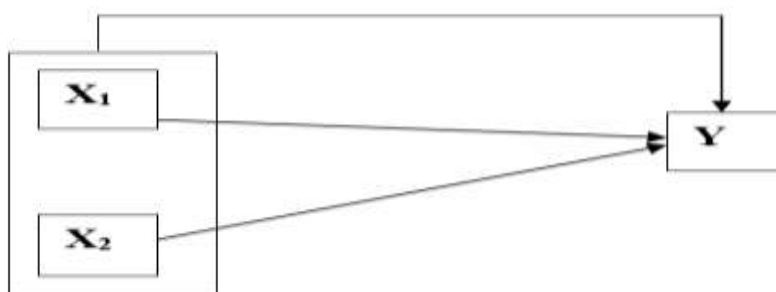
The research design carried out is as follows:



**Figure 1. Research Variable Relationship Pattern**

Information:
X1: Kinesthetic Perception
X2: Confidence
Y: Penalty Kick Skill

## C.  Result and Discussion

## Result

Based on the results of the tests and measurements carried out by researchers in the field, data was obtained that could be used as material for data analysis.

Where the data is used to answer the truth of the hypothesis that has been raised.

The data obtained can be described as follows:

**Table 1: Description of Research Data**

| Resume | X1 | X2 | Y |
|---|---|---|---|
| N | 30 | 30 | 30 |
| Max | 69 | 169 | 134 |
| Min | 45 | 149 | 99 |
| Range | 24 | 20 | 34 |
| Mean | 53,8 | 159,0 | 106,5 |
| $S^2$ | 7,0 | 5,6 | 9,3 |

Before testing the hypothesis, it is better to test the data analysis requirements.

**1. Normality Test**

The normality test used in this study is the Liliefors test. The purpose of this normality test is to find out if the data is normally distributed or vice versa.

The test is carried out with the condition that Ho if the maximum Lo calculation result is < from Ltable with a value of = 0.05 which significance level is used to reject or accept.

Table 2. Normality Test Results

| Variable | $L_o$ | L tabel | Ket |
|---|---|---|---|
| $X_1$ | 0,358 | 0,86 | Normal |
| $X_2$ | 0,263 | 0,86 | Normal |
| Y | 0,339 | 0,86 | Normal |

Information:
X1: Kinesthetic Perception
X2: Confidence
Y: Penalty Kick Skill

Based on table 2 above, the data was obtained from the calculation of the value. The results of the calculation as Lo of the sample group are less than Lt. So it can be concluded that the research sample comes from a population that is normally distributed.

**2. Homogeneity Test**

The homogeneity test was carried out using the Bartlett test with the variable level in the study with a significance level of = 0.05. The data from the research variables are the dependent variable (Y) Penalty Kicks, and the independent variables are Kinesthetic Perception (X1) and Self-Confidence data (X2) for testing the null hypothesis, take the following steps. The summary of the homogeneity test results can be seen in Table 3 below:

Table 3: Summary of homogeneity test results

| Variable | K | $X^2_h$ | $X^2_t$ | Kesimpulan |
|----------|-----|------|------|-----------|
| Y | | | | |
| X₁ | 29 | 1,26 | 7,81 | Homogen |
| X₂ | | | | |

Information:
X1: Kinesthetic Perception
X2: Confidence
 Y: Penalty Kick Skill

The calculation results as described in table 3 above, obtained X2h = 1.26 is smaller than X2t = 7.81 So that Ho: is accepted in the real level = 0.05. Thus it can be concluded that the three variables have the same variance (homogeneous).

1. Hypothesis Testing

Hypothesis testing is a test carried out using inferential statistics, which means seeing statistical regression analysis, simple correlation, and multiple correlations. Then the independent variable and the dependent variable were tested by testing the correlation coefficient (product-moment). Then to see the relationship between the variables in the study together (X1 and X2), it was carried out using regression analysis and multiple correlation techniques.

a) Hypothesis 1

Before the correlation test, a simple linear regression test was conducted to determine the significance of the regression coefficient b and the linearity between the kinesthetic perception (X1) and the penalty kick result (Y). Based on the calculation, the regression correlation coefficient b is 0.59 and the constant a is 74.75, so it can be concluded that the relationship between kinesthetic perception and penalty kick results is expressed by the regression line equation = 74.75 + 0.59 X1.

Significant testing and linearity test of the regression equation = 74.75 + 0.59X1 using ANOVA (analysis of variance) or -F test so that the significance test criterion states that Fhit is greater than Ftab in other words the regression equation is declared significant and the test criteria linearity if Fhit is smaller than Ftab in other words (equation) the regression line is declared to be related (linear).

Based on the data from the significance test and the linearity of the regression equation = 74.75 + 0.59 X1 so from the data it can be concluded that the regression equation of = 37.64 + 1.28 X is very significant and linear. This means that if the kinesthetic perception is increased by one score it will have an impact on the penalty

kick result which will increase with a value of 1.28 at a constant 37.64.

After testing the significance and linearity of the similarity of the regression values =

37.64 + 1.28 X then proceed to the calculation of the simple correlation coefficient X1 with Y (ry1) of 0.45.

### Table 4: Calculation Results of X1 Correlation with Y

| Correlation | n | R | $r^2$ | $t_{hit}$ | $t_{tab}$ 0.05 |
|---|---|---|---|---|---|
| $X_1$ with Y | 30 | 0.98 | 0.96 | 26,39 | 1,70 |

Based on table 4 which has been described, it can be seen that thit of 26.39 is greater than t table of 1.70, so it can be concluded that H0 is rejected, which means there is a significant correlation between kinesthetic perception and the result of a penalty kick. Based on the correlation coefficient ry1 above, the coefficient of determination is 0.96. This means that 96% of the variation in penalty kick results can be explained by kinesthetic perception.

b) Hypothesis 2

simple linear regression test to determine the significance of the regression coefficient b and the linearity between self-confidence (X2) and the result of a penalty kick (Y). Based on the calculation, the regression correlation coefficient value b with a value of 1.55 and a constant value of a -139.43 shows that the relationship between the self-confidence variable (X2) and the result of the penalty kick dependent variable is

expressed by the regression line equation = - 139.43 + 1.55 X2.

Testing the significance and linearity of the regression equation = -139.43 + 1.55 X2 using ANOVA (analysis of variance) using the -F test, the significance test criteria results in if the Fhit value is greater than the Ftab value, it can be concluded that the regression equation is stated significant while the linearity test criteria if Fhit is smaller than Ftab then the regression line equation is declared linear.

Based on the value of the calculation of the significance and linearity of the regression equation = -139.43 + 1.55 X2, it can be concluded that the regression equation is = -39.43 + 1.55 X2 with a significant and linear category. This results in an explanation that increasing self-confidence will increase the penalty kick result by 1.55 at a constant -139.43. After testing the significance level and linearity in the regression similarity of = -

39.43 + 1.55 X2, then proceed with the calculation of the simple correlation

coefficient X2 with Y (ry2) of 0.93.

**Table 5. Data Results Correlation Results X2 with Y**

| Correlation | n | R | $r^2$ | $t_{hit}$ | $t_{tab}$ 0.05 |
|---|---|---|---|---|---|
| **X₂ with Y** | 30 | 0.93 | 0.86 | 6,59 | 1,70 |

Based on table 5 which has been described by the researcher, it can be seen that this is 6.59 > t table 1.70, so from these data it can be concluded that the research hypothesis H0 is rejected, which means there is a significant correlation between kinesthetic perceptions of the penalty kick result. Based on the correlation coefficient ry2 above, the coefficient of determination is 0.93. This means that 93% of the variation in penalty kick results can be explained by kinesthetic perception.

c) Hypothesis 3

The steps in conducting a simple linear regression test are carried out to be able to see how far the significance of the values of the regression coefficients b1 and b2 are related to each other on kinesthetic perception (X1), self-confidence (X2) indicates the value (result) of penalty kicks (Y). ). Based on the calculated value, it can be seen that the regression correlation coefficient with a b1 value is 1.25, b2 is 0.05 and a constant value is 31.3, so there is a relationship between

kinesthetic perception and self-confidence with the results of the regression penalty kick = 31, 3 + 1.25 X1 + 0.05.X2

Testing the significance level of multiple regression = 31.3 + 1.25X1 + 0.05X2 using ANOVA (analysis of variance) with the F-test value, to produce a significance test, if Fhit > Ftab so it can be seen that the regression equation can be declared significant and if linearity test criteria, if Fhit < Ftab(α)(k/n-1) so it can be concluded that the data is declared significant.

From these results, it can be concluded that there is a positive relationship between kinesthetic perception and self-confidence together with penalty kicks. The relationship between the kinesthetic perception variable (X1) and self-confidence (X2) with the penalty kick outcome variable (Y) shows a multiple correlation coefficient (r) of 0.96. Then from the coefficient of determination (r2) of 0.98, this means that the variation that occurs in the penalty kick is 160

In table 6, it is shown that Fhit is 160 which is greater than Ftab 3.33 so the multiple regression equation = 31.3 + 1.25 (kinesthetic perception) + 0.05. (self-confidence) is stated to be very significant, which means that if together kinesthetic perception (X1) and self-confidence (X2) are increased by one score, the penalty kick result (Y) will increase by 0.98 (1.25X1 + 0.05X2 ) score at the constant 31.3.

