



Analysis of Physical Components of the Ability to Kick the Ball Into the Goal in the SSB Kalegowa Soccer Game

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ARTICLE INFO

Keywords:

leg muscle strength, foot-ankle coordination, balance, soccer

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ABSTRACT

This study aims to determine 1) the relationship between leg muscle strength and the ability to kick the ball into the goal in the SSB Kalegowa soccer game. 2) the relationship between ankle coordination and the ability to kick the ball into the goal in the SSB Kalegowa soccer game. 3) the relationship between balance and the ability to kick the ball into the goal in the SSB Kalegowa soccer game. 4) the relationship between leg muscle strength, ankle coordination and balance together with the ability to kick the ball into the goal in the SSB Kalegowa soccer game. The sample used was SSB Kalegowa as many as 30 people, taken using random sampling technique. Data analysis techniques used in this study were descriptive analysis, correlation analysis, and regression analysis at a significant level (α) = 0.05. The results of this study indicate that: 1) there is a significant relationship between leg muscle strength and the ability to kick the ball into the goal in the soccer game by obtaining a correlation coefficient value (r) = 0.800 with a probability level (0.000) < 0.05; 2) There is a significant relationship between foot-ankle coordination and the ability to kick the ball into the goal in soccer, with a correlation coefficient (r) of 0.768 with a probability level of (0.000) < 0.05; 3) There is a significant relationship between balance and the ability to kick the ball into the goal in soccer, with a correlation coefficient (r) of 0.741 with a probability level of (0.000) < 0.05; 4) There is a significant relationship between leg muscle strength, foot-ankle coordination, and balance together with the ability to kick the ball into the goal in soccer, with a coefficient of determination (r^2) of 77.5%.

1. Introduction

Sport is a physical activity characterized by rhythmic and systematically arranged body movements intended to achieve fitness and health. This activity involves the body's organs and is characterized by the involvement of all dimensions of the individual, including movement, cognition, affection, and emotion. This activity can be done on a small scale, either individually or in groups of a certain size. Some movements involve the body and involve individuals, and sport is characterized by interaction between individuals.

Soccer is a very popular sport today. Of the many sports, it is the most popular worldwide. It is played in more than 200 countries. Hundreds of millions of players participate. Meanwhile, soccer fans are estimated to number more than half the world's population, spanning all ages, from children to adults. Soccer is a game played on a grassy field using a ball. It is played by two opposing teams, each consisting of eleven players. The ball is played with the feet, passing the ball to teammates to prevent the opponent from taking possession, and the ultimate goal is to score a goal against the opposing team. The team that scores the most goals wins the game.

According to Atiq (2014), the basic techniques in soccer consist of several movements. A person's ability to play the ball is very important for a quality match. Basic techniques in soccer include:

(1) Basic kicking techniques (shooting), (2) Basic holding techniques (trapping), (3) Basic dribbling techniques (dribbling), (4) Basic heading techniques (heading). Specifically, kicking techniques play a crucial role in the game of soccer. Kicking the ball into the goal is a crucial and absolute skill that every soccer player must master in order to score goals against the opponent's goal. Kicking is a skill that players possess to create scoring opportunities.

Shooting, or kicking, is a player's attempt to score a goal by kicking the ball into the goal from various positions on the field using their feet or any part of their feet. Shooting can be performed while stationary, rolling, or floating in the air. A soccer player must understand shooting, as it plays a crucial role in scoring goals.

Based on observations in the Kalegowa SSB football team, several athletes found that when kicking, the ball went far from the goal, the kick was not strong enough so that the ball was easily caught by the goalkeeper, some athletes fell easily when shooting so that their shooting was not optimal. The goal of kicking the ball into the goal is to be able to score as many goals as possible and to be able to easily direct the kick well.

2. Methods

This type of research is correlational. Correlational research is the relationship between two or more variables as they exist without any treatment (Ma'ruf Abdullah, 2015). This research was conducted at the Kalegowa SSB Field.

