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Sprint Acceleration and Two-Leg Skipping: Methods for Improve Football Dribbling Ability

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ABSTRAK

Menggiring bola merupakan salah satu teknik dasar yang harus dikuasai oleh para pemain sepakbola. Hanya saja tidak semua siswa mampu menguasai teknik dasar menggiring bola dengan baik, karena kurangnya latihan yang diberikan oleh pelatih. Salah satu latihan yang dapat meningkatkan kemampuan menggiring bola yakni latihan akselerasi sprint dan skipping dua kaki. Adapun tujuan dari penelitian ini yakni untuk mengungkap pengaruh pelatihan akselerasi sprint dan skipping dua kaki terhadap kemampuan menggiring bola. Penelitian ini tergolong kedalam jenis penelitian eksperimen semu (quasi experimental). Populasi dalam penelitian ini yakni seluruh siswa sekolah menengah atas. Penarikan sampel dalam penelitian dilakukan dengan menggunakan teknik random sampling, sehingga didapatkan sampel penelitian yakni sebanyak 30 siswa yang mengikuti ekstrakurikuler sepakbola. Pengumpulan data dalam penelitian dilakukan menggunakan metode tes, dengan instrument berupa tes menggiring bola. Hasil analisis penelitian menunjukkan bahwa adanya pengaruh yang signifikan dari kedua pelatihan plyometrik tersebut antara hasil penelitian akselerasi sprint dan pelatihan skipping dua kaki terhadap menggiring bola sepakbola, dan terdapat perbedaan yang signifikan antara hasil pelatihan alselerasi sprint dengan skipping dua kaki. Disimpulkan bahwa metode akselerasi spint dan skipping dua kaki dapat meningkatkan kemampuan menggiring bola.

ABSTRACT

Dribbling the ball is one of the basic techniques that football players must master. It is just that not all students can master the basic techniques of dribbling properly due to the lack of training given by the coach. One of the exercises that can improve the ability to dribble is the sprint acceleration exercise and two-leg skipping. This study aims to reveal the effect of sprint acceleration training and two-leg skipping on the ability to dribble the ball. This research belongs to the type of quasi-experimental research (quasi-experimental). The population in this study was all high school students. Sampling in the study was conducted using a random sampling technique to obtain the research sample of as many as 30 students who participated in extracurricular football. Data collection in this study was carried out using the test method, with the instrument being the dribbling test. The research analysis showed a significant effect of the two plyometric training between the results of the research sprint acceleration and two-leg skipping training on dribbling a football ball. There was a significant difference between the results of sprint acceleration training and two-leg skipping. It was concluded that the accelerated sprint and two-footed skipping methods could improve the ability to dribble the ball.

1. INTRODUCTION

Football is one of the most popular sports branches of all levels of society, from children to adults. Football is a big ball game involving two teams (Hidayat & Witarsyah, 2020; Shabih et al., 2021). Each team in football consists of 11 players. To get points and win the game, each team must score a goal by putting the ball into the opponent's goal (Kismono & Dewi, 2021; Rohendi et al., 2020). Each team has one goalkeeper who guards the goal so the opposing team does not put the ball into the goal (Indra & Marheni, 2020; Trishandra & Rois, 2022). The characteristic of the game of football is that it is dynamic

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and requires players to move more agile and agile to score goals (Pebrima et al., 2021; Wijaya, 2021). In football competitions, victory is the main goal, so to achieve victory, players must master basic football techniques. Basic techniques are all basic activities, and with good basic technical capital, a football player can play well in all positions (Puspitasari, 2019; Riyoko, 2019; Sudharto et al., 2020). With mastering the basic techniques, the performance in the game will be good because the basic techniques are fundamental in the game of football besides being physical, technical, and mental. One of the basic techniques that football players must master is the basic technique of dribbling. Dribbling is a technique of moving the ball using the back of the foot, the inside and the outside of the foot (Kuswati, 2022; Palgunadi & Putra, 2020; Saputra, 2019). In the process of dribbling, the ball is directed forward and remains in control so that the ball is not captured by the opposing team (Prasetio et al., 2022; Utomo & Sudarmono, 2021). The dribbling technique is one of the techniques that players must master to win the game.

