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Article

Training Effect of Straight-Line Trajectory with the Ball on Dribbling Results on Disporasu Medan Football Players Aged 14-17 Years Old

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Abstract

The objective of this study was to examine the impact of straight-line trajectory ball training on the dribbling abilities of players at the Disporasu Football School, aged between 14 and 17 years old, in Medan City, Indonesia. The research addressed the observed deficiencies in dribbling abilities, including players' difficulty in maintaining close ball control and the monotony of existing training methods. The study employed an experimental one-group pre-test post-test design and involved 17 athletes, representing the entire population of the age group at the school. The intervention comprised seven variations of straight-line trajectory ball training, conducted thrice weekly for a period of six weeks between September 21st and December 12th, 2022. The dribbling ability of the subjects was evaluated using a standardized dribbling test before and after the training period. The data were analyzed using paired sample t-tests, with normality and homogeneity checks performed prior to hypothesis testing. The results demonstrated a notable enhancement in dribbling proficiency following the intervention, with the mean dribbling time reducing from 21.18 to 19.66 seconds. The study's findings indicate that straight-line trajectory ball training significantly enhances dribbling ability in youth soccer players. These results provide coaches and trainers with an evidence-based approach to improve essential soccer skills during a crucial developmental period. The research contributes to a broader understanding of skill acquisition in soccer, offering practical insights for optimizing player performance and engagement. Additionally, the study underscores the significance of structured, progressive training programs in youth soccer development and provides a valuable template for ongoing assessment and refinement of training methods.

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INTRODUCTION

According to Rudi (2020), dribbling is a movement carried out by kicking slowly or intermittently. Kicking the ball slowly without being interrupted can mean that the condition of the ball is not far from the foot, so that the process of the technique can be carried out. Then, dribbling also includes control of the ball when preparing, standing, or moving, passing, and shooting at the goal so that it is important to be mastered by each player (Irfan & Candra, 2023; Leal, Pinto, Torres, Elferink-Gemser, & Cunha, 2022). Dribbling can be done using the instep, outside foot, and inside foot (Mitschke & Milani, 2014; Zago, Piovan, et al., 2016).

Observations were conducted at the Disporasu Medan Football School to find out various basic football techniques consisting of throwing in, tackling, heading, dribbling, stopping, and kicking. During the two weeks of observation, problems were found in the dribbling aspect where opposing players were very easy to grab the dribbled ball, because the distance between the ball and the player's feet was often greater. This has an impact on the lack of courage to maneuver, lack of control of the game, and undeveloped game pattern (Ferraz et al., 2020). Therefore, during the game, the players rely on short and long passes only.

There are obstacles experienced by players during the dribbling process, including the touch of the foot and the ball being too hard, balance when running and dribbling at the same time, the view only focuses on the ball, and lack of ball feeling. Then, the results of interviews with coaches obtained information regarding the focus of training from coaches on players is on physical aspects and tactics, while variations in technical training, especially dribbling, tend to be monotonous. Therefore, this research tries to apply one variation of dribbling technique training through the "straight line trajectory" training method. This training method is alleged to have an impact on the player's dribbling ability and make training more varied and fun (Marzuki & Soemardiawan, 2019; Purnama, 2022). Based on the problems and alleged solutions above, the study aims to

analyze the effect of giving straight line trajectory with the ball training treatment on improving the dribbling ability of Disporasu Football School players aged 14 to 17 years.

METHODS

This research was conducted by means of experimental action and one-group pre-test post-test design. The number of samples was 17 from a total population of 17 athletes. aged 14-17 years, so the sample was determined by means of a total sampling technique. Seven training variations of straight-line trajectory with the ball were performed by the sample for six weeks with a frequency of three times each week. The training was conducted from September 21st to December 12th, 2022 at the Disporasu football school field, Medan city. The samples were tested before and after the training through a dribbling test developed by Nurhasan (2001). Before the sample performed the dribbling test, an example was given first to minimize errors and the time used for the test was more efficient.