**Table 6. Calculation Results of X1 and X2 Correlation with Y**

| Correlation | N | R | $r^2$ | $t_{hit}$ | $t_{tab}$ 0.05 |
|---|---|---|---|---|---|
| $Ry_{12}$ | 30 | 0.96 | 0.98 | 160 | 3,33 |

After testing the significance and linearity of the multiple regression equation, then proceed with the calculation of the multiple correlation coefficient. The results of the multiple correlation calculation show the number Ry,12 = 0.96.

Based on table 6 which has been described by the researcher, it can be seen that Fcount with a value of 160 > F table 3.33, from these results it can be concluded that H0 is rejected with an explanation that there is a significant relationship between kinesthetic perception (X1) and self-confidence (X2) with penalty kick result (Y). Based on the Ry12 multiple correlation coefficient above, the coefficient of determination (R2) is 0.98. This means that 98% of the variation in penalty kick results can be explained by variations in kinesthetic perception and self-confidence.

After testing the multiple correlation coefficient, then proceed with the partial correlation calculation, namely testing the coefficient by controlling the independent variables, either individually or together.

To test the value of the partial correlation coefficient ry1.2. If the variable control (X2) is carried out, the partial correlation coefficient ry1.2 is 0.73. Furthermore, to determine the value of the significance of the partial coefficient of ry1.2, it is continued with the t-test.

The value of the calculation of the partial correlation can be explained in table 4.12 below.

**Table 7. Results of ry1.2. Partial Correlation Test Value**

| Korelasi Parsial | N | r | $t_{hit}$ | $t_{tab}$ |
|---|---|---|---|---|
| $r_{y1.2}$ | 30 | 0.73 | 5,49 | 2,04 |

Table 7 above shows that 5.49 > ttab with a value of 2.04 and from these results, a conclusion can be drawn that the value of the partial correlation coefficient ry1.2 is 0.73. This right explains that there is a kinesthetic perception related to the penalty kick result. If the researcher controls the adaptation variable (X2), it will show the value of the partial correlation coefficient ry2.1 with a value of 0.76, and a t-test is carried out to see the significance of the value I of the partial coefficient ry2.1.

**Table 8: Partial Correlation Calculation Results ry2.1.**

| Korelasi Parsial | N | r | $t_{hit}$ | $t_{tab}$ |
|---|---|---|---|---|
| $r_{y2.1}$ | 30 | 0.76 | 6,08 | 2,04 |

Table 8 above shows count 6.08 > ttab with a value of 2.04 and it can be concluded that the value of the partial correlation coefficient is ry1.2 with a value of 0.76 with the result that there is a relationship between self-confidence and the result penalty kicks, although the perception variable controlled.

**Discussion**

Based on the results of the hypothesis testing conducted, it can be seen that the proposed hypothesis has a significantly positive relationship.

This is in line with the theoretical study stated earlier that Unimed student soccer team players who have good kinesthetic perception will be able to take penalty kicks optimally. Thus it can be said that the result of a penalty kick is related to the kinesthetic perception of the Unimed student soccer team player concerned. The importance of kinesthetic perception for athletes was expressed by (Mujahid & Subekti, 2021) in his research entitled the relationship between kinesthetic perception and soccer skills in the takraw game, the results of his research that by having good kinesthetic perception, the ability to kick soccer will also be good. (Fitriyanto 2020) in his research entitled The Relationship Between Limb Muscle Power, Flexibility, and Kinesthetic Perception With Soccer

Shooting Accuracy in Players Age 12-14 Years Old SSB Matra Kebakkramat Karanganyar the result that there is a positive and significant relationship between kinesthetic perception and shooting accuracy in football. Meanwhile (Isnaini 2010) explained that there was a significant difference in influence between the factors that influenced kinesthetic perception (1) differences in the type/way of kicking the ball towards the soccer player's goal, (2) there was a significant interaction between the main factors. in the form of two-factor interaction, so from the results of research conducted by Isnaini (2010), there is a significant difference in the effect between drill and kicking accuracy (kinesthetic perception) of kicking the ball towards the goal in soccer games.

Besides that, the results of this study also show that kinesthetic perception is important to be owned and improved by every Unimed student soccer team player to improve the results of their penalty kicks.

When viewed partially the relationship between kinesthetic perception and the result of a penalty kick by controlling for the kinesthetic perception variable, the partial correlation coefficient (ry12) is significant. Furthermore, the results of the control variable increased the relationship between kinesthetic perception and the result of a penalty kick, and this proves that the value of the partial correlation coefficient is at a significant level.

Other findings obtained in this study are also closely related to the theoretical studies that have been carried out previously, that Unimed student soccer team players who have good self-confidence will be able to take penalty kicks optimally as well. It can be said that the result of a penalty kick taken by a Unimed football player is closely related to the confidence he has.

In addition, the results of this study also show that it is important for every player to have and improve self-confidence to improve the results of their penalty kicks. (Mardhika & Dimyati, 2015) in their research entitled Concentration Level Contribution to Penalty Kick Success, with the result that there is a significant relationship between concentration level and penalty kick results.

The results of this study are inversely proportional to the research conducted by (Firmansyah et al., 2019) under the title Correlation Between Self-Confidence and the Success of Penalty Kicks in Football Games, the results of the research conducted resulted in the conclusion that there was no relationship between self-confidence and penalty kick results. in the game of football.

If one observes the confidence in penalty

kicks by controlling for the control variable, namely self-confidence, the partial correlation coefficient (ry21) shows a significant value. This shows that the relationship has limited the independent variable sought. (Hutami & Iswana, 2020) in a study entitled Self-confidence with shooting results, the results of the study found a positive and significant relationship between self-confidence and shooting results. (Mahanani & Indriarsa, 2021) in a study on Psychological Analysis of Football Athletes' Confidence, the results showed that psychology had an important role in soccer athletes' confidence in a game.

Then the control variable shows an increasing relationship between self-confidence and the result of a penalty kick so that the partial correlation coefficient is significant. (Kastrena, 2019) in his research entitled the relationship between self-efficacy and anxiety on penalty kick results, the result that the correlation coefficient between self-efficacy and anxiety with penalty kick results is moderately correlated.

Research conducted on testing the hypothesis which states that there is a positive relationship between kinesthetic perception and self-confidence with the results of a penalty kick shows a very significant and linear result.

Based on the resulting multiple regression equation, it shows that between the two independent variables, the one with the highest increase in penalty kick results is the kinesthetic perception variable. The increase in the success of taking penalty kicks will certainly be even better if it is supported by continuous exercise. The practice of kicking from the penalty spot is carried out with various variations, the most important being achieving the right target, namely, the ball cannot be blocked by the goalkeeper and creates a goal. Such as research (Hutami & Iswana, 2020) entitled the effect of fixed target training and changing target training on penalty kick accuracy, the results of this study explaining that there is an effect of penalty kick training using fixed targets and changing targets shows significant results.

Then the double correlation coefficient jointly between kinesthetic perception and self-confidence with the penalty kick result is declared significant, which means that the higher the kinesthetic perception and self-confidence together, the higher the penalty kick result. On the other hand, the lower the kinesthetic perception and self-confidence, the lower the penalty kick results for the Unimed student soccer team players.

Based on the multiple correlation coefficient (Ry12), the results of the research that has been carried out suggest the importance of the kinesthetic perception

variable and self-confidence to improve the results of penalty kicks. Therefore, the variables that have been explained by the researchers have a relationship, each of which has an effect on the result of a penalty kick with success which shows good results. Therefore, the results of this study are closely related to each of the variables described.

## D. Conclusion

From the results of research that has been carried out by researchers, it can be concluded that there is a significant relationship between each of the variables tested resulting in a significant relationship to the penalty kick ability of Unimed student soccer team players.

## E. Acknowledgment

Thank you to all the participants who have cooperated well in carrying out this research.

## E. Conflict of Interest

In the research that has been done, there is no conflict of interest from any party.

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# The Effect of Dumbell Load Training on Straight Block Speed on Muay Thai Athletes Unsyiah Banda Aceh

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### Abstract

*Based on the results of observations at UKM Unsyiah, not all athletes from UKM Muay Thai Unsyiah can hit "straight" well and quickly. There are still many who make shots that are not directed, not on target, and weak on the targets they do hit. This situation is caused by the lack of support from the physical ability of the athlete and the lack of mastery of hitting techniques properly and correctly. In addition, it was found that around 80% of beginners experienced weakness when hitting straight, which was caused by weak weight training. The purpose of this study was to determine the effect of dumbbell weight training on the speed of straight strokes in the Unsyiah Muay Thai Student Activity Unit athletes. This research method uses quantitative research using a correlational technique design. The sample used was the UKM Muay Thai Unsyiah athletes, totaling eight people, consisting of four male athletes and four female athletes. The results showed that dumbbell weight training had an effect on the speed of straight strokes in the athletes of UKM Muay Thai Unsyiah. Then, from the calculation of the correlation coefficient of the data, the value of the effect of dumbbell weight training on the speed of straight strokes is 0.92, where the interpretation of the correlation coefficient lies in a high level of influence (there is an effect). The percentage of the correlation coefficient is 84.64%. which means that dumbbell weight training (X) contributes to the speed of straight strokes (Y) by an amount of 84.64% and the remaining 15.36% is influenced by other factors. The results of this study mean that the better the straight stroke speed of an athlete, the better the results are obtained from dumbbell weight training.*

*Keywords: Dumbbell Weight Training, Straight Blow, Muaythai.*

## A. Introduction

Nowadays, in addition to physical fitness, exercise has become part of a healthy lifestyle that is lived by many people. Martial arts as a sport is not something new. The number of classes opened for various existing martial arts shows the interest of the Indonesian people in this sport (Kholis, 2016). In particular, the sport of Muay Thai and at the same time martial arts has quite a lot of fans in Indonesia (Nilasari et al., 2020).

