

Leg muscle explosive power on the accuracy of shooting soccer

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ABSTRACT

Leg muscle explosive power is a real form of physical condition that contributes to the accuracy of shooting at a soccer goal. The purpose of this study is to try to relate the explosive power of the leg muscles to the accuracy of shooting soccer. This study uses a quantitative approach with a type of correlation. 25 soccer players as research subjects. The research instrument used a vertical limb muscle explosive power test and a soccer shooting accuracy test. Data analysis using Pearson product-moment. The results showed that explosive power contributed significantly to the accuracy of shooting soccer. But shooting soccer also requires contributions from other factors such as basic physical conditions which are always needed in every sports skill and psychological factors.

Keywords: leg muscle, explosive power, shooting, soccer

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INTRODUCTION

Soccer has become a part of the life of the Indonesian nation which is played by elementary-aged children to adults (Jatmiko, Harmono, Atrup, & Mashuri, 2022). So soccer can affect people's behavior, such as hooliganism (Hendika & Nuraeni, 2020), become self-identity and community groups (Syahputra, 2016) so that it becomes an inherent social culture (Ahmad & Yahmun, 2017). Soccer creates a dream for children of primary age to become professional soccer players so that soccer coaching institutions such as soccer schools (SSB) and extracurricular soccer at schools emerge (Jatmiko et al., 2022).

Soccer is a complex and complete team sport requiring a high level of tactical, technical, and physical ability to be performed intermittently over 90 minutes (Dolci et al., 2020). Many factors influence the game of soccer, apart from basic techniques, physical abilities are also an important factor in the game of soccer (Mappaompo, Saparia, Mashuri, Mappanyukki, & Juhani, 2022). The combination of technical, tactical, physical, and psychological interaction elements between the two soccer teams will determine the outcome of the match (Tenga & Sigmundstad, 2011). Techniques and tactics are closely related to the success of the game (Kusuma, Artanayasa, & Mashuri, 2022), but physically and

psychologically able to influence the game with functional training (Turna & Alp, 2020). Therefore, physical ability must be a serious concern because it can support high-achieving soccer players (Mappaompo et al., 2022).

Physical abilities (basic biomotor) consist of strength, speed, flexibility, endurance, and coordination (Bompa & Buzzichelli, 2019; Mashuri, 2017; Tangkudung & Puspitorini, 2012). Physical ability will support the basic techniques of soccer (shooting, dribbling, passing, and controlling) (Irfan, Yenes, Irawan, & Oktavianus, 2020; Saputra & Maidarman, 2019). So players who have good physical condition and correct basic techniques will find it easier to play soccer. The game of soccer is simple, namely trying to score goals by putting the ball into the opponent's goal with the latest rules and preventing the opponent from putting the ball into our goal, the team that puts in more balls will be the winner (Irfan et al., 2020). Therefore the basic shooting technique is a vital basic technique that must be mastered by soccer players, meaning that without shooting, the team will not be able to score goals and win (Zulwandi & Irawan, 2019). The basic technique of shooting soccer is an attempt to put the ball into the opponent's goal which is significantly related to the biomotor component (Rivaldi, Hariadi, & Hanief, 2023). The findings of the analysis of biomotor components in shooting soccer consist of power, accuracy, reaction, balance, explosive power, agility, and coordination (Rivaldi et al., 2023). Based on these findings, it can be understood that power has the main contribution that determines how hard a soccer player kicks the ball (Zuhri, Harmono, & Zawawi, 2021). Research results by Afrizal & Soniawan (2021) showed that leg muscle power (explosive power) contributed significantly to the accuracy of the shot direction with a positive correlation. This means that the greater the power expended for shooting, the more precise the shooting of the ball to the shooting target.

The number of shots taken by a soccer team can predict the victory of the soccer team (Kusuma, Artanayasa, & Mashuri, 2022; Kusuma, Artanayasa, Mashuri, & Dharmadi, 2022). Furthermore, shooting plays an important role in achieving the goal of soccer, which is to put the ball into the opponent even though there needs to be a defensive strategy to prevent our goal from conceding the ball. Therefore, the factors that can support shooting must be given serious attention, one of which is the explosive power of the leg muscles.

METHODS

This research is correlation research with a quantitative approach. This study attempts to relate the factor of explosive power to shooting accuracy to develop a soccer shooting

training program. The research subjects were the students of the Sheikh Yusuf Soccer School, total 25 soccer players. The research instrument used to obtain the data is the vertical jump test to obtain data on explosive power and the soccer shooting accuracy test. The data analysis technique uses the Pearson Product Moment correlation assisted by SPSS for Windows.

RESULTS AND DISCUSSION

Result

The presentation of research results begins with a description of leg muscle explosive power data. Based on Table 1, the average explosive power of the leg muscles of soccer players is 74.76 (SD=15.862). These results show that soccer players have taken the test seriously in three test trials. The next data presentation is a description of the accuracy of shooting soccer data (table 2). Based on the description of the accuracy of shooting soccer data, it can be seen that the average soccer player gets a score of 15.8 (SD=5.686). This shows that the soccer player has carried out the test properly according to the instructions and got good results.

