# The Effect of Training Methods and Lemb Muscle Strength on Shooting Accuracy of SSB Satria Perkasa Madiun City

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## Abstract

The purpose of this research is to find out; 1) Analyzing the effect of fixed target training methods and changing target training on the shooting accuracy of the players or athletes of the Satria Perkasa Football School, City of Madiun 2) Analyzing the difference in the effect of high leg muscle strength and low leg muscle strength on the shooting accuracy of Satria Soccer School Mighty City of Madiun. 3) Analyze the effect of the interaction between training methods and leg muscle strength on shooting accuracy at the Satria Perkasa Football School, Madiun City. The research method used was an experimental method with a 2 x 2 factorial design. The population of this study were 24 players or athletes from the Satria Perkasa Football School, Madiun City. The results of the parameter findings in the Anova test study showed that the results of the fixed target training method and changing target training on the shooting accuracy of the players or athletes at the Satria Perkasa Soccer School, Madiun City were $(0.039 < 0.05)$, the second parameter finding was the result value the significance of high and low leg muscle strength to the shooting accuracy of Satria Perkasa Football School players or athletes in Madiun City is $(0.017 < 0.05)$, then the results of the third parameter finding, namely, the value obtained from the interaction between training methods and high leg muscle strength on the shooting accuracy of the players or athletes of the Satria Perkasa Soccer School in Madiun City is $(0.011 < 0.05)$. In conclusion, the fixed target training method is significantly better.

**INTRODUCTION**

Today, sport is a social phenomenon that is spread all over the world. Sport has become a means of health, achievement, education and recreation. One of the most popular sports is football (Raharjo, 2018). This means that football is a very popular sport. This is evidenced by the fact that in the community that most tend to like playing soccer compared to other sports, while soccer is a sport that has a very large possibility of body contact, which allows injury to occur both during practice and during matches. , so it requires prime and perfect physical condition (Turna, 2020).

Soccer games are played with the aim of creating as many goals against the opponent's goal as possible and trying not to concede a goal to achieve a victory. Thus, kicking the ball is the basic technique of playing soccer which is the most basic and widely used in soccer games (Ardiansyah, 2020). That is, a soccer player must have the ability to kick and pass the ball with the right level of accuracy. Kicking the ball (shooting) is one of the main techniques in the sport of football, and is the most offensive technique in a soccer game. Thus the accuracy of a kick will be achieved if the players have shooting skills, so that it will have an impact on increasing the quality of the strength of a soccer player.

Shooting is a basic technique that must be mastered by every player, this technique is a way of creating goals, because all players get the opportunity to create goals in winning a match (Hidayat, 2018). Shooting is an important element in the game of football, but many do not know how to execute the correct shooting technique. The most important aspect in establishing shooting accuracy is the foot of the pedestal, the placement of the angle of the pedestal greatly determines the direction and power of the kick. The ability to shoot firmly using both feet, both the right and left feet, is the main factor in a person's success depending on these various factors (Arias, 2012).

When kicking a ball apart from technical factors, good physical conditions are also needed to kick the ball, the components of physical condition according to Humaedi & Brilin, (2017)

include "strength, endurance, explosive power" , speed, flexibility, agility, coordination, reaction, balance, accuracy and composition of the body balance. Physical factors have a very important role, this means that good physical presence is the main capital for players to achieve achievements. Thus, good physical support will improve a player's performance if the program is given according to the expected needs.

The ability of the physical condition of soccer players is related to leg muscle strength and abdominal muscle strength which can affect the performance of soccer players. So, it can be said that this is a requirement in achieving maximum performance and achievement for a soccer player. Thus, leg muscle strength, abdominal muscle strength and body dynamic balance that exist in soccer players must be considered as a determining indicator in the accuracy of shooting accuracy in achieving their potential.

Basically, the lack of effective means is a factor that can affect the low increase in shooting accuracy. In addition to this, conditions that do not allow for training with existing facilities require the trainers and coaches of the Satria Perkasa SSB players from Madiun City to be creative for training purposes to be achieved properly. This is very important to pay attention to in skill training, especially for novice SSB Satria Perkasa players in Madiun City.

The problems found in the players of the SSB Satria Perkasa Club in Madiun City generally have not reached the limit of shooting accuracy, this is seen from the many opportunities that are off target when carrying out training activities. Core team A, out of 14 shots that lead to goal only 4 times. While the core team B, during the match, 17 opportunities were created, only 2 times which led to the goal and 1 time resulted in 1 goal, so it can be concluded that the shooting accuracy of the Satria Perkasa SSB players from Madiun City is still very low, it can even be interpreted as having no strength adequate.