The martial arts sport has brought the names of several Indonesian boxers to the international arena. As a sport that is quite well known and has many enthusiasts, its existence as a sports facility is quite popular in the community (Syukriadi et al., 2021).

Various types of martial arts sports such as Karate, Tae Kwon Do, and others also have their charm for the public who love martial arts. But of course, the interest of boxing lovers to train like an athlete is certainly not small, or just to maintain physical fitness (Nilasari et al., 2020).

In a boxing match, the technique often and always used by boxers in carrying out attacks to get points is the punch technique. This punching technique consists of several kinds, including punches such as Jeb, straight, hook, and uppercut (Yusuf, 2015). Of the four types

of strokes, only one type of stroke is the point of attention in this research study, namely the straight stroke.

The type and form of a straight punch are one of the target techniques aimed at the facial area up to the stomach border with the impact area of the first end of the batting team (Los Arcos & Martins, 2018). The execution movement is relatively easy to practice or demonstrate compared to other punching techniques, so many boxers use this punching technique in every match (Los Arcos & Martins, 2018).

Besides that, boxers who have a very fast straight stroke speed can do it repeatedly and require concentration to hit the right target. Boxers can collect a lot of points during a match, and can provide a great opportunity to become a winner in a match. If the boxer does not experience a KO, then the winner is determined by the one who has the most points (Los Arcos & Martins, 2018).

The Unsyiah Muay Thai Student Activity Unit is a Student Activity Organization of Syiah Kuala University that was established on March 10, 2016. It was founded by Aulia Rahman who is one of the Muay Thai athletes who once represented Indonesia at the Muay Thai World Championship. The Unsyiah Muay Thai UKM was established to develop

this Muaythai sport at the student level and in the surrounding community. The Unsyiah Muay Thai UKM is not only a place to improve physical and spiritual health but also a place to channel the talents and interests of an individual. The Unsyiah Muay Thai UKM is open not only for individuals who already have skills but also for individuals who are new and want to know (beginners) this Muay Thai martial art.

Based on the results of observations at UKM Unsyiah, shows that not all athletes from UKM Muay Thai Unsyiah can do straight strokes well and quickly. There are still many who make punches that are sometimes undirected and weak and do not hit the target. This situation is thought to be caused by the lack of support from the boxers' physical abilities and lack of good mastery of the punch technique. In addition, it was found that around 80% of beginners experience weakness when hitting straights, especially when doing the straight stroke technique, which is caused by weak dumbbell weight training.

Whereas in Muay Thai sport, dumbbell weight training is very necessary to hit straights with hard punches (Khakiki & Wahyudi, 2022). However, fans of Muay Thai are not only male athletes, even female athletes are interested in practicing Muay

Thai because it has many advantages over other martial arts (Wicaksono & Hariyanto, 2021).

Based on the problems mentioned above, one of the efforts made to increase the concentration on the type of straight stroke speed for the athletes of UKM Muaythai is to improve the quality of physical condition. According to (Bompa, 2011) defines: the quality of exercise or the physical condition of athletes is a very systematic model and effort to improve the functional abilities of athletes by the demands of the sport they are engaged in so that they can achieve the standard figures as determined.

Increasing the speed of the stroke, it can be done by providing a directed, regular and systematic physical training load through the application of a method or form of exercise that focuses on the direction of the speed of the stroke and must be guided by the values and principles of exercise (Mustain & Akbar, 2021). Likewise, the push-up exercise model and dumbbell weights are a form of physical exercise and weights, so push-ups and dumbbell exercises are used as a tool for the load in the implementation of the formation of the quality of the exercise (Persadanta et al., 2020).

Seeing the various problems that occur in Muaythai athletes, especially in straight

strokes, both in terms of training and the quality of training to improve straight strokes. Therefore, it is necessary to pay attention to the efforts of qualified trainers who have adequate equipment and have met the standards in Muaythai. Likewise, with a person's physical ability to carry out a type of activity, the athletes of UKM Muaythai, especially their physical condition, will greatly affect their movement ability which will determine the achievement of peak performance.

Based on a review of these problems, it is necessary to conduct research related to dumbbell weight training in Muay Thai athletes with the title: "The Effect of Dumbbell Weight Training on Straight Stroke Speed in Muaythai Unsyiah Athletes

of UKM Banda Aceh".

## B. Method

The form of the approach used in this research study is a quantitative approach. This study aims to the extent to which the variables in one variable are related to variations in other factors. This type of research is correlational. This study was designed to determine the magnitude of the effect of the independent variable (dumbbell weight training) on the dependent variable (Straight stroke speed in SME Muaythai Unsyiah Athletes. The research design can be described in the following scheme:

| X | → | Y |

Information :

X = dumbbell weight training

Y = Straight stroke speed

The dumbbell weight training test and the element of straight stroke speed will be held at UKM Unsyiah, Kec. Syiah Kuala, Banda Aceh. This research is planned to be carried out on Wednesday, December 30, 2020.

The population used in this research study was the athletes of UKM Muay Thai

Unsyiah, amounting to 8 people consisting of 4 male athletes and 4 female athletes conducted by purposive sampling. The reason for choosing this population is

a. the population has received dumbbell weight training from the same trainer.

b. Willing to be a sample in research.

c. Aged around 18-27 years.

Data collection is done directly to the research sample. This research will be carried out for 4 weeks at the UKM Muay Thai Unsyiah. The stage in the implementation of data collection in this study consisted of 3 treatments, namely: initial test treatment, treatment/administration of dumbbell exercise programs, and final test treatment. The data analysis technique was carried out by collecting data, testing analysis, and testing hypotheses.

From a series of field research conducted on the SME Athlete of Muaythai Unsyiah, research data was obtained in the form of straight stroke speed test data. Straight Stroke Speed Test Results From Dumbbell Training Program The data used in this research is to include all athletes of UKM Muay Thai Unsyiah in 2020, who have met the requirements of a sample of 8 athletes. 1. Calculating the Average Straight Stroke Speed Pretest From the results of the straight stroke speed test, the following research pretest score data were obtained:

## C. Result and Discussion

### Table 1 Straight Punch Speed Pretest Score

| No | Initial Name | Pretest | Fast |
|----|--------------|---------|------|
| 1. | AH | 16 | 0,53 |
| 2. | IZ | 17 | 0,57 |
| 3. | JD | 22 | 0,73 |
| 4. | VM | 10 | 0,34 |
| 5. | AY | 11 | 0,37 |
| 6. | CN | 12 | 0,4 |
| 7. | SM | 13 | 0,43 |
| 8. | FD | 19 | 0,63 |
| | Jumlah | 120 | 4 |

Based on the results of the straight stroke speed test on the UKM Muaythai Unsyiah athlete, as shown in the table above, then the data obtained was continued to look for the average value, namely:

$$\bar{x} = \frac{\sum x}{n}$$

$$= \frac{120}{8}$$

$$= 15$$

Based on the results of the above calculations, it can be stated that the average straight stroke speed test for UKM Muaythai Unsyiah athletes is 15.

1. Calculating the Average Post-Test Score for Straight Strokes

From the results of the straight stroke speed test, the following research post-test

score data were obtained:

**Tabel 2  Skor Postest Kecepatan Pukulan *Straight***

| No | Initial Name | Post-test | Fast |
|----|--------------|-----------|------|
| 1. | AH | 17 | 0,57 |
| 2. | IZ | 23 | 0,77 |
| 3. | JD | 25 | 0,83 |
| 4. | VM | 14 | 0,47 |
| 5. | AY | 14 | 0,47 |
| 6. | CN | 15 | 0,5 |
| 7. | SM | 15 | 0,5 |
| 8. | FD | 26 | 0,87 |
| | Jumlah | 149 | 4,97 |

Based on the results of the straight stroke speed test on the UKM Muaythai Unsyiah athlete, as shown in the table above, then the data obtained was continued to look for the average value, namely:

$$\bar{Y} = \frac{\sum Y}{n}$$

$$= \frac{149}{8}$$

$$= 18,65$$

From the results of the above calculations, it can be stated that the average straight stroke speed test for UKM Muaythai Unsyiah athletes is 19.

