

## The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh



Yogi Mohendra<sup>1</sup>, Tjung Hauw Sin<sup>2</sup>, Arsil<sup>3</sup>, Willadi Rasyid<sup>4</sup>, Sari Mariati<sup>5</sup>, Fiky Zarya<sup>6</sup>

<sup>1,2,3,4,5,6</sup>Faculty of Sports Science, Universitas Negeri Padang, Jl. Prof. Dr. Hamka Air Tawar, Padang, Sumatera Barat, Indonesia

**ABSTRACT:** The research problem is the low football achievement of SMKN 3 Sungai Full marked by never winning. The purpose of this study was to analyze the direct and indirect influence between leg muscle explosive power, simultaneous ankle coordination on shooting accuracy through concentration on SMKN 3 Sungai Full Football Players. The method used in this study is a quantitative method using a Path Analysis approach. The population in this study is SMKN 3 Sungai Full football players totaling 31 people. In this study the sample was determined using purposive sampling technique totaling 24 people. This study used data analysis techniques with a Path Analysis approach using SPSS version 26. The results of the study are: 1) There is a direct and significant influence of leg muscle explosive power on shooting accuracy with a contribution of 13.1%, 2) There is a significant direct influence of Ankle Coordination on shooting accuracy with a contribution of 12.8%, 3) There is a direct and significant influence of concentration on shooting accuracy with a contribution of 13.6%, 4) There is an indirect influence of leg muscle explosive power on shooting accuracy through concentration with a contribution of 21.6%, 5) There is an indirect influence of ankle coordination on shooting accuracy through concentration with a contribution of 27.3% and 6) There is a significant influence between leg muscle explosiveness, ankle coordination and concentration simultaneously on player shooting accuracy with a contribution of 53.2%.

**KEYWORDS:** leg muscle explosive power, ankle coordination, concentration, and shooting accuracy

### I. INTRODUCTION

Sports at this time have become a necessity for society. Exercise has become a social phenomenon that has spread all over the world. Sports have also become a means of recreation, education, achievement, and health. Sports activities for educational purposes such as school children being taken care of by physical education teachers (Afrizal, 2018; Asdi & Rifki, 2020).

Law no. 11 of 2022 on sports says "A sports coach is a person who has an interest and knowledge, leadership, managerial ability, and/or funding dedicated to the interests of sports coaching and development". Various extracurricular sports are provided in schools to meet students' needs for these things. Various extracurriculars that often exist in schools include basketball, volleyball, badminton, soccer, and futsal. Existing extracurriculars encourage students to choose extracurriculars that can support student achievement in non-academic fields (Cahyono & Sin, 2018; Gunadi et al., 2020; Ridwan, 2019).

Afrinaldi et al., (2021) Football is one of the sports that has appeal and is very popular with students. No less important in football today continues to be developed and improved techniques, tactics and strategies applied by players and coaches in facing a match (Candra & Suwirman, 2019; Putra, 2012). Jambi Province has carried out coaching this football sport at the Regency and City levels. Where coaching has been planned and programmed in extracurricular activities in first and upper level schools. One of the top-level schools that conducts extracurricular activities is SMK N 3 Sungai Penuh. Football is the branch that is most interested in extracurricular activities.

To improve football achievements at SMKN 3 Sungai Full, football athletes are needed to have physical, technical, tactical and mental skills. Endurance is needed for soccer athletes to play 2 x 45 minutes and is also needed to play in addition to extra time for 2 x 15 minutes. Strength for football is needed when athletes pass, long pass and when shooting goal. Speed in the game of football is needed when athletes dribble the ball to leave the opponent and when grabbing the ball. Agility must be possessed by soccer athletes to make trickery moves to take the ball from the opponent. Breadth of motion is needed in soccer athletes so that motion in soccer is not rigid (Jusran, 2021; Rosmawati, 2016; Sunandar, 2014).

## The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh

Soccer techniques are needed by soccer players to have technical skills need to be trained so that the actual movements can be done correctly. Tactics are indispensable for playing football, namely individual tactics, group tactics and team tactics. Mental is an exercise that has been carried out through imagery visualization and shadowing what will be done so that when it comes time to compete, players already know what to do (Aditya, 2017; Arwandi, 2019; Saputra & Juita, 2016).

Another physical condition that must also be trained is speed and agility which are needed when outwitting defenders in order to get space to shoot at goal well. A soccer player must also have good and good ankle coordination so that shooting at the goal can be directed and difficult to execute by the goalkeeper. Concentration is very necessary when shooting at goal, because the pressure exerted by the opponent or teammates themselves requires a footballer to have a good level of concentration (Hidayat, 2018; Wibowo, 2015). Coaches who have licenses that have a very important role in the success of athletes' achievements. A trainer should also have a well-organized training program. In addition, a coach must be able to create varied forms of exercise to make athletes not bored and of course these varied forms of exercise will increase training motivation (Anggara, 2021; Effendi, 2016; Rizky, 2020).