A population is a general area consisting of objects/subjects that possess certain qualities and characteristics determined by the researcher to be studied and then conclusions drawn. Thus, a population includes not only humans but also other objects and natural objects. A population is not only the number of objects/subjects studied but also includes all the characteristics/traits possessed by those objects (Sugiyono, 2018). Therefore, in this study, the population is all Kalegowa SSB athletes.

According to Sugiyono (2018), a sample is a portion of the population and its characteristics. If the population is large and the researcher cannot study all members of the population, a sample is a portion of the population taken using a specific technique. The sample size is determined using random sampling. Because the population size in this study was too large, the researcher used a simple random sampling method by drawing lots. According to Ma'ruf Abdullah (2015), the sampling method used was random sampling. The sample used in this study was 30 SSB Kalegowa athletes.

Research Methods

Quantitative research can be defined as a research method based on the philosophy of positivism, used to study specific populations and samples. Sampling techniques are generally random, data collection uses research instruments, and data analysis is quantitative/statistical with the aim of testing predetermined hypotheses (Sugiyono, 2018).

1. Research Variables.

There are two variables involved in this research: the independent variable and the dependent variable (Ma'ruf Abdullah, 2015):

a) The independent variable (the variable that is not influenced) is the variable that determines the direction or change in the dependent variable. Conversely, the independent variable is in a position that is not influenced by the dependent variable (the influencing variable).

- 1) Leg Muscle Strength
- 2) Ankle-Foot Coordination
- 3) Balance

b) The dependent variable is the variable that is influenced by the independent variable (the influencing variable).

- 1) Shooting Ability

3. Results

Based on the results of statistical analysis based on survey research conducted at SSB Kalegowa, the following are the results of ball shooting ability, leg muscle strength, and eye-foot coordination and balance which are presented in table 1 below:

Statistik	Leg Muscle Strength (X1)	Eye-Foot Coordination (X2)	Balance (X3)	Ball Shooting Ability (Y)
N	30	30	30	30
Mean	36,17	13,03	79,30	12,80
Median	36,00	13,00	79,50	13,00
Std. Deviation	7,777	2,173	3,807	2,772
Variance	60,489	4,723	14,493	7,683
Minimum	23	9	70	7
Maximum	47	17	85	17

1. Data Normality Test

The results of the data normality test for each variable can be formulated as follows:

- The arm muscle strength variable X1 in the table above shows that the data is normally distributed because (P) is greater than 0.05 (significance level), namely KS-Z = 0.670 and P = 0.761, which is greater than the α value of 0.05. Therefore, the arm muscle strength data obtained are normally distributed.
- The ankle-foot coordination variable (X2) in the table above shows that the data is normally distributed because (P) is greater than 0.05 (significance level), namely KS-Z = 0.819 and P = 0.514, which is greater than the α value of 0.05. Therefore, the ankle-foot coordination data obtained are normally distributed.
- The balance variable (X3) in the table above shows that the data is normally distributed because (P) is greater than 0.05 (significance level), namely KS-Z = 0.582 and P = 0.888, which is greater than the value of $\alpha = 0.05$. Therefore, the balance data obtained is normally distributed.
- The shooting ability variable (Y) in the table above shows that the data is normally distributed because (P) is greater than 0.05 (significance level), namely KS-Z = 0.838 and P = 0.484, greater than the value of $\alpha = 0.05$, or at the 95% significance level. Thus, the shooting ability data obtained is normally distributed.

3. Hypothesis Testing

- Contribution of Leg Muscle Strength and Shooting Ability in the Kalegowa SSB Team

The first hypothesis tested in this study was "there is a relationship between leg muscle strength and shooting ability in the Kalegowa SSB team." Based on the results of a survey conducted on the Kalegowa SSB team, correlation analysis data related to shooting ability are presented in the following table.