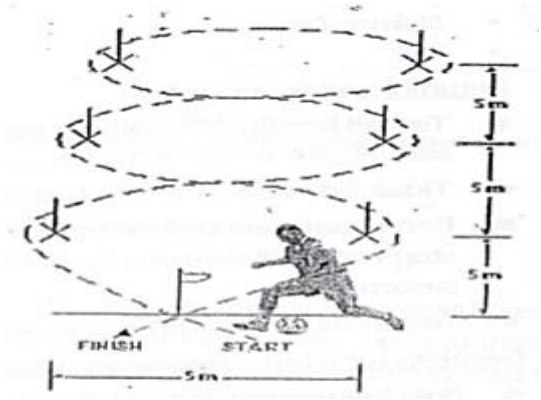

Fig. 1 Dribbling Test Form

Table 1. Categorization of Dribbling Ability

No.	Time (Seconds)	Category
1	<16.99	Very Good
2	17.00- 19.00	Good
3	19.01- 21.00	Fair
4	21.01- 23.00	Poor
5	>23.00	Very Poor

Data results were analyzed through paired sample t-test for hypothesis testing. However, before hypothesis testing, the data were tested for normality through the Saphiro-Wilk test and homogeneity through the Lavene test. All analyses were conducted through the use of SPSS 25 application with a significance level of alpha 0.05.

RESULT & DISCUSSION

Data Description

From a total of 17 samples, pre-training data of straight-line trajectory with the ball on dribbling results were obtained with a score range of 19.20-22.43, a total score of

360.2, an average value of 21.18, and a standard deviation value of 0.92. From the data obtained, 9 samples have values above the average and 7 samples have values below the average. Furthermore, based on the results of post-training straight line trajectory with the ball on the results of dribbling, data obtained with a score range of 18.51-20.47, total score of 334.38, average value of 19.66, and standard deviation value of 0.66. Through this data, it was obtained that 9 samples had values above the average and 7 samples had values below the average.

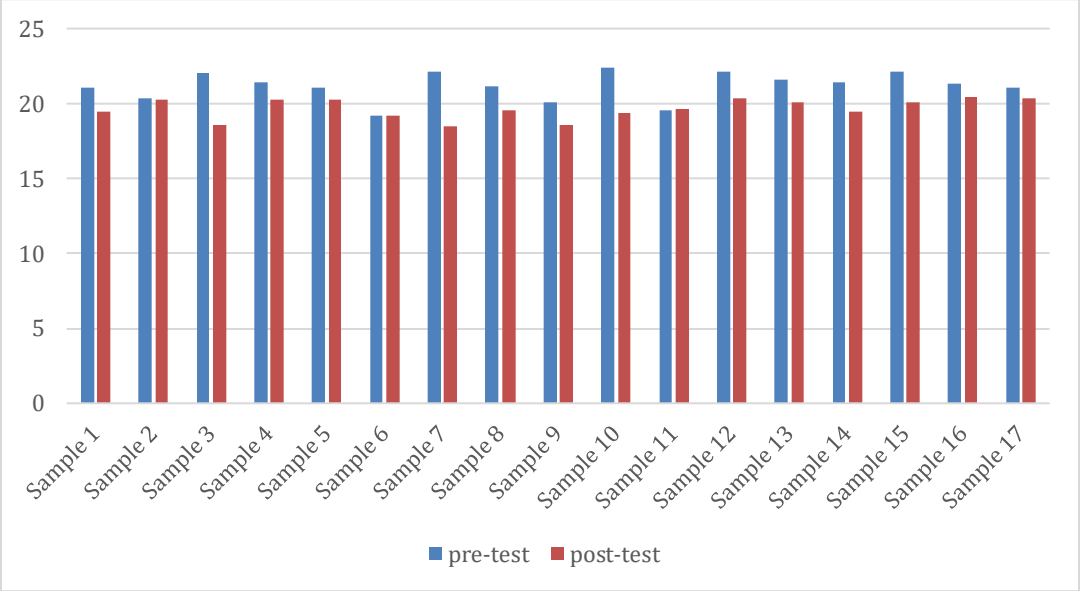

Fig. 2 Pre and Post Exercise Data of each Sample

Normality and Homogeneity Test

It is known that the pre-training significant value is 0.059 > 0.05 and the post-training significance value is 0.061 > 0.05. These results indicate that the residual values are normally distributed both before and after being given straight line trajectory with the ball training on the results of the dribbling test. Meanwhile, the results of the homogeneity test, obtained the calculation of a significance value of 0.392 and the value is greater than 0.05, so it is concluded that the sample data used in the study is homogeneous.