Sarana dan prasarana juga perlu menjadi perhatian bagi semua pihak yang terlibat dalam pembinaan olahraga sepakbola di SMKN 3 Sungai Penuh, dimulai dari biaya dari dana BOS untuk Ekstrakurikuler, bantuan dari pemerintah daerah dan bantuan dari OSIS sekolah demi kemajuan ekstrakurikuler sepakbola di SMKN 3 Sungai Penuh.

Balanced nutritional intake is needed by athletes, if unbalanced nutrition comes out, more comes out than what comes in, athletes experience fatigue and motivation decreases, therefore balanced nutritional intake must be considered to improve the performance of SMKN 3 Sungai Full football athletes. Motivation for training is very necessary to be possessed by football athletes, namely desire, will, perseverance, tenacity, seriousness for training in achieving achievements, therefore it is the spirit that can beat everything to achieve victory (Aryatama, 2021; Nugroho, 2017; Wijaya, 2021).

Based on the observations of researchers and interviews with trainers and physical education teachers who trained at SMKN 3 Sungai Full school, the achievements obtained were very far from the desired expectations. Every time you participate in a match conducted by the education office every year, SMKN 3 Sungai Full always stops in the semi-finals. This happens because athletes lack discipline, lack motivation, are not disciplined in following training, are not sure of their abilities, often hesitate when making decisions. Errors when passing often occur during the game so that the opponent easily executes the raw ball. When shooting at the goal, the goalkeeper easily catches the ball and sometimes the ball does not go right to the goal (Kurniawan, 2019).

The championships at the City and Provincial levels participated by SMKN 3 Sungai Full for the last 4 to 5 years have also not been able to provide the best results. In 2017 he participated in the POPKOT match and lost until the preliminary round, 2018 participated in POPKOT as well and lost until the quarterfinals, in 2019 and 2020 POPKOT was not held due to Covid 19, continued in 2021 and 2022 participated in POPKOT and the tournament between high schools / vocational schools in the full river city held by the STKIP Muhammadiyah Sungai Full campus, but still stopped in the quarterfinals. Based on the data above, it can be seen that the low achievement of SMKN 3 Sungai Full football sports because it has never won.

## II. MATERIAL AND METHODS

The method used in this study is the path analysis method (*path analysis*). Ghodang, (2020)" said that "Path Analysis research is used to analyze patterns of relationships among variables. This model is to determine the direct or indirect influence of a set of independent variables (exogenous) on the dependent variable (endogenous)". This study explains the relationship between independent and bound variables, where the independent variables are leg muscle strength, ankle coordination and concentration while the dependent variable is shooting accuracy on goal. This research was conducted at SMK N 3 Sungai Full on February 11 to 16, 2023.

The population in this study was students who participated in extracurricular football activities of SMK N 3 Sungai Full which amounted to 31 people. The sample is part of the number and characteristics possessed by that population. The sampling technique used is Purposive sampling. Purposive sampling is a technique of taking data / samples with reference to certain characteristics and the need for research. In this study, the sample was only 24 students of class X and XI.

Data collection is an important thing in research, measuring is essentially the installation or correspondence of 1-1 between the numbers given with facts and given numbers or measured". In this study using tools (instruments) to collect data. Research instruments made include (1) leg muscle strength, (2) ankle coordination, (3) concentration, and (4) shooting on goal. The data analysis technique used in this study is path analysis. Sandjojo, (2011) Path analysis is an analytical technique used to study the

## **The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh**

causal relationship between independent variables and non-free variables. Causal relationships are arranged in the form of hypothetical models based on scientific substance, namely the theoretical foundation and / or experience of the researcher".

Descriptive analysis and inferential analysis using the SPSS 26 program. Descriptive analysis is used in terms of presentation, central size and spread size. The presentation of data is a list of frequency distributions and a bar chart. The central measure is the average, the middle value and more values appear. The size of the spread is the variant and standard deviation. Inferential analysis is used to test hypotheses using path analysis preceded by requirements analysis tests. To determine the direct or indirect influence of the independent variable on the dependent variable can be done by calculating the path coefficient.

In path analysis, two types of variables are known, namely exogenous variables and endogenous variables. Exogenous variables exogenous influence directly or indirectly on endogenous variables. While endogenous variables are variables that can be influenced by exogenous variables. In accordance with the frame of mind that has been developed, the endogenous variables in this study are shooting on goal (Y) and Concentration (X3) as intervening variables and the exogenous variables are Leg muscle explosive power (X1) and ankle coordination (X2).