The values obtained from giving the pretest test can be seen as listed below:

10 11 12 13 16 17 19 22

The frequency distribution for students' initial test data is as follows:

1.  Define range
    Range (R) = Highest Value –Lowest Value
    = 22 – 10
    = 12
2.  Define multiple classes

Number of classes = $1+3.3 \log n$; with n=8
= $1+3.3 \log 8$
= 3.98
3.  Determine the class length
    denominatorsth = $\frac{\text{Range}}{\text{Multiple Class}}$

$$P = \frac{12}{4}$$

$$= 3$$

var above calclaticalculationaiantsn value of $(\bar{x}_1) = 15$, vstandard$S_1{}^2) = 20,28$ and standart deviation $(S_1) = 4,50$. To find out whether the class has the same variance, it must first have normality conditions. The normality test aims to determine whether the data from the pretest test results in this study are normally distributed.

$$\chi^2 = \sum_{i=1}^{k} \frac{(F_0 - F_e)^2}{F_e}$$

$$= 8,4194$$

With a level Significant $\alpha = 0,05$ and multiple class k = 8. Then the degrees of freedom (dk) to distribution chi-quadrat dk= 8-1 =7, it can be concluded that the pretest test data is normally distributed.

**Post-test Normality Test Analysis**

The values/scores obtained from giving the post-test test can be seen as listed below:

14 14 15 15 17 23 25 26

The frequency distribution for the post-test data is as follows:

1. Define range

Range (R) = Highest Value –Lowest Value

$$= 26 - 14$$
$$= 12$$

2. Define multiple classes

Number of classes = 1+3.3 log $f_0$ n; with n=8

= 1+3.3 log $f_0$ 8

= 3.98

3. Determine the class length

$$\text{ass length} = \frac{\text{Range}}{\text{Multiple Class}}$$

$$P = \frac{12}{4}$$
$$= 3$$

**Data Homogeneity Test**

The homogeneity test aims to find out whether this sample comes from the same or different variances. Based on the calculation of the results of the pretest and post-test tests, previously, it was obtained $S_1{}^2 = 20,28$ pretest and $S_2{}^2 = 24,85$ to postest. Based on the distribution table F obtained:

$$F_{(\alpha)(n_1-1, n_2-1)}$$
$$= F_{0,05(8-1, \ 8-1)}$$
$$= F_{0,05(7, \ 7)}$$
$$= 3,79$$

**D. Conclusion**

Based on the results of data analysis and discussion, the results of the study can be concluded that dumbbell weight training affects the speed of straight strokes in UKM Muay Thai Unsyiah athletes. From the calculation of the correlation coefficient of the data, the value of the effect between dumbbell weight training on straight stroke speed is 0.92 where the interpretation of the correlation coefficient lies in a high level of influence (there is an effect). The percentage of its correlation coefficient is 84.64%. The results show which means that dumbbell weight training (X) contributes to the speed of straight strokes (Y) by 84.64% and the remaining 15.36% is influenced by other factors.

**E. Acknowledgment**

3) For further research, it can be used as reference material to see the managerial and competence of school principals who have teacher backgrounds, both from sports teachers and other teachers.

## F.  Conflict of Interest

In the research that has been done, there is no conflict of interest from any party.

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# Triple Jump Training Model Development based Circuit Training for Beginners Athletes

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## *Abstract*

*This study aims to develop a design for the triple jump to obtain empirical data about the effectiveness of the triple jump-based circuit training model for beginner athletes. The research method used in this study is the research and development method of Borg and Gall which consists of ten steps. The subjects of this study were male and female athletes in Klungkung regency specifically for triple jump numbers. This research resulted in 10 final training models that have gone through expert evaluations, trials, and revisions. In testing the effectiveness of the training model by using "test-t". The data of this research are in the form of the pretest and posttest of the experimental and control groups. Triple jump based on circuit training with a significance level of 0.05. The results of the average pretest mean = 59.05 are smaller than the average posttest mean = 73.40 in the count an increase of 14.36. The results of the effectiveness of the triple jump training model based on circuit training between pretest and posttest obtained results t0 = 11,145 greater than tt = 0,000, the hypothesis was rejected. Research conclusion that the triple jump based on the circuit training model for beginner athletes is effectively used to improve the triple jump results for beginner athletes.*

*Keywords: Training Model, Triple Jump, Circuit training*

## A. Introduction

Athletics is the oldest sport in the world and is the parent organization for other sports (Hartoto, 2018). In athletics several numbers are competed, including; run, throw, and jump numbers. There are 4 classes for the jump, namely: long jump, triple jump, high jump, and pole vault (Kresnapati, 2019).

Triple jump or triple jump is one of the jump competition numbers in athletics which has a high level of difficulty when making jumps and must have good body condition to produce long jumps.

The triple jump has different jump stages from the long jump, the triple jump consists of three phases, including approach, hop, step, and jump which is divided into take off, flying flight), and landing (Kresnapati, 2019).

Based on the results of field observations, researchers found weaknesses when athletes did triple jump competitions. The weakness lies in the hop, step, and jump technique performed by the athlete. Meanwhile, from the results of interviews with athletes, they complained about their poor physical condition so the techniques used were wrong and less than optimal.

In responding to the problems that occur in the field, it is found that the obstacles experienced by the athlete such as poor physical condition and the ability of the triple jump technique are lacking so that it greatly affects the distance of the athlete's jump. So there needs to be a solution that must be given so that problems that occur in the field can be resolved through circuit training exercises.

Exercise is the idea that a structured training system can be formed that incorporates specific training activities that target the physiological, psychological, and individual performance characteristics of sports and athletes (Bompa & Haff, 2009). In addition, exercise is an important step to improve the physical condition of the athletes in particular, so it is so important to maintain the athletes' training so that their physical condition does not decrease (Johansyah Lubis, 2013).

The exercise referred to in this study is a systematic process of practicing or working that is carried out repeatedly and continuously to acquire a skill to perform triple jump movements (Dr. Emral, 2017). Exercises carried out by athletes aim to increase strength, speed, and accuracy, build endurance, and increase agility and skills. To be able to improve physical and technical abilities, exercise is carried out based on several training principles.

In addition to these principles which are quite basic for an exercise program, exercise programs can be regulated and

controlled by varying the training load such as volume, intensity, recovery, and frequency in a unit of daily exercise program (Sukadiyanto, 2011).

Circuit training exercises with various modifications and adapted to the physical needs required in triple jump numbers. Circuit training is an exercise system that can simultaneously improve the overall fitness of the body, namely the elements of power, endurance, strength, agility, speed, and other components of physical condition (Juntara, 2019).

In addition, "The selection of the type of training load in the training circuit must be adjusted to the aspects that are the general objectives of the training circuit to be achieved and circuit training is carried out with several posts available in the field, for example, 8 posts" (Budi & Sugiharto, 2015).

Based on the problems mentioned above, researchers want to apply circuit training exercises to improve the physical condition of athletes. Based on a study that has been conducted by (Wahyudi, 2018) states that circuit training exercises have a significant effect on improving the physical condition of athletes. According to the description above, researchers are encouraged to develop a circuit training-based triple jump training model for novice athletes.

## B. Method

Research on the development of a circuit training-based triple jump training model for beginner athletes specifically has several objectives including (1) Developing a circuit training-based triple jump training model design for beginner athletes, and (2) Obtaining empirical data on the results of increased triple jump and development effectiveness. circuit training-based jump training model for beginner athletes. In addition, this research has the ultimate goal of producing a circuit training-based product of books and videos of triple-jumping exercises which can later provide benefits for trainers in practicing triple-jumping techniques.

This research on the development of the circuit training-based triple jump exercise model uses a Research and Development model which consists of ten steps, including (1) Conducting research and gathering information, (2) Planning, and (3) Developing the initial product form. , (4) Conduct initial field tests, (5) Revise the main product, (6) Conduct main field tests, (7) Revise products (based on suggestions and results of main field trials), (8) Field tests (with 40-200 subjects), (9) Revise the final product, and (10) Make reports on products in journals, work with publishers who can do commercial distribution (Gall, M. D., Gall, J. P., & Borg, 2003).

This product planning and development is carried out before the trial is carried out. For the development of the exercise model, the researcher consulted with supervisors, physical condition trainers, and expert lecturers in the field of coaching and biomechanics. In research on triple jump training based on circuit training, the next step is to evaluate the model. Evaluation is carried out to improve and perfect the training model that has been made. These steps are expert judgment, small group trials, large group trials, and effectiveness tests.

This trial aims to (1) find out whether the model design has been implemented properly and correctly by the trainer, and (2) how effective the results of implementing the model are for this study. The approach used in this research is qualitative and quantitative.

Thus, a quantitative approach is used to find out the effectiveness of a pre-experimental research design in the form of the one-group pretest-posttest design as follows: The steps taken in this trial include: (1) Establishing groups of research subjects, (2) Implementing pre-test. -test (O1), (3) Trying out the developed model, (4) Implementing post-test (O2), (5) Finding the average score of pre-test and post-test and comparing the two; (6) Finding the difference between the two averages through the statistical method (t-test) to determine whether there is a significant effect from the use of the model.

The final result of this development research is that the triple jump training model based on circuit training produces a product in the form of a new training model design or completes an existing one complete with product specifications while testing the effectiveness of the exercise model created so that it can improve quality and can be used as a guide in training activities. triple jump.