It is just that the reality on the ground shows that not all football players can master the basic techniques of dribbling properly. It aligns with the observations and interviews conducted at SMA Negeri 1 Abiansemal. The results of observations and interviews show that students who take part in the football extracurricular at SMA Negeri 1 Abiansemal have yet to be able to show maximum performance, according to the targets to be achieved by the school. The decline in the achievement of extracurricular football students is caused by several factors, such as the lack of intensive coaching, which leads to an increase in the physical condition and basic technical skills in the game of football. As is well known, optimal achievement will be achieved with maximum mastery of game techniques and good physical condition. It can be obtained by providing training that leads to mastery of football game techniques, especially dribbling techniques, and training in components of physical condition. The technical training provided still needs to be more varied, which results in student boredom. It indirectly impacts the decline in sports achievement, especially football at SMA Negeri 1 Abiansemal.

One effort that can be made to overcome this problem is by providing sprint acceleration training and two-leg skipping. Sprint acceleration and two-leg skipping training are forms of plyometric training aimed at increasing muscle power and agility, especially in the leg muscles (Furqoni & Sudijandoko, 2019; Susanti et al., 2022). This training will impact the ability of good leg muscle power to carry out dribbling movements toward a target in football (Buhari et al., 2021; Sidiq et al., 2021). Through training in sprint acceleration and two-legged skipping, players can achieve better performance, be more physically and mentally stable, and mature in competition (Darumoyo, 2022; Santika et al., 2020). It was further explained that the Skipping exercise alternates hop steps emphasizing height and horizontal distance (Wibowo et al., 2022). The functional anatomy of skipping includes thigh extension, involving the biceps femoris, semitendinosus, and semimembranosus muscles, as well as the gluteus minimus and Maximus; flexion of the thigh, involving the tensor fasciae latae, sartorius, iliacus, and gracilis muscles, and extension of the leg, involving the gastrocnemius muscles. Skipping training with full leg flexion is an excellent exercise for wide stride activities involving the gluteal gastrocnemius, quadriceps, hamstring, and hip flexors (Adityatama et al., 2022; Iskandar et al., 2021). This exercise also engages the lower back muscles, abs, and shoulder girdle.

Several previous studies revealed that there was a significant effect on the results of the ability to dribble and the accuracy of shooting in participants who received two-legged skipping training (Mahanggara et al., 2022). The results of other studies revealed that skipping rope and boomerang run exercises increased player agility (Nugraha & Syafi'i, 2022). The results of the next study revealed an increase in the ability to kick the ball with the skipping and 100-meter sprint training methods (Artanty & Rosadi, 2022). Based on some of the results of these studies, it can be said that sprint acceleration and two-legged skipping exercises can improve the agility and technical mastery of the players. In previous studies, no studies specifically discussed the role of sprint acceleration and two-leg skipping exercises to improve the ability to dribble a football ball. So this research is focused on this study to reveal the effect of sprint acceleration training and two-leg skipping on the ability to dribble.

2. METHOD

This research belongs to the type of quasi-experimental research with a pre-test post-test group design model. The population in this study were all students of SMA Negeri 1 Abiansemal. Sampling in the study was carried out using a random sampling technique. The sample in this study was 30 students of SMA Negeri I Abiansemal who actively participated in extracurricular football activities with an age range of 15-20 years. The study was conducted by providing training for four weeks (3 times a week = 12 meetings) to the research sample. Data collection in the study was carried out using the test method, with an instrument in the form of a

dribbling test, and then given core training for 12 weeks. In week 13, the two sample groups were tested again with a test in the form of dribbling with a validity value of 0.92 and a reliability of 0. 98. The achievement scale of dribbling a football ball in the form of a T-score is shown in Table 1.

Table 1. The Scale of Dribbling Achievements in the form of t-Scores

No	Category	Dribbling
1	Very good	< 14,2
2	Good	14,3 -15,1
3	Enough	15,2 – 16,0
4	Not enough	16,1 – 17,0
5	Less	> 17,1

The table for the sprint acceleration training program and two-leg skipping training can be seen in Tables 2 and Tables 3.

Table 2. Sprint Acceleration Training Program

Week	Day	Repetition	Set	Intensity	HR-Training	HR-Recovery
	1	8	3	60%	140 – 150	110 – 120
I	2	8	4	60%	140 – 150	110 – 120
	3	8	5	60%	140 – 150	110 – 120
	4	9	3	65%	150 – 160	110 – 120
II	5	9	4	65%	150 – 160	110 – 120
	6	9	5	65%	150 – 160	110 – 120
	7	10	3	70%	160 – 170	110 – 120
III	8	10	4	70%	160 – 170	110 – 120
	9	10	5	70%	160 – 170	110 – 120
	10	9	3	65%	150 – 160	110 – 120
IV	11	9	4	65%	150 – 160	110 – 120
	12	9	5	65%	150 – 160	110 – 120