### **III. RESULTS AND DISCUSSION**

#### **Descriptive Analysis**

In this section, the author will describe the description of data which is the result of tests and measurements of all research objects. This research data consists of the results of the ability test of Shooting Accuracy to Goal (Y) as a dependent variable, leg muscle explosive power (X1), Ankle Coordination (X2) and Concentration (X3) as a free variable. For more details, the description of the state of each data in the group can be seen in the description that the researcher will describe as follows:

#### **1. Accuracy of Shooting on Goal**

Variable data on Shooting Accuracy to Goal was collected through a Shooting Accuracy to Goal ability test on 24 samples. From the results of measurement and data processing, it can be seen that the highest value of Shooting Accuracy Ability to Goal that players can achieve is 47 and the lowest value is 10. Furthermore, the average value (mean) of 34.5 was obtained. From the measurement of the Shooting Accuracy Ability to the player's goal, a standard deviation (standard deviation) of 9.17 is obtained.

#### **2. Limb Muscle Explosive Power**

Variable data on leg muscle explosive power were collected through tests and measurements using Standing Broad Jump to 24 samples. From the results of measurements and data processing, it can be seen that the highest leg muscle explosive value score that players can achieve is 2.5 and the lowest value is 1.65. Furthermore, the average value (mean) of 2.19 was obtained. Then from the measurement of the explosive power of the leg muscles, a standard deviation (standard deviation) of 0.20 is obtained.

#### **3. Ankle Coordination**

Data on Ankle Coordination variables were collected through tests and measurements using the Ankle Coordination test to 24 samples. From the measurement results and data processing, it can be seen that the highest Ankle Coordination score that players can achieve is 15 and the lowest value is 3. Furthermore, the average value of the calculation (mean) of 10 was obtained. Then from the measurement of Ankle Coordination obtained a standard deviation (standard deviation) of 3.78.

#### **4. Concentration**

Concentration variable data were collected through tests and measurements using the Grid Concentration test to 24 samples. From the results of measurement and data processing, it can be seen that the highest Concentration value score that players can achieve is 19 and the lowest value is 7. Furthermore, the average value (mean) of 14 was obtained. Then from the measurement of Concentration, a standard deviation (standard deviation) of 3.58 is obtained.

#### **Data Analysis Requirements Testing**

##### **1. Data Normality Test**

The normality test was carried out on variables using the Shapiro Wilk SPSS.26 Normality Test with the test criteria being that if the significant value (sig) > 0.05, the research data is normally distributed, but if the Significance (Sig) value is < 0.05, the research data is not normally distributed.

##### **2. Data Homogeneity Test**

The homogeneity test is used to test whether the variable data of Shooting Accuracy Ability to Goal comes from a homogeneous population of variance, Leg muscle explosive power, Ankle Coordination and Concentration. The test criteria are data derived from a homogeneous population if the F Sig value > 0.05.

# The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh

**Table 1. Test Results of Variable Homogeneity Ability of Shooting Accuracy to Goal (Y) over variance Limb muscle explosive power (X1), Ankle Coordination (X2) and Concentration (X3)**

Variable	Sig	>0,05	Conclusion
Y over variance X <sub>1</sub>	0,08		<b>Homogen</b>
Y over variance X <sub>2</sub>	0,18		
Y over variance X <sub>3</sub>	0,13		
X <sub>1</sub> over variance X <sub>3</sub>	0,20		
X <sub>2</sub> over variance X <sub>3</sub>	0,75		

### 3. Data Linearity Test

The linearity test is a test performed to see if each variable data of Limb muscle explosive power, Ankle Coordination and Concentration tends to form a linear line with respect to the variable Shooting Accuracy Ability to Goal. Ha tested in this case is the data Leg muscle explosive power (X1), Ankle Coordination (X2), Concentration (X3), has a linear influence on the Accuracy of Shooting on Goal. The test criterion is that Ha is accepted if the sign value > probability value of 0.05.

**Table 2. Results of the Variable Linearity Test Ability of Shooting Accuracy to the Goal (Y) on the variables Leg muscle explosive power (X1), Ankle Coordination (X2) and Leg muscle explosive power (X3)**

Linearity Test	Value $\alpha$	Sig.
X <sub>1</sub> with Y	<b>0,05</b>	0,420
X <sub>2</sub> with Y		0,270
X <sub>3</sub> with Y		0,842

Based on the table above which is searched using SPSS version 26, for data X1 with Y, a significance value = 0.420 is greater than the probability value of  $\alpha=0.05$ . This explains that there is a significant linear relationship between the variable Explosive Power of the leg muscles (X1) and the Accuracy of Shooting on Goal (Y). From Table 11 above, for data X2 with Y obtained a significance value = 0.207 greater than the probability value of  $\alpha = 0.05$ . This explains that there is a significant linear relationship between the variables of Ankle Coordination (X2) and Accuracy of Shooting on Goal (Y). Furthermore, for X3 data with Y, the significance value = 0.842 is greater than the probability value, which is  $\alpha=0.05$ . This explains that there is a significant linear relationship between the variable Concentration (X3) and the Accuracy of Shooting on Goal (Y) in SMKN 3 Sungai Full football players.

