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The Contribution of Agility and Speed to the Playing Performance of Soccer Athletes in Bangkinang City

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Abstrak

Penelitian ini bertujuan untuk mengetahui kontribusi kelincahan dan kecepatan terhadap performa bermain sepak bola atlet Kota Bangkinang. Sepak bola merupakan olahraga yang menekankan pada kemampuan fisik, teknik, taktik, dan mental. Komponen-komponen tersebut merupakan bagian dari kondisi fisik yang sangat penting. Penelitian ini menggunakan pendekatan kuantitatif dengan metode korelasional. Sampel dalam penelitian ini berjumlah 32 atlet sepak bola Kota Bangkinang yang dipilih menggunakan teknik total sampling. Instrumen yang digunakan adalah Illinois Agility Test untuk mengukur kelincahan, tes sprint 30 meter untuk mengukur kecepatan, serta instrumen penilaian performa sepak bola yang terdiri atas tes keterampilan sepak bola dan observasi menggunakan instrumen penilaian yang mencakup passing, dribbling, kontrol bola, shooting, dan pergerakan tanpa bola. Analisis data menggunakan uji korelasi dan regresi berganda. Hasil penelitian menunjukkan bahwa kelincahan memberikan kontribusi signifikan terhadap performa bermain sebesar 0,682 yang termasuk dalam kategori kuat. Kecepatan memberikan kontribusi terhadap performa bermain sepak bola sebesar 0,641. Secara simultan, kelincahan dan kecepatan memberikan kontribusi terhadap performa bermain sepak bola sebesar 0,641. Dengan demikian, dapat disimpulkan bahwa kelincahan dan kecepatan merupakan faktor penting yang memengaruhi performa bermain sepak bola atlet Kota Bangkinang.

Kata kunci: kelincahan, kecepatan, performa bermain sepak bola

Abstract

This study aimed to determine the contribution of agility and speed to the soccer playing performance of Bangkinang City athletes. Soccer is a sport that emphasizes physical, technical, tactical, and mental abilities. These components are part of physical condition, which is very important. This study used a quantitative approach with a correlational method. The sample in this study consisted of 32 Bangkinang City soccer athletes selected using a total sampling technique. The instruments used were the Illinois Agility Test to measure agility, a 30 meter sprint test to measure speed, and a soccer performance assessment instrument consisting of a soccer skills test and observation using an assessment instrument covering passing, dribbling, ball control, shooting, and off-the-ball movement. Data analysis used correlation and multiple regression tests. The results showed that agility made a significant contribution to playing performance of 0.682, which is included in the strong category. Speed contributed to soccer playing performance by 0.641. Simultaneously, agility and speed contributed to soccer playing performance by 0.641. Thus, it can be concluded that agility and speed are important factors influencing the soccer playing performance of Bangkinang City athletes.

Keywords: agility, speed, soccer playing performance

Introduction

Team sports are among the most popular types of sports enjoyed by people, including soccer. Soccer is one of the most popular large-ball sports, ranging from children to professional athletes. This game requires mastery of technique, tactical understanding, and good physical condition so that players can demonstrate optimal performance on the field. Soccer playing performance is not only determined by mastery of basic techniques such as passing, dribbling, shooting, and controlling, but is also influenced by the player's physical condition. Therefore, physical condition is one of the main factors in determining the quality of soccer playing performance (Slimani et al., 2019:2).Several physical aspects that influence soccer playing performance include strength, endurance, coordination, agility, and speed. These components are interrelated and play an important role in supporting sports activities, especially soccer. According to Bompa and Buzzichelli (2019:45), physical condition is the main foundation that must be developed in athlete training because it greatly influences the athlete's ability to perform sports skills optimally. Without good physical condition, athletes will have difficulty maintaining performance during a match. Among these components, agility and speed have a very important role because they are directly related to the player's ability to move quickly, change direction effectively, and respond to various dynamic game situations and conditions (Paul et al., 2016:3). Players with a high level of agility are able to change direction quickly and accurately without losing balance, while speed allows players to win duels, perform penetration, and defend effectively.

In addition to agility, speed is also an equally important component of physical condition in supporting on-field performance. Speed is the ability to perform movements in the shortest possible time, especially when executing sprint movements. In the game, speed is essential for chasing the ball, beating opponents, and carrying out counterattacks. According to Haugen and Buchheit (2016:898), sprint speed is one of the main factors determining the performance of modern soccer players, as most crucial match situations involve short-distance explosive movements. Soccer playing performance is the result of a player's ability to effectively integrate various physical, technical, and tactical components. According to Sarmento et al. (2018:5), soccer player performance is greatly influenced by physical condition, particularly speed and agility, which enable players to quickly adapt to game situations. Therefore, the better a player's level of agility and speed, the better their playing performance on the field.