## C. Result and Discussion

The results of this study were to test the effectiveness of the circuit training-based triple jump training model for novice athletes using the "t-test" technique. To find out the data from the pretest and posttest triple jumps, this beginner athlete used the Liliefors test at a significance level of 0.05

Based on research data (see Table 2), with a sample of 50 participants, the average pretest result with a mean = of 59.04 is smaller than the post-test mean = of 73.40, in that calculation, there is an increase of 14.36. Thus, it can be stated that the triple jump training model based on circuit training for beginner athletes is effectively used to improve the triple jump.

Then based on the results of the effectiveness test using the t-test (Table 3), from the difference in the results of the pretest and post-test models of circuit

training-based triple jump training for novice athletes, sig. = 0.000 is smaller than the significance level (p) = 0.05, then the hypothesis H0 is rejected. So it can be concluded that there is a significant average difference in the increase in triple jumps with the application of developing a circuit training-based triple jump training model for novice athletes

**Table 1. Results of the Experimental and Control Group Jump Jumps**

|  | Mean | N | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| Pre Test | 59,04 | 50 | 5,337 | ,755 |
| Pro Test | 73,40 | 50 | 8,327 | 1,178 |

**Table 2. Summary of Effectiveness Test Results for Experimental and Control Groups**

| | Paired Differences | | | | | | | Siq. |
|---|---|---|---|---|---|---|---|---|
| | Mean | Std. Deviation | Std. Error Mean | 95% Confidence Interval of the Difference | | T | df | (2-telled) |
| | | | | Lower | Upper | | | |
| Pretest-*Posttest* | 14,360 | 9,111 | 1,288 | -16,949 | -11,771 | 11,145 | 49 | ,000 |

## Discussion

Based on the results of the t-test, it is known that the average pretest was 59.04, while the posttest increased to 73.40. So it has increased by 14.36. Furthermore, based on the t-test of the circuit training-based triple jump training model for beginner athletes, sig. = 0.000 is smaller than the significance level (p) = 0.05. So it can be stated that there is a significant average difference in the increase in the triple jump.

A triple jump is a form of jumping movement which is a series of sequences of movements performed by tiptoeing (hops), stepping (steps), and jumping (jump) to reach as far as possible (Makorohim, 2018). So that the circuit training exercise used in this study is an exercise consisting of several posts that are used as variations of the inner movement for the triple jump.

In a circuit training exercise, it is declared complete if the athletes have

completed the exercises in each of the existing posts within the specified time. This circuit training exercise in which the items in the post have different exercise movements such as in post 1 doing the initial jump with 2 legs in place for 30 seconds, then moving to post 2 by jumping single leg hops for 30 seconds, and finally in post 3 with a tuck jump for 30 seconds performed alternately by the athletes. In-circuit training, athletes will be tested for movements such as:

(1) The basic triple jump movement, in this case, the triple jump basic exercise such as prefix, execution, and landing, but the triple jump implementation has three parts, namely hop, step, and jump, so it is very different from the long jump. The hop movement is the first pedestal movement using the strongest foot as a repulsion as well as the long jump, but in this section, it will be continued in the second movement, namely the step. The step movement is a stepping movement using the same foot when doing the hop movement before proceeding to the jump movement. The jumping movement in the triple jump is the last follow-up movement with a change of legs before reaching like a jump. So to get a good triple jump basic movement, it is necessary to help with a circuit training-based triple jump training

model as a variation exercise by the trainers.

(2) Formation of body condition, with this circuit training exercise, can help beginner athletes in shaping body conditions such as strength, endurance, muscle power, balance, flexibility, reaction, speed, agility, and body coordination which are indispensable in the triple jump. (Yudiana, Subardjah, & Juliantine, 2007). first to avoid possible injuries that come when doing triple jumps, and can increase triple jumps.

Using circuit training as an exercise method is a powerful way to practice triple jump techniques and improve body abilities such as endurance, power, vo2max, and strength (Julianto, 2016). Using circuit training as an exercise method is a powerful way to practice triple jump techniques and improve body abilities such as endurance, power, vo2max, and strength (Julianto, 2016). Judging from the conditions in the field by researchers, the development of circuit training-based triple jump exercises can run well and effectively and provide training variations for beginner athletes. In addition, the athletes also felt unsaturated by the previous training programs due to the lack of variety in training which provided benefits for the coach as well.

## D. Conclusion

Based on the results of the study, it can be concluded from research and development of circuit training-based triple jump training models for novice athletes empirically through effectiveness tests that can increase triple jumps and are feasible to be used and applied in training for novice athletes. This points to the benefits of circuit training, which can increase triple jumps and can also be an alternative exercise so that athletes do not get bored quickly. In addition, the development of exercise movements that are integrated into circuit training can be a reference for other sports.

## E. Acknowledgment

The author expresses many thanks to Prof. Dr. Moch Asmawi, M.Pd who gave his contribution and guidance on writing this journal, and Dr. Ahmad Muchlisin Natas Pasaribu, M.Pd who provided information for publication at JCES.

## F. Conflict Interest

There is no conflict of interest in this journal is published.

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# Designing Android Based Physical Activities and "Lafit" to Increase Physical Fitness Level of Elderly

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## Abstract

*the elderly so that they can do physical activities anywhere and anytime with the aim of improving their physical fitness so that by increasing their physical fitness then their immune level will also increase so that it can reduce the risk of being exposed to viruses, especially the corona virus. This goal is also to create a special TKJI test application for the elderly so that the elderly can measure their own physical fitness level. The specific target of this research is the people of Laut Dendang Village aged 60 years and over. This application contains learning tutorials to do safe and fun physical activities for the elderly completed with tutorials on how to do physical fitness tests that are packaged in an attractive android application so that they can be accessed by the elderly through their smartphones anytime and anywhere. This research used research and development method by borg and gall through 10 steps from potential and problem until mass production. This research involves FIK Unimed lecturers as models in making videos that contain material for physical activity movements that are safe for the elderly and the videos in this application will be made in a simple and clear way and will go through the editing process using specific software. This research showed that the physical fitness of the elderly people increased considerably.*

*Keywords: Elderly, Fitness Test, Physical Activity, Android, Pandemic*

## A. Introduction

With age, the body will experience various declines due to the aging process, ranging from decreased production of hair color pigments, hormone production, skin elasticity, muscle mass, bone density, tooth strength, to the function of body organs (A. Sulaeman, 2015). Certain physical activities are also one factor that can improve a person's health and can encourage a person to have a longer life span.

Statistical data obtained from various countries shows that some groups of the elderly have a higher risk of infection with the coronavirus. For example, the countries most affected by COVID-19 are countries that have a large percentage of elderly people. Various data from several countries also shows the same thing. In the United States, for example, 35% of COVID-19 cases there are those over the age of 65 (WHO Indonesia, 2020).

In addition to being susceptible to infection, elderly people are also very susceptible to experiencing severe symptoms or the risk of complications and even death from COVID-19. Based on data from the WHO, more than 95% of deaths due to the coronavirus come from the age group over 60 years of age. Then, more than 50% of those who experience severe symptoms are aged over 80 years old. In addition to the decreased ability of the immune system, the number of elderly people who had chronic (comorbid) diseases before being infected with the coronavirus was also a factor in the high mortality rate in their age group. For example, in Australia, 4 in 5 elderly people have at least one chronic disease, such as diabetes, hypertension, or cancer. (Baker et al., 2016) mention in their article that changes in modern lifestyles where consuming high levels of sugar and salt and low physical activity can lead a person, especially those who have entered the elderly stage, to chronic disease.

This vigilance for the elderly vulnerable group is also a concern in handling COVID-19, as stated in the Minister of Home Affairs Circular Number 440/2622/SJ concerning the Establishment of the Task Force for the Acceleration of Handling Corona Virus (Covid-19) on March 29, 2020 (Mendagri, 2020). The population of Laut Dendang Village is 17,333 people, with a male population of 8,790 and a female population of 8,543. The population density level is 10,196 people/km2 (Kotakusumut, 2016). From this data, it can be seen that the population of Laut Dendang Village is quite dense. This may be because Laut Dendang Village is an alternative village for residents around Medan to build buildings or settle because this village is not

so far from the city of Medan and land prices, are still relatively affordable for the public.

Furthermore, in Laut Dendang Village itself, the population belonging to the elderly category is quite large, at around 1000 people, consisting of 500 men and 500 women. Conditions in Laut Dendang Village are also not what they used to be, where there are still many large and comfortable fields as a means for the residents of Laut Dendang Village to exercise, such as playing football or just walking around the field. The environmental conditions in this village are classified as densely populated settlements where, in the last 10 years, many new housing complexes have been built in Laut Dendang village. The positive impact of this development is that the village is developing, many SME business actors have sprung up, and many new jobs have been created. However, on the one hand, the negative impact of this development is the reduction of vacant land that was once often used by the community for physical activities such as playing soccer or other types of sports. Another side effect of this phenomenon is the lack of socialization among residents. Most of the immigrants come from the city and have extraordinary activities, so the habits they used to have, such as playing badminton at night in the field they made themselves and using simple equipment, are slowly being eroded. and it could be said to have almost disappeared at this present moment.

The local government also pays less attention to the quality and quantity of sports facilities and infrastructure in the village. Until now, no sports facilities and infrastructure have been built that can be used and utilized by the general public for sports such as jogging tracks, fitness equipment such as those in the Merdeka Field in Medan City, and so on. So the villagers do not know where to exercise, and in the end, they prefer to spend time at home without doing any physical activity.