### Hypothesis Testing

Testing of this hypothesis will be carried out using a path analysis approach using the SPSS program version 26, the results of the analysis of the variables Leg muscle explosive power (X1), Ankle Coordination (X2), Concentration (X3), and Shooting Accuracy Ability to Goal (Y) will be presented as follows:

#### 1. Direct Influence of Leg Muscle Explosive Power on the Accuracy of Shooting Ability to Goal of SMKN 3 Full River Football Players.

H<sub>a</sub> There is a direct influence of the explosive power of the leg muscles on the Accuracy of Shooting on Goal.

H<sub>o</sub> There is no direct influence of the explosive power of the leg muscles on the Accuracy of Shooting on Goal.

Individual tests conducted by X1 on Y found that the result of the coefficient path  $\rho_{YX1} = 0.362$ . Based on the results of the analysis, the value of sig = 0.021 is smaller than the probability value of  $\alpha = 0.05$ , the value of  $0.021 < 0.05$ , then in this case Ha is accepted and H0 is rejected which means the coefficient analysis of the path is significant. So, the explosive power of the leg muscles directly affects the Accuracy of Shooting on Goal made by SMKN 3 Sungai Full football players. The magnitude of the influence of the explosive power of the leg muscles on the Accuracy of Shooting Ability to the Goal of SMKN 3 Sungai Full football players is as follows:

$$\begin{aligned}
 &= \rho_{YX1}^2 \times 100 \\
 &= 0,362^2 \times 100 \\
 &= 13,1\%
 \end{aligned}$$

The Effect of Limb Muscle Explosive Power on the Accuracy of Shooting on Goal of SMKN 3 Sungai Full football players is 13.1%.

# The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh

## 2. The Direct Influence of Ankle Coordination on the Accuracy of Shooting Ability to the Goal of SMKN 3 Sungai Full Football players.

- H<sub>a</sub> There is a direct influence of Ankle Coordination on the Accuracy of Shooting on Goal.  
 H<sub>o</sub> There is no direct influence of Ankle Coordination on the Accuracy of Shooting on Goal.

Individual tests conducted by X<sub>2</sub> on Y found that the result of the coefficient path  $\rho_{YX_2} = 0.359$ . Based on the results of the analysis, the value of  $\text{sig} = 0.032$  is smaller than the probability value of  $\alpha = 0.05$ , the value of  $0.032 < 0.05$ , then in this case H<sub>o</sub> is rejected and H<sub>a</sub> is accepted which means the coefficient analysis of the path is significant. So Ankle Coordination has a direct effect on the Accuracy of Shooting on Goal by SMKN 3 Sungai Full Soccer players. The magnitude of the influence of Ankle Coordination on the Accuracy of Shooting Ability to Goal of SMKN 3 Sungai Full Soccer players is as follows:

$$\begin{aligned} &= \rho_{YX_2}^2 \times 100 \\ &= 0,359^2 \times 100 \\ &= 12,8\% \end{aligned}$$

The Effect of Ankle Coordination on the Accuracy of Shooting Ability to Goal of SMKN 3 Sungai Full football players is 12.8%.

## 3. Direct Influence of Concentration on the Accuracy of Shooting Ability on Goal of SMKN 3 Sungai Full football players.

- H<sub>a</sub> There is a direct influence of Concentration on the Accuracy of Shooting on Goal.  
 H<sub>o</sub> There is no direct influence of concentration on the accuracy of shooting on goal.

Individual tests performed X<sub>3</sub> on Y found that the result of the coefficient path  $\rho_{YX_3} = 0.370$ . Based on the results of the analysis, the value of  $\text{sig} = 0.009$  is smaller than the probability value of  $\alpha = 0.05$ , the value of  $0.0 < 0.05$ , then in this case H<sub>a</sub> is accepted and H<sub>o</sub> is rejected which means the efficiency of the path analysis is significant. So, Concentration directly affects the Accuracy of Shooting on Goal by SMKN 3 Sungai Full soccer players. The magnitude of the influence of Concentration on the Accuracy of Shooting Ability on Goal of SMKN 3 Sungai Full soccer players is as follows:

$$\begin{aligned} &= \rho_{YX_3}^2 \times 100 \\ &= 0,370^2 \times 100 \\ &= 13,6\% \end{aligned}$$

The effect of concentration on the accuracy of shooting against SMKN 3 Sungai Full soccer players is 13.6%.

## 4. Indirect Influence of Leg Muscle Explosive Power on the Accuracy of Shooting on Goal through the Concentration of SMKN 3 Full River Football Players.