Players with good shooting accuracy can become quite dangerous players for the opposing team. It is important to carry out accuracy, namely with shooting technique skills. This skill can be the most powerful weapon in scoring goal

opportunities (Ismail et al., 2017). This is in line with (Rosita et al., 2019), (Wulandari & Umar, 2020) and (Yıldız, 2018) stating that "the shooting ball accuracy is considered as the very important ability of the soccer player". Thus, accuracy and kicks in soccer games greatly affect the accuracy and speed factors in performing skill movements in soccer games.

This study uses the role of SSB Satria Perkasa City of Madiun. The reason the researchers chose Satria Perkasa SSB Madiun City fostered was because the Satria Perkasa City Madiun fostered SSB had many recorded achievements from 2011 to 2018. Some of the recorded achievements were, local Madiun resident level, East Java regional level, National level and International level and including, 1st place winner for the 2016 U-12 Iyos Soccer Challenge in Cibubur, 2nd place winner for the 2016 UPTD SKB Gudo Trophy in Jombang, 2nd place winner for the 2017 U-12 Menpora Cup, 3rd place winner for the 2017 U-12 Tama Student Cup in Kediri and won 1st place in the 2018 Pre Danone Cup.

The Satria Perkasa SSB fostered program in Madiun City is required to remain consistent in supporting achievements, so that competition for championships continues to be achieved and to produce football athletes who are strong and with character. Thus, researchers carefully examine the status profile of muscle strength, balance or accuracy which can be used as evaluation material to achieve optimal performance. Apart from that, trainers and coaches at SSB Satria Perkasa, Madiun City, do not pay attention to the appropriate portion of training, which can indirectly cause disruption of leg muscle strength, abdominal muscle strength or body dynamic balance of SSB Satria Perkasa athletes from Madiun City.

**METHODS**

This study uses a quasi-experimental research type (quasi experimental design). According to (Sugiyono, 2017) a quasi-experiment is a study that is close to a real experiment. The sample in this study consisted of 24 Satria Perkasa

SSB players from Madiun City who were differentiated to fulfill the research criteria. Then determined 12 SSB Satria Perkasa players from Madiun City who had criteria with high leg muscle strength and 12 players with low leg muscle strength. Each player was assigned to two training groups, Team A and Team B using a random sampling technique which was divided to carry out the fixed target training method and the target target training changed so that 4 training groups were formed with the same number.The instruments used in this study were leg and back dynamometers and Targeted Goals. Leg and Back Dynamometer is used to measure leg muscle strength. Targeted Goals are used to measure the shooting accuracy of the Satria Perkasa Football School players in Madiun City. This test was adopted from the test used by Asep Sumpena (2011), and adapted to the sport of football, then the validity and reliability of the test were tested.

The data analysis technique used in this study used data analysis of variance (ANOVA) with a 2 x 2 factorial design at $\alpha = 0.05$. If the obtained Fcount value (Fo) is significant, the analysis is continued with the Hewman-Keuls range test. To fulfill the assumption test in the Anava technique, the Normality or Kolmogorov Smirnov Test and the Homogeneity of Variance test were carried out with Levene's test (Sudjana, 2002).

**RESULTS AND DISCUSSION**

**The Effect of Fixed Target Training Methods and Changing Target Target Training on Shooting Accuracy in Satria Perkasa Football School Players in Madiun City**

**Tabel 1.** Test Results for Normality Test

**Tests of Normality**

|  | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|
|  | Statistic | df | Sig. | Statistic | df | Sig. |
| Standardized Residual for | .119 | 12 | .200* | .973 | 12 | .937 |

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

Based on table 1 above, it illustrates that if the number in this study is <50 in each group, then the normality test used is the Shapiro-Wilk technique. From the results of the Shapiro-Wilk Test (SW-t) above, the Asymp value is generated. Sig. (2-tailed) of 0.937. These results can be concluded that the residual data in this research model is normally distributed, due to the Asymp.Sig value. (2-tailed) above or greater > 0.05. and the regression model is suitable for further analysis. Then, based on the results of the Kolmogorov-Smirnov normality test from groups A1 – B1, groups A1 – B2, groups A2 – B1 and groups A2 – B2 with a 2x2 factorial design approach, it can be concluded that the results of the data from the testing of shooting accuracy are also normally distributed.

**Tabel 2.** Homogeneity test results

**Levene's Test of Equality of Error Variancesa**
Dependent Variable : Akurasi *Shooting*

| F | df1 | df2 | Sig. |
|---|---|---|---|
| 2.499 | 6 | 12 | .083 |

Based on table 2, it is known that the increase in data in this study shows that a sig value of 0.083 > 0.05 is obtained, so it can be concluded that the data has the same or homogeneous variance. The data were then analyzed using the two way ANOVA test. The summary results of the two way ANOVA test on the training method variable, based on the fixed target method and the changing target method, then the group of players who have high leg muscle strength and the group of players who have is presented in table 3.