The result of this new trend that has developed in Laut Dendang village has caused the fitness level of the residents there, especially the elderly or people aged 60 and over, to fall. This is because they rarely do sports or other physical activities. Especially the elderly, who are people with reduced physical abilities or are not as strong as they used to be, can not do all sports activities as young people can.

As is well known, sports that are suitable for the elderly are gymnastics, yoga, and walking. Unfortunately, many elderly people are less interested in physical activities than mentioned above. Meanwhile (Sunde et al., 2021), physical activity or physical activity is one of the

best methods to prevent an elderly person from experiencing a disability or decreased ability to move in daily life. The same thing was also expressed by (Blumenthal et al., 2017), who concluded that the higher a person's physical activity, aerobic fitness, and disciplined diet, the better their neurocognitive ability as an elderly person.

Not only teenagers and adults, but also the elderly are very fond of this smartphone because they can access the internet for the latest news, view videos on provider sites such as YouTube, and actively manage their social media accounts to greet their old friends virtually. So, it is not uncommon for the elderly to spend approximately 2 to 3 hours a day using their smartphones. This not only makes them less mobile but also further lowers their fitness level.

From the phenomena stated above, this research was carried out with the aim of developing an attractive and safe physical activity design for the elderly and building an Android application-based Elderly Fitness Test (LAFIT) so that the elderly can improve their physical fitness as well as measure their level of physical fitness.

Of the various problems that exist, a solution that allows the elderly to be able to overcome problems in terms of their level of physical fitness or physical fitness was found. The solution is in the form of making software or media in the form of applications on smartphones based on Android, which can be seen and studied by simply pressing the application icon on the smartphone of the elderly.

According to (Alaska & Hakim, 2021), physical fitness is the ability and ability of the body to make adjustments (adaptations) to the physical liberation given to it (from daily work) without causing excessive fatigue. Physical fitness must link various factors, called general factors, including the provision of open space, increasing human resources, and community participation to cultivate a healthy life through sports activities.

According to Pasaribu & Mashuri (2019), the components of physical fitness include 10 components, as follows: (1) Strength, (2) Endurance, (3) Muscular Power, (4) Speed (Speed), (5) Flexibility, (6) Agility, (7) Coordination, (8) Balance, (9) Accuracy, (10) Reaction (reaction).

In the physical fitness workshop held in 1984, the "Indonesian Physical Fitness Test" (TKJI) was agreed upon and set to be an instrument/test kit that is applicable throughout Indonesia because TKJI is prepared and adapted to the conditions of Indonesian children. TKJI is divided into 4 age groups, namely: 6–9 years, 10–12 years, 13–15 years, and 16–19 years.

It should be understood that the test items in the TKJI are standard and should not be inverted, with the order in which the tests are carried out as follows: (1) run 60

meters (aged 16-19 years). (2) hanging lifts for men (pull-ups) (3) Sit-ups, (4) Vertical jumps, and (5) 1200 meters (16-19 years old).

**Table 1**

**TKJI for male 16-19 years old**

| Nilai | Lari 60 meter | Gantung angkat tubuh | Baring duduk | Loncat tegak | Lari 1200 meter | Nilai |
|---|---|---|---|---|---|---|
| 5 | S.d – 7,2" | 19 - Keatas | 41 - Keatas | 73 Keatas | s.d – 3'14" | 5 |
| 4 | 7.3" – 8,3" | 14 – 18 | 30 – 40 | 60 – 72 | 3'15" – 4'25" | 4 |
| 3 | 8,4" – 9,6" | 9 – 13 | 21 – 29 | 50 – 59 | 4'26" – 5'12" | 3 |
| 2 | 9,7" – 11,0" | 5 – 8 | 10 – 20 | 39 – 49 | 5'13" – 6'33" | 2 |
| 1 | 11,1" dst | 0 - 4 | 0 – 9 | 38 dst | 6'34" dst | 1 |

Source: Nurhasan, 2013:64

As discussed above, the standardized form of TKJI can only be applied to a young age group, and, of course, the results will be different if applied to the elderly age group or people aged 60 years and over. Therefore, a test was created specifically to measure the level of physical fitness of the elderly. This particular test is called the Senior Fitness Test in the original language because it was made in America.

The Senior Fitness Test was developed as part of the LifeSpan Wellness Program at Fullerton University (Rikli & Jones, 2013). Because of this, this test is sometimes known as the Fullerton Functional Test. This is a simple and easy-to-use test form to measure the fitness level of people belonging to the elderly age category. This test describes an easy-to-understand and effective test to measure aerobic fitness, strength, and flexibility using minimal and inexpensive equipment. This fitness level test item involves general activities such as getting up from a chair, walking, lifting, bending, and stretching. The tests were developed to be safe and fun for older adults while still meeting scientific standards for reliability and validity. The following is a form of a physical fitness test for the elderly that has been validated and is suitable for use:

1. Chair Stand Test—Measures lower body strength
2. Arm Curl Test—Measures upper body strength
3. Chair Sit and Reach Test—measures lower body flexibility.
4. Back Scratch Test—measures upper body flexibility

5. 8-Foot Up and Go Test—measures flexibility

6. Walk Test (6 minutes) or Step in Place Test (2 minutes) — The walking test is used to assess aerobic fitness unless the person uses an orthopedic device while walking or has difficulty with balance, in which case they perform a step-in-place test.

The use of smartphones or gadgets maybe something new in the world of education. However, it is seen that the use of smartphones as a learning medium is very good because people will find it easier to find the material or knowledge they need and can also provide opportunities and freedom for the general public to access any material widely that may not have been material before. taught in places of formal education (Supratman, 2018). The use of smartphones as learning media will also provide new experiences for the wider community participants and the use of smartphones as learning media will make it easier for people to learn, because of their simple form and wide access so

that smart trees are easy to use anytime and anywhere (Alaska & Hakim, 2021).

(Maulana et al., 2018) explains that mobile learning is learning through mobile wireless technology that allows everyone to access information and learning materials from anywhere and anytime. Learners can manage themselves when they want to learn and from where they want to learn. So that people have the right to access learning materials and information to improve their quality of life regardless of where they live, their status, and their culture.

## B. Method

This research was carried out in Laut Dendang Village and the subjects of the study were people who were included in the category of Elderly (elderly) with an age range of 60 years and over.

To maximize research results, in this activity, follow the procedures or steps that have been made previously to facilitate the research steps as shown in the image below.
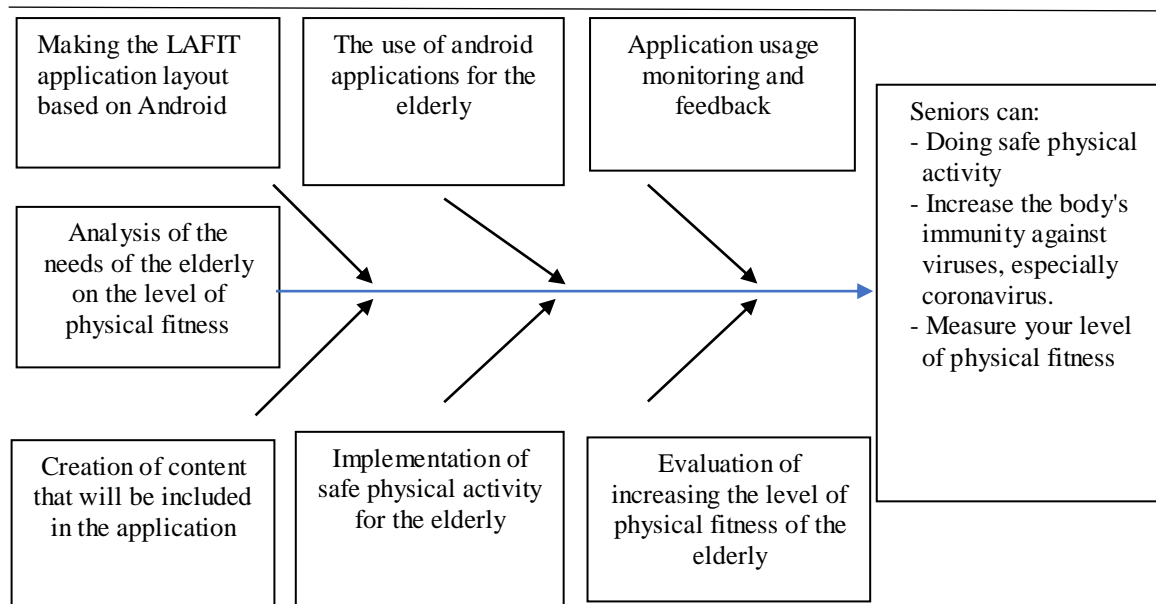
Gambar 1. Diagram Fishbone

This research was conducted in Laut Dendang Village, Percut Sei Tuan District, Deli Serdang Regency, North Sumatra Province. The time needed to carry out this research is 3 months starting in June 2021 and ending in September 2021.

The research subjects consisted of media validation subjects and test subjects. The media validation subjects included one material expert and one media expert, 5 peer reviewers, and two lecturers in public health sports courses.