- H<sub>a</sub> The explosive power of leg muscles indirectly affects the Accuracy of Shooting on Goal through Concentration  
 H<sub>o</sub> The explosive power of the leg muscles does not indirectly affect the Accuracy of Shooting on Goal through Concentration.

Based on the results of the analysis test on the variable Explosive Power of the leg muscles on the Accuracy of Shooting on Goal through the explosive power of the leg muscles in SMKN 3 Sungai Full football players, the following results were obtained:

Direct effect of X <sub>1</sub> on Y ( $\rho_{YX_1}$ )	0,362
Effect of X <sub>1</sub> on X <sub>3</sub> ( $\rho_{X_3X_1}$ )	0,28
Direct effect of X <sub>3</sub> on Y ( $\rho_{YX_3}$ )	0,370

$$\begin{aligned} \text{Indirect influence} &= \rho_{YX_1} + (\rho_{X_3X_1} \times \rho_{YX_3}) \\ &= 0,362 + (0,28 \times 0,370) \\ &= 0,362 + 0,103 \\ &= 0,465 \\ \rho_{YX_{31}} &= 0,465^2 \times 100 \\ &= 0,216 \times 100 \\ &= 21,6\% \end{aligned}$$

So based on data analysis, it can be said that the magnitude of the influence of leg muscle explosive power on the Accuracy of Shooting on Goal through Concentration is 0.465 or 21.6%.

## The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh

### 5. The Indirect Influence of Ankle Coordination on the Accuracy of Shooting on Goal through the Concentration of SMKN 3 Full River Football Players.

- H<sub>a</sub> Ankle Coordination indirectly affects the Accuracy of Shooting on Goal through Concentration  
 H<sub>o</sub> Ankle Coordination does not directly affect the Accuracy of Shooting on Goal through Concentration.

Based on the results of the analysis test on the Ankle Coordination variable on the Accuracy of Shooting Ability to the Goal through Concentration on SMKN 3 Sungai Full football players, the following results were obtained:

Direct effect of X2 on Y ( $\rho_{yx2}$ )	<b>0,359</b>
Effect of X2 on X3 ( $\rho_{x32}$ )	<b>0,445</b>
Direct effect of X3 on Y ( $\rho_{yx3}$ )	<b>0,370</b>

$$\begin{aligned} \text{Indirect influence} &= \rho_{yx2} + (\rho_{x32} \times \rho_{yx3}) \\ &= 0,359 + (0,445 \times 0,370) \\ &= 0,359 + 0,164 \\ &= 0,523 \\ \rho_{yx32} &= 0,523^2 \times 100 \\ &= 0,273 \times 100 \\ &= 27,3\% \end{aligned}$$

So based on data analysis, it can be said that the magnitude of the influence of Ankle Coordination on the Accuracy of Shooting on Goal through Concentration is 0.523 or 27.3%.

### 6. The Effect of Leg Muscle Explosive Power, Ankle Coordination and Concentration on the Accuracy of Shooting Ability to Goal SMKN 3 Sungai Full football players.

- H<sub>a</sub> There is a simultaneous influence of leg muscle explosive power, ankle coordination, and concentration on the ability to accurately shoot against the goal of SMKN 3 Sungai Full football players.  
 H<sub>o</sub> There is no simultaneous influence of leg muscle explosive power, ankle coordination and concentration on the ability to accurately shoot against the goal of SMKN 3 Sungai Full football players.

Based on the results of the analysis, the Rsquare value in Appendix 9 obtained the value of Rsquare = 0.730 and from the Annova Table obtained F = 18.06 with probability (sig) = 0.000, because the value of sig <  $\alpha$  = 0.05 then the decision is H<sub>o</sub> rejected and H<sub>a</sub> accepted, so Leg muscle explosive power, Ankle Coordination, and Concentration simultaneously affect the Accuracy of Shooting on Goal of SMKN 3 Sungai Full football players. The equation of the path of the variables Limb muscle explosive power, Ankle Coordination and Concentration on Accuracy Shooting Ability to Goal (X1, X2 and X3 to Y) using the formula:

$$Y = \rho_{YX1}X_1 + \rho_{YX2}X_2 + \rho_{YX3}X_3 + \rho_Y\epsilon_1$$

(Riduwan & Engkos 2012: 292)

The magnitude of the Rsquare number is 0.730. The figure shows that the magnitude of the influence of leg muscle explosive power, ankle coordination, and concentration on the ability to shoot accuracy against the goal of SMKN 3 Sungai Full football players is:

$$\begin{aligned} \text{KD} &= r^2 \times 100\% \\ &= 0,730 \times 100\% \\ &= 53,2\% \end{aligned}$$

The effect of leg muscle explosive power, ankle coordination, and concentration on the accuracy of shooting on goal is 53.2%.

## DISCUSSION

### 1. Direct Effect of Leg Muscle Explosive Power on Shooting Accuracy Ability to Goal SMKN 3 Sungai Full football player.