Table 2. The first hypothesis is the relationship between leg muscle strength and shooting ability.

correlation	N	r	P _{value}	Significant
X ₁ .Y	30	0,800	0,000	Description

Based on the results of the correlation analysis of leg muscle strength and shooting ability, the correlation value (r) = 0.800 was obtained with a probability level (0.000) less than $\alpha = 0.05$. Therefore, H₀ is rejected and H₁ is accepted, meaning the correlation coefficient is significant, indicating that leg muscle strength does have a significant effect on shooting ability. Therefore, it can be concluded that there is a significant relationship between leg muscle strength and shooting ability in the Kalegowa SSB team.

b. The Relationship between Foot-Eye Coordination and Shooting Ability in the Kalegowa SSB Team

The second hypothesis tested in this study is "there is a relationship between foot-eye coordination and shooting ability in the Kalegowa SSB team." Based on the results of a survey conducted on the Kalegowa SSB team, the correlation analysis data related to foot-eye coordination and shooting ability are presented in the following table:

Table 3. The second hypothesis is the relationship between foot-eye coordination and shooting ability.

correlation	N	r	P _{value}	Significant
X ₂ .Y	30	0,768	0,000	Description

Based on the results of the correlation analysis of the foot-eye coordination and shooting ability data, the correlation value (r) = 0.768 was obtained with a probability level (0.000) less than $\alpha = 0.05$. Therefore, H₀ is rejected and H₁ is accepted, indicating that the correlation coefficient is significant, indicating that foot-eye coordination does have a significant effect on shooting ability. Therefore, it can be concluded that there is a significant relationship between foot-eye coordination and shooting ability in the Kalegowa SSB team's soccer game.

c. Relationship between Balance and Shooting Ability in the Kalegowa SSB Team

The third hypothesis tested in this study is "there is a relationship between Balance and shooting ability in the Kalegowa SSB team." Based on the results of a survey conducted on the Kalegowa SSB team, the correlation analysis data related to Balance and shooting ability are presented in the following table:

Table 4. The third hypothesis is the relationship between Balance, Coordination, and Shooting Ability.

correlation	N	r	P _{value}	Significant
X ₃ .Y	30	0,741	0,000	Description

Based on the results of the correlation analysis of the Balance and Shooting Ability data, the correlation value (r) = 0.741 was obtained with a probability level (0.000) less than $\alpha = 0.05$. Therefore, H_0 is rejected and H_1 is accepted, meaning the correlation coefficient is significant, indicating that Balance does indeed have a significant effect on shooting ability. Therefore, it can be concluded that there is a significant relationship between Balance and Shooting Ability in the Kalegowa SSB team's soccer game.

d. The relationship between leg muscle strength, ankle coordination, and balance with shooting ability at the Kalegowa SSB.

The fourth hypothesis tested in this study was the relationship between leg muscle strength, ankle coordination, and balance with shooting ability at the Kalegowa SSB. Based on the results of a survey conducted at the Kalegowa SSB, data from the multiple correlation analysis related to shooting performance are presented in the following table:

Table 5. Fourth Hypothesis: There is a relationship between leg muscle strength, ankle coordination, and balance with shooting ability at the Kalegowa SSB.

correlation	N	R	R ²	P _{value}	Significant
X ₁ .X ₂ . X ₃ .Y	30	0,880	0,775	0,000	Description

Based on the results of the correlation analysis test of leg muscle strength, ankle coordination, and balance data on shooting ability. The correlation value (R) = 0.880 was obtained with a probability level (0.000) smaller than $\alpha = 0.05$. Therefore, H_0 is rejected and H_1 is accepted or the correlation coefficient is significant, or leg muscle strength, ankle coordination, and balance do have a significant effect on shooting ability. Thus, it can be concluded that there is a significant relationship between leg muscle strength, ankle coordination, and balance on the shooting ability of SSB Kalegowa.