Product trials consist of small-scale trials and large-scale trials. The subject of a small-scale trial will be carried out with 4 elderly subjects aged 60 years and over. While on a large-scale trial scale, this study will require research subjects as many as 27 people with the same category as subjects on a small scale, namely the elderly aged 60 years and over.

This research uses research and development methods or often called Research and Development (R&D). Research and development is a research method to develop and test products in the world of education. In addition to developing and testing products, this research is used to discover new knowledge regarding fundamental phenomena, as well as educational practices. Functioning to find fundamental phenomena is done through basic research. Then for research on educational practices, applied research is conducted.

The research uses a research model adapted from the ADDIE development model (Analysis, Design, Develop, Implement, and Evaluate). The ADDIE model began to exist in the 1990s which was developed by Dick and Carry.

This development research is a research with a procedural model, which shows the steps of the product development process. Product development in this research is in the form of training and learning media. The developed media will be assessed by media experts, material experts, and the elderly as users of the training media. So it is hoped that this media can be used as a reference source for physical activity activities to improve the physical fitness of the elderly throughout Indonesia.

## C. Result and Discussion

### Result

The development of a video learning model of safe physical activity movements for the elderly is written in the form of a script or storyboard script that presents step by step shown in the tutorial motion of physical activity movements so that the results obtained are in accordance with what was planned.

After the learning media has been created, the material expert validation is carried out. Material expert validation is used to assess the material that has been prepared in the application media for safe physical activity movement tutorials for the elderly. There are two aspects that are assessed, namely the learning aspect and the content aspect. The learning aspect is assessed to determine whether the material presented is in accordance with the basic competencies and the content aspect is to determine whether the content of the material is clear in its presentation.

The number of validation scores on the learning aspect by material experts is 35 with 9 indicators, so the average assessment result from material experts is 3.8. Referring to the conversion table, the results of the assessment from material experts in the learning aspect are good.

The number of validation scores for media experts on the display aspect is 48 out of 11 indicators, so the average result of the material expert assessment is 4.3 with a very good category. Referring to the conversion table, the assessment of the aspect of the display is **very good**.

The number of validation scores for media experts on programming aspects is 36 out of 8 indicators, so the average result of the material expert assessment is 4.5 with a very good category. Referring to the conversion table, the assessment of the programming aspect is very good.

The trial of this product was carried out on August 4 2021, at the Badminton court located at the Unimed Lecturer Housing in Laut Dendang Village, Percut Sei Tuan District. This product trial is specifically for people who fall into the category of Elderly (elderly) or who are over 60 years old.

Before the elderly used interactive multimedia-based exercise media and filled out the questionnaires that had been

provided, the research team first explained to the elderly how to fill out questionnaires and explained about interactive multimedia-based exercise media. The product trial involved 4 elderly people with several considerations, both in terms of the conditions of the current implementation of Community Activity Restrictions (PPKM) and in terms of the number of subjects that were not too many.

The trial of interactive multimedia-based learning media products was included in the "very good" category with an average value of 4.4 elderly assessment results from 15 indicators involving 4 elderly people. After testing the product, the next step is to implement the product.

The large group trial stage is the final stage and is carried out after the product has been developed. The large group trial stage is a product trial for the elderly who are willing to be subjects in this study. Before the elderly filled out the questionnaire, the research team first explained interactive multimedia-based learning media based on Android and the indicators contained in the questionnaire. The trial of this product involved 27 people over the age of 60.

The number of assessment scores based on large group field trial data involving 27 elderly with 15 indicators was 1855 so the average assessment result based on the

results of the Ciba test was 4.6. Referring to the conversion table, interactive multimedia-based learning media on the basic competencies of describing management information systems according to the elderly's response is very good.

**Discussion**

Material expert validation was carried out to assess 2 aspects, namely the training aspect and the content aspect. Based on the results of the first stage of the assessment of the learning aspect, an average score of 3.8 was obtained and was categorized as good. The assessment consists of 9 question indicators, then the content aspect gets an average score of 3.8 and is categorized as good, the assessment consists of 10 indicators. Overall the average rating is 3.8. After revisions are made according to the advice of material experts, a staged assessment is carried out

Stage 2 assessment of the learning aspects obtained an average score of 3.7 and is categorized as good. The assessment consists of 9 indicators while the content aspect gets an average score of 4 and is categorized as good. Overall, the average assessment by material experts is 3.8. The results of the assessment fall within the range of $3.4 < X < 4.2$ with a good category.

So that the feasibility level of interactive multimedia-based learning media based on material expert validation is in a good category so that the media is suitable for use as training media for the elderly.

Media expert validation was carried out to assess 2 aspects, namely the training aspect and the content aspect. Based on the results of the stage 1 assessment of the display aspect, an average score of 3.7 was obtained and was categorized as good. The assessment consists of 11 question indicators, then the programming aspect gets an average score of 3.6 and is categorized as good, the assessment consists of 8 indicators. Overall the average rating is 3.7.

After revisions were made according to the advice of media experts, a stage 2 assessment was carried out. Stage 2 assessment of the display aspect obtained an average score of 4, 3 and was categorized as very good. The assessment consists of 11 indicators while the programming aspect gets an average score of 4.5 and is categorized as very good. Overall, the average assessment by material experts is 4.4. The results of the assessment are in the range of $X < 4.2$ with a very good category. So that the feasibility level of interactive multimedia-based learning media based on the validation of media experts is in the very good category,

the media is worthy of being used as a training medium for the elderly.

The trial phase was carried out in 2 stages, namely small group trials and large group trials. The aspect that was assessed in the trial was the aspect of using learning media. Based on a small group trial conducted by 4 elderly people, an average score of 4.3 was obtained. Referring to the conversion table, the average small group trial falls in the range of $X < 4.2$ with a very good category.

Then a large group trial was carried out by 27 elderly people, the average score was 4.6. Referring to the conversion table, the average of large group trials is in the range of $X < 4.2$ with a very good category. So that the feasibility level of the media based on the assessment of the elderly is in a good category, the media is feasible to be used as a training medium for the elderly.

## D. Conclusion

Based on the needs analysis and research activities that have been carried out up to approximately 70%, the layout and form of the LAFIT application have been completed and have gone through several stages of revision or improvement based on input from experts.

Based on the results of research activities that have been carried out on the development of android applications whose purpose is to increase the level of

physical fitness of the elderly, this application is very ready to be tested on the elderly who are in Laut Dendang Village, Percut Sei Tuan District, Deliserdang Regency, North Sumatra Province. . to see the extent of the impact of using the LAFIT application there is an increase in the physical fitness of the elderly.

## E. Acknowledgment

## F. Conflict Interst

There is no conflict of interest in this journal being published.

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# Judul Ditulis Secara Spesifik dan Efektif dengan Font Times New Roman 15pt (Max 12 Kata: Bahasa Indonesia, Capitalize Each Word, **tidak cetak tebal**)

# Title Written Specifically and Effectively in Times New Roman 15pt Font (Max 12 Words: English, Capitalize Each Word,**not in bold**)

**Nama Penulis** [1] **, Nama Penulis** [2] **dst…(tanpa gelar) (font Times New Roman 11pt)**
[1]Afiliasi, Insitiusi, Alamat, Provinsi, Kode Pos, Negara (font Times New Roman 10pt)
[2]Afiliasi, Institusi Alamat, Provinsi, Kode Pos, Negara (font Times New Roman 10pt)
e-mail: xxxx@xxxx.xxx[1], xxxx@xxxx.xxx[2], xxxx@xxxx.xxx[3],dst

**Abstrak**

Abstrak yang ditulis dengan baik dapat membantu pembaca dalam menyimpulkan isi pokok tulisan dengan cepat dan tepat, mengetahui kesesuaian dengan minatnya, sehingga dapat mengambil keputusan untuk terus membaca seluruh dokumen atau tidak. Abstrak sebaiknya **meliputi tujuan, metode singkat, serta temuan penting dari jurnal**. Isi abstrak ditulis dengan huruf Times New Roman 9-point. Abstrak berisi 100 hingga 250 kata dengan istilah-istilah yang sudah dikenal luas, tanpa singkatan-singkatan dan tanpa kutipan. Abstrak seharusnya ditulis dalam kalimat bentuk lampau (untuk abstrak dengan bahasa Inggris). Kata kunci berisi kata yang dapat dijadikan rujukan tambahan pada sistem pengindeks dan pengelola abstrak selain judul artikel. Penggunaan kata kunci yang baik dan tepat dapat memudahkan pihak-pihak yang membutuhkan untuk menemukan artikel tersebut.

**Kata kunci:** maksimal 5 kata terpenting dalam makalah

***Abstract***

*A well-written abstract can help the reader to conclude the main content of the writing quickly and accurately, to find out what his interests are, so he can make the decision to continue reading the entire document or not.* ***Abstract should include objectives, concise methods, and important findings from the journal. Abstract*** *content is written in 9-point Times New Roman font. Abstract contains 100 to 250 words with terms that are widely known, without abbreviations and without quotes. Abstracts should be written in past tense sentences (for abstracts in English). Keywords contain words that can be used as additional references to the indexing system and abstract manager in addition to the article title. The use of good and appropriate keywords can make it easier for those who need to find the article.*

***Keywords****: maximum 5 keywords from paper*

## A. Pendahuluan (Font size: 12, Times New Roman, Bold)

Format teks utama terdiri dari dua kolom menggunakan ukuran kertas A4. Margin teks dari kiri, kanan, atas, dan bawah 2,54 cm. Naskah ditulis dalam Microsoft Word 1997 - 2003, spasi 1.5, Time New Roman 12 pt, layout columns 2 jumlah halaman harus genap, yang dapat didownload di website: http://ejurnal.ubharajaya.ac.id/index.php/JCESPORTS/index.