In improving the ability of a sport, the main concern must be physical condition. Because each sport has different physical conditions. Therefore, to develop physical abilities must be planned systematically and purposefully with the aim that physical

## **The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh**

freshness and functional abilities of the body system increase, so that in carrying out sports movements, especially shooting techniques, can be done effectively and efficiently (Syahara, 2020).

The explosive power of the leg muscles is very necessary, because a player who wants to shoot at the opponent's goal, one aspect that needs to be considered is the problem of leg muscle explosiveness. The basic element of power is a combination of strength and speed. The explosive power of leg muscles can be increased by providing explosive power exercises that focus on leg muscles. Marisa et al., (2022) The characteristics of Power training are: 1) against relatively light loads, the weight of the load itself, can also be additional light external loads, 2) movements are relatively active, dynamic, and fast, 3) movements are one short, harmonious and whole motion, 4) the form of motion can be cyclic or acyclic, and 5) submaximal or maximum work intensity.

From the results of research that has been carried out on the variable Explosive Power of leg muscles on Shooting Accuracy to Goal, it was found that there is a direct influence of Explosive Power of leg muscles (X1) on the Accuracy of Shooting on Goal (Y). This can be seen in the Coffesient Table which shows an influence of  $pYX1 = 0.362$ . Based on the results of calculations carried out using the SPSS.26 program, the value of  $sig = 0.021$  is smaller than the probability value of  $\alpha = 0.05$ , the value of  $0.021 < 0.05$ , then in this case  $H_a$  is accepted and  $H_0$  is rejected which means significant path analysis coefficient. So, the explosive power of the leg muscles directly affects the Accuracy of Shooting on Goal by SMKN 3 Sungai Full football players.

The results of this finding show that the explosive power of the leg muscles is an element of physical ability that is quite important and has a relationship and influence on the accuracy of shooting on goal. When viewed from the relationship between the explosive power of the leg muscles with the accuracy of shooting on goal, a relationship of 0.362 or 13.1% was found. In the study of theory and theoretical framework in this study, the variable explosive power of leg muscles can be accepted empirically, that the explosive power of leg muscles has a relationship and influence on the accuracy of shooting on goal in football. Based on these findings, the hypothesis proposed in this study is accepted empirically. It can be interpreted that without good limb muscle explosiveness, it is impossible for a player to practice correct movements and good in kicking.

### **2. The Direct Influence of Ankle Coordination on the Accuracy of Shooting Ability to Goal of SMKN 3 Sungai Full Football Players.**

The coordination component is a component that affects the implementation of motion, ball kicking skills both from the time of receiving the ball until the ball is kicked into the goal. To produce good and perfect ball kicking movements, straightforward, beautiful and subtle movements from the stages of preparation, execution, and final movement and continuously until the ball is kicked into the goal and creates a goal. So to be able to produce good and fast ball kicking skills, coordination and agility components are needed (Zarya & Welis, 2021).

Other opinions are also expressed by experts about coordination. As stated by (Marisa et al., 2022) that coordination is the ability to move at various levels of difficulty quickly and precisely efficiently. To be able to perform movements or skills both from easy, simple to complicated are arranged and commanded from the central nervous system that has been stored in memory first. Therefore, to be able to carry out the correct coordination movements it is also necessary to coordinate the nervous system which includes the central nervous system and peripheral nervous system with muscles, bones, and joints.

Coordination is needed in almost all sports that are contested and games. The level of good or not coordination of a person's movements is reflected in his ability to perform a movement smoothly, precisely, quickly, and efficiently. The main indicators of coordination are precision and economical motion. Thus coordination is the result of a combination of performance from the quality of muscles, bones, and joints in producing effective and efficient motion. Where the motion component consisting of energy, muscle contraction, nerves, bones, and joints is neuromuscular coordination. Neuromuscular coordination is motion that occurs in order in the right time and the movement contains energy.

From the results of research that has been conducted on the variable of Ankle Coordination on Shooting Accuracy to Goal, it was found that there is a direct influence of Ankle Coordination (X2) on the Accuracy of Shooting to Goal (Y). This can be seen in the Coffesient Table which shows an influence of  $pYX2 = 0.359$ . Based on the results of calculations carried out using the SPSS.26 program, the value of  $sig = 0.021$  is smaller than the probability value of  $\alpha = 0.05$ , the value of  $0.032 < 0.05$ , then in this case  $H_a$  is accepted and  $H_0$  is rejected which means significant path analysis coefficient. So, Ankle Coordination directly affects the Accuracy of Shooting on Goal by SMKN 3 Sungai Full Football players.