Table 3. Two-Leg Skipping Training Program

Week	Day	Repetition	Set	Intensity	HR-Training	HR-Recovery
	1	12	3	60%	140 – 150	110 – 120
I	2	12	4	60%	140 – 150	110 – 120
	3	12	5	60%	140 – 150	110 – 120
	4	13	3	65%	150 – 160	110 – 120
II	5	13	4	65%	150 – 160	110 – 120
	6	13	5	65%	150 – 160	110 – 120
	7	14	3	70%	160 – 170	110 – 120
III	8	14	4	70%	160 – 170	110 – 120
	9	14	5	70%	160 – 170	110 – 120
	10	13	3	65%	150 – 160	110 – 120
IV	11	13	4	65%	150 – 160	110 – 120
	12	13	5	65%	150 – 160	110 – 120

The data obtained in the study were then analyzed using a paired sample t-test with a significance level of $p<0.05$. The test was carried out after the samples were tested for normality using the Kolmogorov-Smirnov test, the Shapiro-Wilk test, and the homogeneity test using Levene's Test of Equality of Error Variances. Furthermore, to determine whether there is a significant difference in values between the two training models, the analysis is continued using the one-way Anava test.

3. RESULT AND DISCUSSION

Result

The general description of the research results describes the frequency distribution and comparison of the mean (mean) and standard deviation (SD) of the Sprint Acceleration and Two-Leg

Skipping training methods given to each treatment group. The results of the data analysis that has been carried out indicate that there are several findings in this study, including the first finding relating to the description of the pre-test and post-test ability to dribble the ball in the Sprint Acceleration Training Method Group. The general description of the pre-test and post-test results revealed consists of the frequency distribution, the distribution of the average score ($\overline{X}$), and the standard deviation (SD) based on the given Sprint Acceleration training method. The mean, standard deviation, and variance can be calculated in Table 4.

Table 4. Summary of Dribbling Calculation Results for the Sprint Acceleration Group

Statistics	A1	A2
Means	16.60	15.22
Median	16.92	15.00
std. Deviation	1.80	1.70
Variance	3.25	2.90
Minimum Score	13.23	12.98
Maximum Score	19.06	18.00
range	5.83	5.02
Amount	248.97	228.37

The second finding relates to the results of the description of the pre-test and post-test dribbling a football ball in the two-legged skipping training group. The general description of the pre-test and post-test results revealed consists of the distribution of frequencies, the distribution of the average value ($\overline{X}$), and the standard deviation (SD) based on the given two-legged skipping training method. The calculation of the mean, standard deviation, and variance can be seen in Table 5.

Table 5. Summary of Dribbling Calculation Results for the Two-Leg Skipping Group

Statistics	A1	A2
Means	17.05	15.86
Median	17.20	15.87
Std. Deviation	1.55	1.73
Variance	2.41	3.01
Minimum Score	13.69	13.00
Maximum Score	20.31	18.75
range	6.62	5,75
Amount	255.68	237.91

The third finding relates to the normality test results. The normality test is intended to test whether the existing data comes from data with normal distribution. The normality test was performed using the Kolmogorov-Smirnov test and Shapiro-Wilk test statistics. The test criterion is that the data has a normal distribution if the significance value obtained is greater than 0.05, and in other cases, the distribution is not normally distributed. The results of the normality test on the Kolmogorov-Smirnov and Shapiro-Wilk stated that the football dribbling data is data that comes from a normal distribution. The results of the calculation of the normality test can be seen in Table 6.

Table 6. Data Normality Test Results

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
Sprint Acceleration	0.154	15	0.200	0.923	15	0.213
Two-Leg Skipping	0.132	15	0.200	0.950	15	0.517

The fourth finding relates to the results of the data homogeneity test. A homogeneity test was conducted to determine whether the existing variants were homogeneous. The homogeneity test of the football dribbling variant was carried out using Levene's Test of Equality of Error Variances. If the significance level of the variant is greater than 0.05, then the existing variance is declared homogeneous. Based on the results of the data analysis, the variance between the sprint acceleration and two-leg skipping exercise groups is homogeneous. The results of the calculation of the normality test can be seen in Table 7.