In the context of soccer athlete development in regional areas, particularly in Bangkinang City, improving athlete performance is one of the main objectives in the training process. Soccer athlete development in this area continues to grow through various clubs and soccer schools. However, based on field observations, the playing ability of Bangkinang City soccer athletes shows considerable variation, and there are still athletes who have not demonstrated optimal performance, such as lacking speed in movement and agility in changing direction. This indicates that components of physical condition, especially agility and speed, still need to be improved through appropriate training programs. This is because, in each training session, these two physical components often do not receive optimal and measurable attention. Training tends to focus more on basic techniques and muscle strength, while the contribution of other physical factors such as agility and speed to performance has not been properly analyzed. Systematic and well-structured training programs can significantly improve athletes' physical abilities. According to Turner and Stewart (2017:12), training that focuses on improving agility and speed can

enhance athlete performance in sports that require rapid movements and directional changes, such as soccer. Therefore, it is important to determine the extent of the contribution of agility and speed to the soccer playing performance of athletes.

Based on the discussion above, it can be concluded that agility and speed are very important components of physical condition in supporting soccer playing performance. However, it is not yet clearly known to what extent agility and speed contribute to the soccer playing performance of athletes in Bangkinang City. Therefore, it is necessary to conduct a study entitled **"The Contribution of Agility and Speed to the Soccer Playing Performance of Bangkinang City Athletes,"** so that the results of this study are expected to provide useful scientific information for improve.

METHODS

This study used a quantitative approach with a correlational method. According to Sugiyono (2019:17), the quantitative approach is a research method based on the philosophy of positivism, used to examine specific populations and samples. Data collection techniques use research instruments, and data analysis is statistical in nature to test predetermined hypotheses. Meanwhile, according to Fraenkel et al. (2016:328), the correlational method aims to determine the relationship between two or more variables, as well as to identify the magnitude of the contribution of independent variables to the dependent variable. This method was used to determine the contribution of agility and speed to the soccer playing performance of Bangkinang City athletes. The research design used multiple correlation, which aims to determine the contribution of agility (X1) and speed (X2) to soccer playing performance (Y).

Participants

According to Sugiyono (2019:117), a population is the entire subject of research that has certain characteristics determined by the researcher to be studied and from which conclusions are drawn. The population in this study consisted of 32 athletes who were football players from Bangkinang City, aged between 15–18 years. All participants met specific criteria, namely being physically healthy, fit, and not currently injured.

According to Arikunto (2018:174), a sample is a portion or representative of the population being studied. The sampling technique used in this study was total sampling, meaning that the entire population was used as the sample, consisting of 32 athletes.

Sampling Procedure

The sampling procedure in this study used data collection techniques consisting of tests and measurements to obtain objective and measurable data. The tests conducted included an agility test (X1) using the Illinois Agility Test, measured in seconds. The Illinois Agility Test is a commonly used instrument to measure change of direction ability and agility in soccer athletes (Young et al., 2020: 215). Furthermore, the speed test (X2) was conducted using a 30-meter sprint test, measured in seconds (Haugen & Buchheit, 2016: 435). The soccer playing performance test (Y) was measured using a soccer skill test and game observation with an assessment instrument that included passing, dribbling, control, shooting, and off-the-ball movement (O'Connor et al., 2018: 88).

Before conducting hypothesis testing, prerequisite tests were performed, including a normality test to determine the data distribution, followed by the Pearson correlation test. According to Sugiyono (2019:159), hypothesis testing aims to determine whether the research hypothesis

is accepted or rejected based on empirical data.

Materials and Equipment

The test instrument used in this study was a soccer playing skills test and observation using an assessment instrument that included passing, dribbling, ball control, shooting, and off-the-ball movement (O'Connor et al., 2018: 88).

Procedure

The data collection technique in this study used testing and measurement methods. This method was used to obtain objective data regarding the physical abilities of the athletes. The steps were as follows: the athletes performed a warm-up, the athletes performed an agility test, the athletes performed a speed test, and the athletes performed a soccer playing performance test. Tests and measurements are effective methods for objectively and scientifically measuring the physical abilities of athletes.