From these findings, Shooting Accuracy on Goal really requires Ankle Coordination. With perfect Ankle Coordination, the expected speed will be carried out well, so that it will produce maximum Shooting Accuracy to the Goal as well. Ankle Coordination is needed for leg abrasions and hip thrusts in order to move flexibly and produce maximum Shooting Accuracy on

## **The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh**

Goal. Therefore, Ankle Coordination is needed when kicking so that it plays an important role in Shooting Accuracy on Goal. Thus, Ankle Coordination affects the accuracy of shooting on goal.

### **3. Direct Influence of Concentration on the Accuracy of Shooting on Goal Soccer Players of SMKN 3 Sungai Full**

Concentration plays an important role in the ability to accurately shoot against soccer players. The better the concentration the player has, the better his kicking ability will be. When after shooting accuracy on goal strongly and quickly hit the target, a footballer must return his posture to a position ready to return to receive an attack or attack again. Here is very necessary Concentration for a Football player in doing Accuracy Shooting on Goal (Wibawa, 2017).

From the results of research that has been carried out on the variable Concentration on Shooting Accuracy to Goal, it was found that there is a direct influence of Concentration (X3) on the Accuracy of Shooting on Goal (Y). This can be seen in the Coffesient Table which shows an influence of  $pYX3 = 0.370$ . Based on the results of calculations carried out using the SPSS.26 program, the value of  $sig = 0.009$  is smaller than the probability value of  $\alpha = 0.05$ , the value of  $0.009 < 0.05$ , then in this case  $H_a$  is accepted and  $H_0$  is rejected which means significant path analysis coefficient. So, concentration directly affects the accuracy of shooting on goal by SMKN 3 Sungai Full Football players.

### **4. The Indirect Influence of Leg Muscle Explosive Power on the Accuracy of Shooting on Goal through the Concentration of SMKN 3 Full River Football Players.**

The explosive power of the leg muscles is very necessary, because a player who wants to kick the opponent, one aspect that needs to be considered is the problem of leg muscle explosive power. The basic element of power is a combination of strength and speed. The explosive power of leg muscles can be increased by providing Ankle Coordination exercises and the speed of motion of the leg muscles. The characteristics of Power training are: 1) against relatively light loads, the weight of the load itself, can also be additional light external loads, 2) movements are relatively active, dynamic, and fast, 3) movements are one short, harmonious and whole motion, 4) the form of motion can be cyclic or acyclic, and 5) the intensity of maximum or maximum work (Hariadi & Mardela, 2020; Novriadi & Hermanzoni, 2019; Utama & Alnedral, 2018).

Concentration is one of the physical components that are widely used in sports. (Asdi & Rifki, 2020) "Concentration is generally defined as the ability to change direction effectively and quickly, while running almost full". Concentration occurs due to explosive movement of force. The amount of force is determined by the strength of the contraction of muscle fibers. The speed of the muscle depends on the strength and contraction of the muscle fibers. The speed of muscle contraction depends on the adhesion of muscle fibers and the speed of transmission of nerve impulses. Both of these things are congenital or genetic, players cannot change them.

Concentration involves coordinating large muscles in the body quickly and precisely in a particular activity. Concentration can be seen from a large number of activities in sports including efficient foot work and rapid changes in body position. A person who is able to change different positions at high speed with good coordination, means that his concentration is quite good.

Individuals who are able to change positions from one position to another with high coordination and speed have good freshness in the Concentration component. In some ways, concentration merges with the explosive power of the leg muscles. Concentration is needed once in carrying out deceptive movements when kicking we can do by controlling accuracy, speed, and accuracy.

Based on previous findings, the direct influence of leg muscle explosive power with Shooting Accuracy to Goal was found a relationship of 0.362 or 13.1%, while the influence of Concentration with Shooting Accuracy to Goal was found a relationship of 0.370 or 13.6%, while the influence of leg muscle explosive power on the Accuracy of Shooting to Goal through Concentration was 0.465 or 21.6%. This means that if these two variables are integrated, the influence obtained is quite significant. It can be interpreted that Ankle Coordination through Concentration has a greater influence on the Accuracy of Shooting on Goal carried out by SMKN 3 Sungai Full Football players.

The results of this study can be said that the study of theories, conceptual frameworks, and hypotheses proposed in the previous Chapter II can be accepted empirically. The rationale that has been presented in the concept framework can be tested in reality. Based on the results of these findings, it can be interpreted that players who have good Limb Muscle Explosive Power will significantly affect the ability of Shooting Accuracy to the Goal, especially if combined with good concentration, the resulting effect in kicking will be better and maximum in accordance with the theory that has been described.

The results of this finding can be assumed that players who have good Shooting Accuracy Ability to Goal certainly have good Leg Muscle Explosive Speed and Concentration, this can be interpreted that to be a good player, SMKN 3 Sungai Full Football players must always improve physical abilities that support the realization of the ability of Shooting Accuracy to Goal so that high achievements can be achieved.