Pendahuluan harus memberikan latar belakang yang jelas, pernyataan yang jelas dari masalah, literatur yang relevan pada subjek, pendekatan yang diusulkan atau solusi, dan nilai kebaruan dari penelitian yaitu inovasi.

Penulisan kutipan dari daftar pustaka dibuat dengan dalam gaya APA 7th Edition Istilah dalam bahasa asing ditulis miring (*italic*). Disarankan untuk menyajikan artikel dalam struktur bagian: Pendahuluan - Usulan Metode/ Algoritma (opsional) - Metode Penelitian - Hasil dan Pembahasan-Ucapan Terima kasih-Konflik Kepentingan-Kesimpulan. Contoh (Handayanto et al., 2018).

Tinjauan pustaka dalam bab Pendahuluan untuk menjelaskan perbedaan naskah dengan artikel-artikel ilmiah lainnya, harus bersifat inovatif dan merupakan state of the art dari penelitian yang dilakukan. Bab Metode Penelitian untuk menggambarkan langkah-langkah penelitian dan bab "Hasil dan Diskusi" untuk mendukung analisis hasil. Jika naskah ditulis benar-benar memiliki orisinalitas tinggi, dan mengusulkan metode atau algoritma baru, bab tambahan setelah bab "Pendahuluan" dan sebelum bab "Metode Penelitian" dapat ditambahkan untuk menjelaskan secara singkat metode yang diusulkan atau algoritmanya.

## B. Metode Penelitian (Font size: 12, Times New Roman, Bold)

Menjelaskan kronologis penelitian, termasuk desain penelitian, metode dan pendekatan yang digunakan, pengumpulan data, teknik analisis. prosedur penelitian (dalam bentuk algoritma, Pseudocode atau lainnya), bagaimana untuk menguji dan akuisisi data. Deskripsi dari program penelitian harus didukung referensi, sehingga penjelasan tersebut dapat diterima secara ilmiah. Hindari menulis konsep keilmuan yang sudah umum serta defenisi-defenisi. Lampirkan desain penelitian berupa gambar

## C. Hasil dan Pembahasan (Font size: 12, Times New Roman, Bold)
**Hasil Penelitian (dicetak tebal)**

Pada bagian ini adalah sub bab dari hasil penelitian. Penulisan subbab menggunakan nomor tidak dicetak tebal.

Tabel dan Gambar disajikan di tengah, seperti yang ditunjukkan di bawah ini dan dikutip dalam naskah. Tabel ditulis berurutan sesuai banyaknya tabel dalam artikel ilmiah dan ditulis di tengah atas, begitu juga dengan keterangan gambar ditulis berurutan sesuai banyaknya gambar dalam artikel ilmiah dan ditulis di tengah bawah. Contoh (Pratiwi & Herlawati, 2019)

Tabel 1. Kuesioner Animasi Interaktif

| No. | Pertanyaan untuk siswa/siswi | Ya | Tidak |
|-----|------------------------------|----|-------|
| 1. | Menurut adik-adik apakah aplikasi ini sangat mudah digunakan? | | |
| 2. | Apakah adik-adik setuju jika aplikasi ini dapat membantu adik-adik dalam mengenal hewan khas pulau di Indonesia? | | |
| 3. | Apakah setelah mencoba aplikasi ini adik-adik lebih tertarik untuk belajar hewan khas pulau di Indonesia? | | |

| 4. | Apakah adik-adik setuju jika aplikasi hewan khas pulau Indonesia dapat dijadikan media pembelajaran baru? |
|----|------|
| 5. | Menurut adik-adik apakah aplikasi ini bermanfaat untuk dipelajari? |

Sumber: Hasil Penelitian (Tahun)

Gambar 1 menjelaskan tentang ……
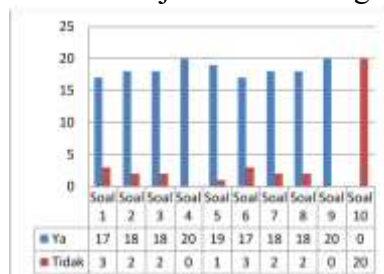


Sumber: Hasil Pengolahan Data (Tahun)

Pada gambar 2 dijelaskan tentang ….

**Pembahasan**

Pada pembahasan menjelaskan tentang hasil penelitian yang telah diteliti dan dihubungkan dengan sumber-sumber relevan lainnya. Sumber-sumber relevan yang disadur minimal 3 artikel yang sesuai dengan hasil penelitian. Selanjutnya dari hubungan keduanya di simpulkan menjadi sebuah teori baru atau temuan dari penelitian.

**D. Kesimpulan (Font size: 12, Times New Roman, Bold)**

Memberikan pernyataan bahwa apa yang diharapkan, seperti yang dinyatakan dalam bab "Pendahuluan" sampai bab "Hasil dan Diskusi", sehingga ada kompatibilitas. Selain itu dapat juga ditambahkan prospek pengembangan hasil penelitian dan prospek penerapan penelitian selanjutnya (berdasarkan hasil dan diskusi).

**E. Ucapan Terima Kasih (Font size: 12, Times New Roman, Bold)**

Digunakan untuk menyampaikan ucapan terima kasih kepada pemberi hibah atau dana dan pihak yang telah bekerja sama atau memberikan kontribusi.

**F. Konflik Kepentingan (Font size: 12, Times New Roman, Bold)**

1. Pada konflik kepentingan ini disampaikan apakah ada alasan peneliti submit dijurnal disini.
2. Tujuan submit pada jurnal (hibah, paten, sidang meja hijau, kenaikan pangkat)
3. Jika tidak ada konflik kepentingan cukup tulis "tidak ada kkonflik kepentingan"
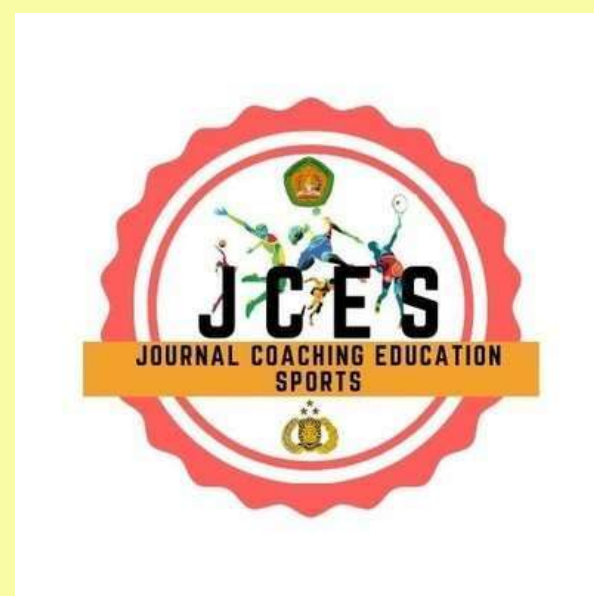
**Daftar pustaka (Font size: 12, Times New Roman, Bold)**

Daftar Pustaka **wajib** disusun menggunakan tools Mendeley dengan gaya American Psychological Association 7th edition Pustaka yang digunakan merupakan pustaka mutakhir. Referensi utama adalah jurnal internasional dan nasional terakreditasi dalam 5 tahun terakhir. Semua referensi harus yang paling relevan dan sumber up-to-date dan disusun berdasarkan urutan abjad. Referensi yang ditulis menggunakan Mendeley dalam gaya American Psychological Association 7th edition. Silakan gunakan format yang konsisten untuk referensi. Contoh:

Handayanto, R., Tripathi, N. K., Kim, S. M., & Herlawati, H. (2018). Land

Use Growth Simulation and Optimization for Achieving a Sustainable Urban Form. *TELKOMNIKA (Telecommunication Computing Electronics and Control)*, *16*(5), 2063–2072. https://doi.org/10.12928/telkomnika.v16i5.9309.

Herlawati, Handayanto, R. T., & Solikin. (2018). Neural network regression with support vector regression for land-use growth prediction. *Proceedings of the 3rd International Conference on Informatics and Computing, ICIC 2018*. https://doi.org/10.1109/IAC.2018.8780475.

Pratiwi, E. S., & Herlawati, H. (2019). Sistem Informasi Penjualan Katering Berbasis Web Pada CV. Saung Alit Telaga Murni Cikarang Barat Eka. *INFORMATION SYSTEM FOR EDUCATORS AND PROFESSIONALS*, *03*(2), 177–188. http://ejournalbinainsani.ac.id/index.php/ISBI/article/view/1126.

Yuliandari, D., Handayanto, R. T., & Herlawati, H. (2010). Structural Equation Modeling for Analyzing Factors That Influence Student and Women Lecturer Behavior in Using Facebook. *International Seminar of Information Technology*, 68–7.

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