Design or Data Analysis

Data analysis in this study was conducted quantitatively through several stages. First, the data were analyzed using descriptive statistical techniques to obtain the mean, minimum, and maximum values. Next, a normality test was conducted to determine whether the data were normally distributed, thereby meeting the requirements for Product Moment correlation testing, multiple regression analysis, and significance testing, namely the t-test and F-test, to determine the significance of the contribution of independent variables to the dependent variable at a significance level of $\alpha = 0.05$. According to Sugiyono (2019:159), hypothesis testing aims to determine whether the research hypothesis is accepted or rejected based on empirical data.

Results

This study aimed to determine the contribution of agility and speed to the soccer playing performance of Bangkinang City athletes. The study was conducted on 32 athletes as the research sample. The variables consisted of agility (X1), speed (X2), and soccer playing performance (Y). The data were obtained from the Illinois Agility Test for agility, the 30-meter sprint test for speed, and the soccer playing performance test. Data analysis was carried out using the IBM SPSS program through the SPSS application.

The description of the research data aims to provide a general overview of the minimum, maximum, mean, and standard deviation values of each research variable. The descriptive statistical data are as follows:

Table 1. Descriptive Statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Agility	32	15.29	19.90	17.55	1.29
Speed	32	4.70	5.80	4.94	0.65
Playing Performance	32	75	97	75.25	6.75

Based on the table, it is known that the average agility of the athletes was 17.55 seconds with a standard deviation of 1.29. The average speed of the athletes was 4.94 seconds with a standard deviation of 0.65. Meanwhile, the average soccer playing performance of the athletes was 75.25 with a standard deviation of 6.75. This indicates that, in general, the athletes had agility, speed, and playing performance at a good level.

Correlation Test

The correlation test was used to determine the relationship between agility and speed and soccer playing performance.

Table 3. Correlation Test Results

Variable	r value	Sig.
Agility on Playing Performance	0.682	0.000
Speed on Playing Performance	0.641	0.000

Based on the table above, the correlation value between agility and playing performance was 0.682 with a significance value of 0.000. This indicates that there is a significant relationship between agility and soccer playing performance. The correlation value of 0.682 falls into the strong category. Furthermore, the correlation value between speed and playing performance was 0.641 with a significance value of 0.000. This indicates that there is a significant relationship between speed and soccer playing performance. The correlation value of 0.641 is also included in the strong category.

Hypothesis Test

The F-test was used to determine whether agility and speed simultaneously contributed significantly to soccer playing performance.

Table 5. F-Test Results

F value	Sig.
18.735	0.000

Based on the results of the F-test, the significance value obtained was 0.000. Since the significance value is less than 0.05, it can be concluded that agility and speed simultaneously make a significant contribution to the soccer playing performance of Bangkinang City athletes.

Discussion

This study aimed to determine the contribution of agility and speed to soccer playing performance in Bangkinang City athletes. The results showed that agility had a significant contribution to soccer playing performance. Agility enables players to move quickly and change direction effectively during matches. This is consistent with the view that agility allows players to perform rapid and effective changes of direction during games (Sheppard & Young, 2016: 920). Players who have good agility will find it easier to pass opponents and maintain ball possession. Speed also had a significant contribution to soccer playing performance. Speed enables players to move faster in game situations. Players with good speed will be more effective in both attacking and defending situations (Haugen & Buchheit, 2016: 438).

Agility and speed simultaneously contributed 56.4% to the soccer playing performance of Bangkinang City athletes. Meanwhile, the remaining 43.6% was influenced by other factors not examined in this study, such as technique, endurance, muscle strength, coordination, and psychological factors. This indicates that these two physical condition components are important factors in improving soccer athletes' performance. The results of this study suggest that improving agility and speed can enhance soccer playing performance. Therefore, coaches need to provide training programs focused on improving athletes' agility and speed.

Conclusion

The results of hypothesis testing proved that there was a contribution of agility to the soccer playing performance of the athletes, with a correlation value of 0.682. This indicates that there is a significant relationship between agility and soccer playing performance. The correlation value of 0.682 is included in the strong category. Furthermore, the correlation value between speed and playing performance was 0.641 with a significance value of 0.000. This indicates that there is a significant relationship between speed and soccer playing performance. The correlation value of 0.641 is also included in the strong category. Based on the results of the F-test, the

significance value obtained was 0.000. Since the significance value is less than 0.05, it can be concluded that agility and speed simultaneously make a significant contribution to the soccer playing performance of Bangkinang City athletes.

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