Table 2. Normality and Homogeneity Test Results through Shapiro-Wilk and Levene Tests

Test Variable	Shapiro-Wilk			Levene's Statistic	df1	df2	Sig.
	Statistic	Df	Sig.				
Pre-Test	.897	17	.059	.754	1	32	.392
Post Test	.883	17	.061				

Hypothesis Test

The next stage of hypothesis testing through paired sample t-test after it is known that the data is normally distributed and homogeneous. Based on Table 3, the t-test results obtained a value of 5,801 and a significance value of 0.000. The t-significance value will be compared with the alpha significance value of 0.05, then the result is 0.000 < 0.05. The results of this comparison can be concluded that straight line trajectory ball training with the ball has a significant effect on the results of dribbling at the Disporasu football school aged 14-17 years in Medan city in 2022.

These results illustrate that the straight-line trajectory with the ball exercise in the training program used by this study provides maximum results on the results of dribbling ability (Khairi, 2014; Sinaga, 2016). However, this exercise must use the principle of adding weight in each exercise. This is in accordance with the theory described in the book written by Akhmad (2013) namely training through a systematic process or working repeatedly over a long period of time, which is increased gradually and individually aimed at the formation of physiological and psychological muscle functions to meet the demands of the task (Harsono, 2015). Dribbling technique is one of the basic techniques in football games. Dribbling in a football game can be used to outwit or pass opponents and even score goals that can be done while running (Giordano, Federici, Valentini, & D'Elia, 2019). To master this ability to the maximum, must carry out training over a long period of time to form dribbling skills in carrying out their duties. Training of straight-line trajectory with the ball can be one of the training options to improve the mastery of dribbling techniques because of the evidence from the results of this study.

Table 3. Hypothesis Test through Paired Sample T-Test

Test Variabels	T-Test	Sig.
Pre and Post Test	5.801	.000

The notable enhancement in dribbling proficiency observed in this investigation corroborates the findings of recent research on skill acquisition in youth soccer players. A study by D'Isanto et al. (2019) revealed that structured training programs emphasizing particular technical abilities, such as dribbling, resulted in significant enhancements in performance among adolescent players. Their findings substantiate the notion that targeted exercises, like the straight-line trajectory ball training utilized in this study, can

effectively facilitate the development of fundamental soccer skills (Marzuki & Soemardiawan, 2019; Purnama, 2022).

Moreover, the concept of progressive overload, as outlined in the original text, is supported by contemporary training methodologies. Collins et al. (2016) and La Scala Teixeira et al. (2019) have observed, it is crucial to incrementally elevate the intensity and complexity of training in order to consistently challenge athletes and facilitate the advancement of their abilities. This approach is particularly relevant for developing dribbling skills, as it allows players to adapt to increasingly demanding scenarios that mirror real-game situations. Additionally, some findings indicate that combined technical and physical training programs are an effective method for improving overall soccer performance. The integration of dribbling exercises with other aspects of fitness training has been shown to yield even greater benefits for young players (Ardiansyah et al., 2024; Zago, Giuriola, & Sforza, 2016).

CONCLUSION

Based on the results of hypothesis testing using paired sample t-test, it can be concluded that there is a significant influence on the results of dribbling through the provision of straight-line trajectory training with the ball at the Disporasu football school aged 14-17 years in Medan city in 2022. This research offers significant benefits to the field of youth soccer training and development. By demonstrating the effectiveness of straight-line trajectory ball training on dribbling ability in players aged 14-17, it provides coaches and trainers with a proven, evidence-based method to enhance a crucial soccer skill during a critical developmental period. The study's approach not only addresses the need for varied and engaging training techniques to combat monotony but also emphasizes the importance of structured, progressive training programs. This can lead to more dynamic practice sessions, increased player engagement, and potentially improved long-term skill acquisition. Furthermore, the research methodology provides a valuable template for ongoing assessment and refinement of training programs, encouraging a more scientific approach to youth soccer development. Ultimately, this study contributes to the broader understanding of skill acquisition in soccer, offering practical insights that can be applied across various age groups and skill levels to optimize player performance and enjoyment of the sport.

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