## **The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh**

### **5. Indirect Influence of Ankle Coordination on Shooting Accuracy Ability on Goal through the Concentration of SMKN 3 Full River Football Players.**

In Football, Ankle Coordination plays an important role. One technique that requires Ankle Coordination in Football is Accuracy of Shooting on Goal. Ankle coordination makes it easier for footballers to kick and makes the movements of a footballer more flexible so that it is not easily dropped by the opponent and also reduces the risk of injury when kicking. In this regard, Widodo & Noviardila, (2021) Explaining that players who are tired will have advantages, namely 1) making it easier for players to display movement abilities and skills, 2) avoiding injuries during physical activity, 3) allowing them to be able to perform extreme movements, and 4) facilitating blood flow so that they reach muscle fibers.

Based on previous findings, the direct influence of Ankle Coordination with Shooting Accuracy on Goal found a relationship of 0.359 or 12.8%, while the influence of Concentration with Shooting Accuracy on Goal was found a relationship of 0.370 or 13.6%, while the influence of Ankle Coordination on the Accuracy of Shooting on Goal through Concentration was 0.523 or 27.3%. This means that if these two variables are integrated, the influence obtained is quite significant. It can be interpreted that Ankle Coordination through Concentration has a greater influence on the Accuracy of Shooting on Goal carried out by SMKN 3 Sungai Full Football players.

### **6. The Simultaneous Influence of Leg Muscle Explosive Power, Ankle Coordination, Concentration on the Accuracy of Shooting Ability to the Goal of Kucing Putih Tiger Campo Padang Panjang Football Players.**

From the results of research that has been carried out on the variables of Leg Muscle Explosive Power, Ankle Coordination, Concentration and Accuracy of Shooting on Goal conducted by SMKN 3 Sungai Full football players, it was found that there was a simultaneous influence of Leg Muscle Explosive Power (X1), Ankle Coordination (X2) and Concentration (X3) on the Accuracy of Shooting on Goal (Y) obtained  $R^2 = 0.730$  or there was an influence of 53.2% so that  $H_0$  was rejected and  $H_a$  was accepted, where there is a simultaneous influence between the Effect of Leg Muscle Explosive Power, Ankle Coordination and Concentration on the Accuracy of Shooting Ability to Goal SMKN 3 Sungai Full football players.

Leg muscle explosive power and Ankle Coordination affect the ability of Shooting Accuracy on Goal. According to theory, a player with good concentration not only displays a perfect skill, but also quickly solves an unexpected training task. Concentration is influenced by the level of development of biomotor abilities, such as strength, speed, endurance, flexibility, and coordination (Anggara, 2021; Syahara, 2020).

Based on the assumptions above, it can be interpreted that the three elements are a unity that supports each other in the ability of Shooting Accuracy to the Goal. Leg muscle explosive power, Ankle Coordination and good concentration have a significant influence on the ability of Shooting Accuracy to Goal, moreover these three elements are combined simultaneously, it is possible that the results of the simultaneous integration of these three variables are very strong and meaningful in the ability of Shooting Accuracy to Goal. Shooting accuracy on goal is very suitable for long-range combat, and for footballers who have long limbs it is very elective to use because the range is definitely longer too. If soccer players kick with leg muscle explosive power, ankle coordination and high concentration, it will produce a strong, fast and precise kick on target so that players will get devastating points during the match and the opponent will find it difficult to anticipate the kick. It also determines the achievements of a football player. Then the explosive power of the leg muscles, Ankle Coordination and Concentration affect the ability of Shooting Accuracy to the Goal of SMKN 3 Sungai Full football players.

## **IV. CONCLUSION**

Based on the results of data analysis and discussion described in the previous chapter, the following conclusions can be drawn: 1) there is a direct and significant influence of leg muscle explosive power on the Accuracy of Shooting Ability to Goal SMKN 3 Sungai Full football players with a contribution of 13.1%. 2) There is a significant direct influence of Ankle Coordination on the Accuracy of Shooting Ability on Goal SMKN 3 Sungai Full football players with a contribution of 12.8%. 3) There is a direct and significant influence of Concentration on the Accuracy of Shooting Ability on Goal SMKN 3 Sungai Full football players with a contribution of 13.6%. 4) There is an indirect influence of leg muscle explosive power on the Accuracy of Shooting on Goal through the Concentration of SMKN 3 Sungai Full football players with a contribution of 21.6%. 5) There is an indirect influence of Ankle Coordination on the Accuracy of Shooting on Goal through the Concentration of SMKN 3 Sungai Full football players with a contribution of 27.3%. 6) There is a significant influence between leg muscle explosive power, ankle coordination and concentration simultaneously on the ability to accurately shoot against the goalkeeper of SMKN 3 Sungai Full football players with a contribution of 53.2%.

## The Effect of Leg Muscle Explosiveness, Ankle Coordination and Concentration on the Shooting Accuracy of Football Players SMKN 3 Sungai Penuh

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