**Tabel 3.** Two Way Analysis Of Variance Test Results

Dependent Variable:  Akurasi Shooting

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | 8.591a | 19 | .452 | 4.093 | .090 |
| Intercept | 63.069 | 1 | 63.069 | 570.886 | .000 |
| Training Method | 2.612 | 5 | .522 | 4.728 | .039 |
| Leg Muscle Strength | 3.720 | 10 | .372 | 3.367 | .017 |
| Strength Training Methods Leg Muscles | .472 | 3 | .157 | 1.425 | .011 |
| Error | .442 | 4 | .110 | | |
| Total | 86.613 | 24 | | | |
| Corrected Total | 9.033 | 23 | | | |

a. R Squared = .951 (Adjusted R Squared = .719)

Based on table 3, the output test of between-subjects effects obtained a significance value for the fixed target training method and changing target targets obtained a probability or significance value of 0.039 <0.05 while in Fcount the value of Ftable (3.47) was obtained which was 4,728 > 1,791. Thus, it can be concluded that there is a difference between fixed target training and changing target targets in the shooting accuracy of the players or athletes of the Satria Perkasa Football School, Madiun City.

**Tabel 4.** Differences in the Effect of Training Methods

| Recapitulation Data | Training Method | |
|---|---|---|
| | Fixed Target | Target Change |
| Pre Test | 1.00 | 2.67 |
| Post Test | 2.33 | 4.33 |

Based on table 4, it shows that the mean value of the observations in the experimental pre-test and post-test teams of fixed targets and changing targets has increased in each group that has been differentiated in this study. Thus, it can be concluded that there is a difference in shooting accuracy given the fixed target training method and the target target changes.

The fixed target training method and the changing target target training method have an influence on the shooting accuracy of players or athletes at the Satria Perkasa Football School, Madiun City. Players or athletes who have been tested in this study are able to focus their concentration on the point of the ball to be kicked. The results of this study support research that has been conducted by (Ardiansyah, et., al, 2020), which states that leg muscle strength can predict shooting accuracy. However, the results of this study do not support the results of studies conducted by (Jatra, 2017), (Santoso & Jatra, 2021), and (Syafrial & Sugianto, 2017) which concluded that leg muscle strength does not affect shooting accuracy.

The right training method can improve the accuracy of shooting football for a player or athlete at the Satria Perkasa Football School, Madiun City. From the explanation stated above, it can be concluded that the better the training method, namely fixed targets and changing targets, the better the level of shooting accuracy produced. This is in accordance with the theory above which says that the training method greatly determines the shooting accuracy of players or athletes at the Satria Perkasa Football School, Madiun City, so that by having good leg muscle strength when kicking the ball, the shooting accuracy will be better and more focused.

**The Influence of High and Low Leg Muscle Strength on Shooting Accuracy in Satria Perkasa Football School Players in Madiun City**

Based on table 4, the output test of between-subjects effects obtained a significance value for high leg muscle strength and low leg muscle strength of 0.017 <0.05 while in Fcount the Ftable value was obtained (3.47) which was 3.367 > 1.791. Thus, it can be concluded that there is a difference between high leg muscle strength and low leg muscle strength on the shooting accuracy of players or athletes at the Satria Perkasa Football School, Madiun City.

**Tabel 5.** Differences in Leg Muscle Strength

| Recapitulation Data | High and Low Leg Muscle Strength | |
|---|---|---|
| | High | Low |
| Pre Test | 2.67 | 1.00 |
| Post Test | 4.67 | 2.33 |

Based on table 5 above, it shows that the mean value of the observations in the pre-test and post-test experimental team of high leg muscle strength and low leg muscle strength has increased in each group used in this study. Thus, it can be concluded that there is a difference in shooting accuracy obtained indicating that the team or SSB Satria Perkasa players from Madiun City using the changing target training method have higher limb muscle strength compared to the team using the fixed target training method.

High leg muscle strength and low leg muscle strength have an influence on the shooting accuracy of players or athletes from the Satria Perkasa Football School, Madiun City. The difference in one's leg muscle strength determines the final result of shooting accuracy. The results of this study support the results of research conducted by (Akhbar, 2017), (Cahyono, 2019), and (Junaidi, et., al 2019) which state that leg muscle strength has a significant positive effect on shooting accuracy. Likewise, the results of research conducted by (Tria, Y. R., & Sepdanius, E. 2019), (Pardosi, 2015) and (Ulfah et. al., 2017) state that leg muscle strength affects shooting accuracy.