4. Discussion

a. Relationship between leg muscle strength and the ability to kick a ball into the goal at SSB Kalegowa

Based on the results of the first hypothesis test in this study, the research shows a significant relationship between leg muscle strength and the ability to kick a ball into the goal at SSB Kalegowa. According to Achmad Muchlisin (2020:7), muscle strength is the ability of a muscle or group of muscles to perform a single maximal contraction against resistance or a load. Mechanically, muscle strength is defined as the force that a muscle or group of muscles can produce in a single maximal contraction. Muscle strength is important for everyone.

According to Widiastuti (2019:15), muscle strength is the ability of a muscle or group of muscles to perform a single maximal contraction against mechanical resistance. Muscle strength is defined as the force that a muscle or group of muscles can produce in a single maximal contraction. Based on the above opinion, researchers can conclude that leg muscle strength is a very important component in a person's motor activities or athletes' activities to avoid injury during physical training.

b. The relationship between eye-foot coordination and kicking skills at the Kalegowa SSB.

The results of this study, which tested the hypothesis, indicate a significant relationship between eye-foot coordination and kicking skills at the Kalegowa SSB.

According to Widiastuti (2011:22), coordination is the ability to perform movements or tasks precisely and efficiently. Coordination reflects the harmonious relationship between various factors that occur during a movement. Coordination skills are a good foundation for sensorimotor learning; the better the coordination, the faster and more effective difficult movements can be performed.

According to Ahmad Muchlisin (2020:9), coordination is the ability to perform movements or tasks precisely and efficiently. Coordination reflects the harmonious relationship between various factors that occur during a movement.

Based on the above opinion, the researcher can conclude that coordination is a person's ability to connect eye movements when receiving stimuli with foot movements into a unified pattern.

c. The Relationship between Balance and the Ability to Kick the Ball into the SSB Kalegowa Goal.

According to Achmad Muchlisin (2020:8), balance is the ability to quickly maintain body posture and position while standing (static balance) or while moving (dynamic balance). The ability to maintain balance is influenced by several factors, including visual and vestibular functions. Static and dynamic balance are components of physical fitness frequently practiced by both children and adults. For example, walking on a wooden or metal beam or bridge is a function of balance, or the ability to maintain a normal position.

According to Widiastuti (2011:22), balance is the ability to quickly maintain body posture and position while standing (static balance) or while moving (dynamic balance). The ability to maintain balance is influenced by several factors, including visual and vestibular functions.

Based on the above opinion, researchers can conclude that balance is the body's ability to react to every change in body position while remaining stable and controlled.

One of the benefits of maintaining body balance is that it can improve overall motor skills. Therefore, balance training is excellent for supporting fitness. Therefore, several movements can train body balance, including: standing on one leg, walking on your heels or toes, walking while lifting your knees alternately.

d. The relationship between leg muscle strength, ankle-foot coordination, and balance and the ability to kick the ball into the goal at SSB Kalegowa.

The study showed a significant relationship between leg muscle strength, balance, and foot-eye coordination and the kicking skills of SSB Kalegowa. This was supported by the results of the correlation analysis, which showed that the observed R value was greater than the value at the significance level, with a coefficient of determination (R) of $0.606 \times 100\% = 0.775\%$. Based on these results, it can be concluded that there is a relationship between leg muscle strength, ankle-foot coordination, and balance, collectively, and the ability to kick the ball into the goal at SSB Kalegowa Makassar, amounting to 775%.

Kicking the ball is a technique or method used by someone to score goals against the opponent's goal using any part of the foot from various positions. The main goal of kicking the ball is to get the ball into the opponent's goal as many times as possible to avoid defeat.

5. Conclusion

Based on the data analysis, research findings, and discussion, the following conclusions can be drawn:

1. There is a significant relationship between leg muscle strength and the ability to kick the ball into the goal in the Kalegowa SSB soccer game.
2. There is a significant relationship between ankle-foot coordination and the ability to kick the ball into the goal in the Kalegowa SSB soccer game.