Table 7. Test Table of Homogeneity of Variance Sprint Acceleration and Two-Leg Skipping Training on the Ability to Dribble A Football Ball

	Statistic	Levene Statistic	df1	df2	Sig.
Dribbling	Based on Mean	0.404	2	42	0.670
	Based on Median	0.244	2	42	0.785
	Based on the Median and with adjusted df	0.244	2	40.749	0.785
	Based on trimmed mean	0.407	2	42	0.669

The fifth finding relates to the results of the research hypothesis test. After the data is declared normally distributed and homogeneous, the next step is to test the effect of sprint acceleration and two-leg skipping exercises on dribbling a football ball using the t-test (paired sample test). Based on Table 10 below, it can be seen that there was a significant effect on the sprint acceleration group (0.000) and the two-leg skipping group (0.019). Furthermore, a one-way Anava analysis was carried out to see if there was a significant difference in results between the sprint acceleration exercise and two-leg skipping. The–anava test calculation results (F = 38.048) stated a significant difference between sprint acceleration exercises with two-leg skipping to dribbling a football ball. The results of the hypothesis and F tests can be seen in Table 8 and Table 9.

Table 8. T-Test Results (Paired Sample Test)

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pre-test - Post-test sprint acceleration	2.12633	1.63679	.29884	1.51515	2.73752	7.115	29	0.000
Pair 2	Two-leg skipping plyometric Pre-test - Post-test	0.52000	1.14801	.20960	0.09132	0.94868	2.481	29	0.019

Table 9. F Test Results

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	75.803	1	75.803	38.048	.000
Within Groups	115.552	58	1.992		
Total	191.355	59			

Discussion

Based on the results of the data analysis that has been done, the results show that sprint acceleration training and two-leg skipping have a significant effect on increasing students' dribbling skills. It then shows that sprint acceleration and skipping exercises are important to improve skills in playing football. Sprint acceleration and skinning are a form of plyometric exercise to increase the athlete's muscle mass and endurance (Darumoyo, 2022; Santika et al., 2020). The characteristic of plyometric training is resistance training that uses body weight as a load that focuses on utilizing a very fast concentric muscle contraction period after which the muscle experiences rapid eccentricity (Buhari et al., 2021; Sidiq et al., 2021). In football players, there is an increase in muscular power and leg strength, so plyometric training can be used to improve the performance of teenage athletes, especially in the endurance component (Furqoni & Sudijandoko, 2019; Susanti et al., 2022). The advantage of plyometric training in the youth category is that it can improve physical performance, be more prepared for the next exercise or competition, strengthen bones, and be safe to do on an ongoing basis (Adityatama et al., 2022; Iskandar et al., 2021). Plyometric exercises are also specific to increase maximum strength and explosive power (Prasetio et al., 2022; Utomo & Sudarmono, 2021). In other words, plyometric exercises are safe for teenage students. They can increase muscle power (one of them) from a physical perspective and directly support the performance of basic techniques, one of which is dribbling a football ball.

In the basic technique of dribbling, football players must be able to move the ball stably so that

the ball remains within reach and is not captured by opposing players. Dribbling the ball can be done using the back, the inside, and the outside of the foot (Puspitasari, 2019; Riyoko, 2019; Sudharto et al., 2020). In football games, players are required to be able to dribble and pass the ball, to be able to score goals and win matches. In addition to being required to master game techniques, in football games, players are also required to build good cooperation with team members (Pebrima et al., 2021; Wijaya, 2021). Where in the game of football, teamwork is one of the factors that can help players to win. To maximize the game, players need training from people who master the game well or commonly known as coaches (Indra & Marheni, 2020; Trishandra & Rois, 2022). In general, a coach is someone who has the professional ability to help reveal a sportsman's potential into real abilities optimally in a relatively short time (Hidayat & Witarsyah, 2020; Shabih et al., 2021). The coach will be said to be good if he has constructive imagination about his sport so that the coach can become a respected figure by the athletes he trains. A match will get good results if it is managed by a qualified coach and supported by the availability of adequate facilities.

The results obtained in this study are in line with previous results, which also revealed a significant effect on the ability to dribble and the accuracy of shooting in participants who received two-legged skipping training (Mahanggara et al., 2022). The results of other studies revealed that skipping rope and boomerang run exercises increased player agility (Nugraha & Syafi'i, 2022). Further research revealed the increased ability to kick a ball with the skipping and 100-meter sprint training methods (Artanty & Rosadi, 2022). So based on the results of data analysis supported by the results of previous research, it can be said that sprint acceleration and two-leg skipping exercises can improve the agility and technical mastery of the players.

4. CONCLUSION

Based on the results of the analysis and discussion, it is concluded that there is a significant effect between sprint acceleration training and two-leg skipping on the ability to dribble in football; there is a significant effect of sprint acceleration training on the ability to dribble in football; and there is a significant effect of two-footed skipping training on the ability to dribble in football. These results then show that sprint acceleration plyometric exercises and two-leg skipping are effective training methods to improve football dribbling skills in junior football athletes.

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