Factors that can affect the accuracy of shooting the ball at goal requires elements of qualified physical conditions such as endurance, speed, balance, flexibility, target accuracy and explosive power (Moll, Jordet, & Pepping, 2010). There are several factors that cause the successful process of football game training activities for players or athletes at the Satria Perkasa Football School, Madiun City, starting from the sources used by the coach to support the training process and the ability of the coach (Desta Sintoko & Suharjana, 2019).

**Interaction of the Influence of Training Methods and Leg Muscle Strength on Shooting Accuracy at the Satria Perkasa Football School, Madiun City**

Based on the results table from the output test of between-subjects effects, it was found that the significance value for the leg muscle strength training method was 0.011 <0.05. Thus, it can be concluded that there are differences in the interaction of training methods leg muscle strength on the shooting accuracy of players or athletes at the Satria Perkasa Football School, Madiun City.

**Tabel 6.** Interaction of Exercise Methods and Leg Muscle Strength

Dependent Variable: Akurasi Shooting

| Training Method | Leg Muscle Strength | Mean | Std. Error | 95% Confidence Interval | |
|---|---|---|---|---|---|
| | | | | Lower Bound | Upper Bound |
| Fixed Target | High | 3.917 | 1.233 | 2.590 | 2.773 |
| | Low | 2.001 | 1.233 | 1.009 | 1.891 |
| Target Goals Changed | High | 3.250 | 1.233 | 2.304 | 2.580 |
| | Low | 2.176 | 1.233 | 1.694 | 1.806 |

a. This level combination of factors is not observed, thus the corresponding population marginal mean is not estimable.

Based on table 6 above, it can be seen that if the A1 – B1 group of players is paired with the A1 – B2 group which has high leg muscle strength it is better than the low leg muscle strength if given a fixed target training method while the A2 – B1 player group is paired with A2 group – B2 who have high leg muscle strength is better than those with low leg muscle strength if given target training methods change.

The results of the analysis of pair variance carried out using the interaction test showed that all pairs that had significantly different interactions and partners were groups A1 – B1, namely the Satria Perkasa Football School (SSB) athletes or players in Madiun City who were given target shooting accuracy exercises. the target changes and has High Leg Muscle Strength and its effect on Shooting Accuracy is measured.

Based on table 6 above, it illustrates that respondents or SSB Satria Perkasa players from Madiun City with a range of fixed target training methods at a high level of leg muscle strength obtained an average of 3,917 or with a contribution value of the lower limit of 2,590 and the upper limit of 2,773, the range of target training methods fixed targets at the level of low leg muscle strength obtained an average of 2,001 or with a contribution value of the lower limit of 1,009 and the upper limit of 1,891.

Based on table 6 above, it has also described the respondents or SSB Satria Perkasa players from Madiun City with a range of target training methods changing at a high level of leg muscle strength obtained an average of 3,250 or with a contribution value of 2,304 lower limit and upper limit of 2,580, the range of training methods the target target changes at the level of low leg muscle strength obtained an average of 2,176 or with a contribution value of 1,694 lower limit and upper limit 1,806.

These results indicate that the group of respondents or Satria Perkasa SSB players from Madiun City with fixed target training and high leg muscle strength has better shooting accuracy results. The group can fulfill the elements of mastering body movements in games involving running, jumping, feint and kicking power to the fullest. Thus, the findings of this study support research that has been conducted by (Jatra, 2017), (Syafrial & Sugianto, 2017), (Ardiansyah, et., al, 2020) and (Santoso & Jatra, 2021), which state that leg muscle strength able to predict the occurrence of shooting accuracy.

**CONCLUSIONS**

The conclusions of the research on the effect of training methods and leg muscle strength on the

shooting accuracy of the Satria Perkasa SSB in Madiun City are as follows:

The results in the findings of this study indicate that there is a difference in the effect of the fixed target training method and the changing target on the shooting accuracy of Satria Perkasa SSB players in Madiun City, which was divided into each experimental group.

The results in the findings of this study indicate that there are differences in each of the Satria Perkasa SSB experimental groups in Madiun City which have high leg muscle strength and low leg muscle strength.

There is an interaction between training methods and leg muscle strength on shooting accuracy for SSB Satria Perkasa players in Madiun City.

In this study there were several limitations that could affect the results of the study, among other things, this research was only related to shooting accuracy, leg muscle strength, abdominal muscle strength and body dynamic balance. Then, in this study only used one SSB in which there were only 24 respondents. Based on the limitations above, it is hoped that further research can present better research results with the existence of some suggestions from the author, namely as follows:

For SSB Satria Perkasa City of Madiun it can be used as material for consideration for coaching training in the future.

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