3. There is a significant relationship between balance and the ability to kick the ball into the goal in the Kalegowa SSB soccer game.
4. There is a significant relationship between leg muscle strength, ankle coordination, and balance and the ability to kick the ball into the goal in the Kalegowa SSB soccer game.

6. Acknowledgements

The author would like to express his sincere gratitude to SSB Kalegowa for the support and facilities provided during the completion of this research. The assistance and environment provided by SSB Kalegowa greatly contributed to the success of this research.

7. References

- Adityatama Firman. 2017. "Hubungan Power Otot Tungkai, Koordinasi mata tangan dan kekuatan otot perut dengan ketepatan menendang bola.
- Agustina Siaga. 2020. "Buku jago sepak bola untuk pemula nasional dan internasional". Tangerang selatan. Tim cemerlang.
- Atiq Ahmad. 2014. Model latihan teknik dasar sepak bola. Sidoarjo. Zifatama. Jawa.
- Fatrurahman dkk. 2012. "Pengantar Pendidikan". Jakarta: Prestasi Pustaka raya.
- Fenanlamir Albertus dkk. 2015. Tes Dan Pengukuran Dalam Olahraga. Yogyakarta : CV ANDI OFFSET.
- Hidayat Akbar 2018. Jurnal. Pengaruh Daya Ledak Tungkai, Koordinasi Mata-Kaki dan Keseimbangan Terhadap Kemampuan Shooting KeGawang Pada Permainan SepakBola Siswa SMA Negeri 14 Sinjai.
- Huda Miftakhul Rizka. 2013. Skripsi. Perbedaan tingkat ketepatan shooting ke gawang antara pemain depan, tengah dan belakang pada pemain SSB MAS ku-14 Yogyakarta
- Kusumawati. 2015. Penelitian Pendidikan Penjaskesrek (Pendidikan Jasmani, Olahraga dan Kesehatan). Bandung: Alfabeta, CV.
- Maulana Ahmad Aulia. 2019. Jurnal. Kontribusi Kekuatan Otot Tungkai, Panjang Tungkai dan Keseimbangan Terhadap Kemampuan Menendang Bola Pada Permainan SepakBola Murid SD Negeri Sungguminasa 1V Kabupaten Gowa. Sulawesi Selatan. Universitas Negeri Makassar.
- Muhajir. 2014. Pendidikan Jasmani, Olahraga dan Kesehatan. Jakarta: PT Gelora Aksara Pratama.
- Priambodo dan Najib. 2018. "Hubungan tingkat konsentrasia siswa terhadap hasil ketepatan shooting sepak bola studi pada peserta ekstrakurikuler sepak bola di SMPN 4 Mojokerto". jurnal pendidikan olahraga dan kesehatan volume 07 nomor ` 428.
- Rosdiani, Dini. 2014. Perencanaan Pembelajaran Dalam Pendidikan Jasmani dan Kesehatan. Bandung: Alfabeta SV.
- Sepdianus dkk. 2019. Tes dan pengukuran olahraga. Depok. PTRajaGrafindo persada
- Sri Widiastuti Sendang. 2019. "Mengenal permainan olahraga bola besar". Sidoarjo. Myria Publisher.
- Sugiono. 2018. Stastistik Penelitian. Alvabeta, Sv.
- Sutanto, Teguh. 2019. *Buku pintar olahraga*. Yogyakarta: Pustaka Baru Press.
- Wening Nurgraheni dan Agung Widodo. 2017. Ucu Ginanjar. 2018. Jurnal. Hubungan Antara Koordinasi Mata-Kaki Terhadap Longpass Dalam Permainan SepakBola Diektrakurikuler Mts Yasti Cisaat Kabupaten Sukabumi Tahun 2018. Jawa Barat: Universitas Muhammadiyah Sukabumi.