Table 1. Description of Leg Muscle Explosive Power Data

	<i>N</i>	<i>Mean</i>	<i>Min Score</i>	<i>Max Score</i>	<i>Range</i>	<i>SD</i>	<i>Variance</i>
Limb Muscle Explosiveness	25	74,76	34	95	61	15,862	245.94

Table 2. Description of Soccer Shooting Accuracy Data

	<i>N</i>	<i>Mean</i>	<i>Min Score</i>	<i>Max Score</i>	<i>Range</i>	<i>SD</i>	<i>Variance</i>
Soccer Shooting Accuracy	25	15,8	3	21	18	5,686	32,33

Furthermore, data analysis was continued with a correlation test between variables, namely the explosive power of the leg muscles on the accuracy of shooting soccer. Based on the results of the correlation test of leg muscle explosive power on the accuracy of shooting at a soccer goal, a value of $r = 0.59$ (significant = 0.002) was obtained. The significant value compared to the significant error determined previously by the researcher is 0.05. In other words, significant calculation = 0.002 < significant error = 0.05. This means that there is a positive correlation between the explosive power of the leg muscles and the accuracy of shooting at the goal of soccer players.

Table 3. Correlation Test Results of Limb Muscle Explosive Power to Soccer Shooting Accuracy

<i>Correlation</i>	<i>Pearson Correlation</i>	<i>Sig.</i>	<i>α</i>	<i>Information</i>
Explosive leg muscles – shooting accuracy on the soccer goal	0.59	0.002	0.05	There is a correlation

Discussion

The explosive power of the leg muscles is one of the factors in the success of shooting at a soccer goal. The results of this study prove that explosive power makes a positive contribution to the accuracy of shooting soccer. Leg muscle explosive power is an element that must be possessed by soccer players to carry out explosive motion tasks and be able to produce kicks faster and on target (Maliki, Hadi, Royana, & Setyawan, 2017) so that the goalkeeper can't reach them. In addition, the explosive power of the leg muscles will support soccer players to be superior in aerial duels such as heading the ball to put the ball into the opponent's goal. The explosive power of the leg muscles contributes to the high jumps of soccer players during aerial duels. The advantage for players who have a greater level of muscle explosive power is that they can reach higher balls so they can win aerial duels to aim the ball at the opponent's goal (Maliki et al., 2017).

The ability to shoot at a soccer goal is a vital ability that can bring a soccer team to victory. The ability to shoot at a soccer goal has many determining factors for success. Based on research results from Gunadi, Witarsyah, Arwandi, & Ridwan (2020) prove that the explosive power of the leg muscles contributes 15.68% to the ability to shoot at a soccer goal. The biometric ability of ankle coordination contributes 18.83% and balance contributes 20.25%. Furthermore, research on the contribution of leg muscle explosive power, ankle coordination, and balance was carried out by Afrinaldi, Yenes, Nurmai, & Rashid (2021) which shows that the explosive power of the leg muscles contributed 34.465%, balance contributed 21.767%, and ankle coordination contributed 29.919%. Basic biomotor abilities do not fully contribute because shooting accuracy in soccer games also requires psychological factors.

In addition to leg muscle explosive power, the level of concentration contributes to the accuracy of shooting soccer. Research from Sarifudin, Anam, Setyawati, Permana, & Mukarromah (2023) proves that in addition to the explosive power of the leg muscles which contributes significantly to the accuracy of shooting soccer, the level of concentration of soccer players also has a significant influence on the accuracy of shooting soccer.

Psychological factors cannot be separated from the basic skills of playing soccer, but physical conditions also have an influence that makes soccer players more consistent.

The accuracy of shooting at a soccer goal has many factors that influence it. The anthropometry of soccer players has not made a significant contribution (Nasrullah et al., 2022). Ideally, the height and body of a soccer player influence the focus when shooting at the goal. The focus when shooting supports players to be able to direct the ball in the desired direction with the power and speed of a shot at goal. The ideal body provides little opportunity for error when kicking and provides a solid position to direct the ball according to the will of the soccer player. Therefore, the striker should have the ideal height and weight.

This research proves that explosive power is vital for soccer players, especially strikers. A striker must improve his soccer shooting skills and basic biomorphic components, especially leg muscle explosive power. Besides that, the mentality of soccer players when shooting needs to be considered in every training session. Setting the body composition of soccer players also needs to be maintained through intensive training and regulation of diet and nutritional intake (Mashuri, 2022; Mashuri, Mappaompo, & Purwanto, 2022).

CONCLUSION

Soccer has always had a big influence on the development of society, even soccer has become part of the life of Indonesian society. This research seeks to contribute to liven up and improve and to provide an illustration that soccer requires physical condition, especially the explosive power of the leg muscles to achieve the goal of playing soccer. Based on the results of data analysis and research discussion, it can be concluded that explosive power has a positive influence on the accuracy of shooting at a soccer goal. The accuracy of shooting soccer is also influenced by other factors such as concentration, ankle coordination, anthropometry, balance, and other basic biomotor components.

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