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The Effect of Ankle Weight Training Method on Free Kick Results in Soccer Games in Extracurricular Students at Al-Amanah Al-Islami Ridan Permai Islamic Boarding School

Jufrianis¹, Ikhsan Afandi²

¹Universitas Pahlawan Tuanku Tambusai, Riau, Indonesia, jufrianis93@gmail.com

²Universitas Pahlawan Tuanku Tambusai, Riau, Indonesia, ikhsanafandi24@gmail.com

Corresponding Author: jufrianis93@gmail.com¹

Abstract: This study aims to determine the effect of the ankle weight training method on the results of free kicks in soccer games for extracurricular students at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School. The method used is an experiment with a One Group Pretest and Posttest Design, involving a population of 30 people and a sample of 22 people determined by purposive sampling technique. The instrument used is a kicking ability test to measure free kick ability. Data were analyzed using the Kolmogorov Smirnov normality test, followed by One Way ANOVA analysis and the Paired Sample T test. The results of the analysis based on statistical output are known asymp. Sig. (2-tailed) is 0.001. Because the value of 0.001 is smaller than 0.05. It can be concluded that "there is a significant difference between the results of the pretest and posttest scores". Based on the calculation for the percentage increase, a value of 0.669 was obtained. This means that the ankle weight training method contributed 66.9% to the free kick variance. The conclusion of this study is that there is a strong and significant influence between the ankle weight training method and the results of free kicks in soccer games in extracurricular students at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School.

Keyword: Ankle Weight, Free Kick, Football.

INTRODUCTION

Sport is a form of physical and mental exercise. According to Haryanto and Welis (2019), sport is a physical activity that must be performed regularly to maintain fitness and improve and maintain physical performance. Soccer is a sport enjoyed by all levels of society, encompassing all aspects of physical fitness.

Soccer is a team game with eleven players and a goalkeeper (Setya Rahayu and Wahyu Hidayat, 2015). To foster and develop soccer to achieve maximum performance, factors that can support this achievement are essential. The community and government fully support the development of soccer, such as through inter-club tournaments held in various regions and other official tournaments.

Two factors that influence achievement in soccer are internal and external abilities. Internal factors include the athlete's physical, technical, and mental abilities. Meanwhile, external factors originate from outside the athlete, such as the role of the coach, the availability of facilities and infrastructure, family support, climate and weather conditions, nutritious food intake, and other influencing factors.

According to Irfan et al. (2020), every soccer player must understand and master the basic techniques of the game. Basic soccer techniques encompass various skills such as running, dribbling, passing, and shooting, all of which fall under the category of technical skills. Mastering basic techniques is crucial because it forms the main foundation for playing soccer effectively and optimally.

According to FIFA (2023), a free kick is a method of resuming play after a foul. There are two types: direct free kicks and indirect free kicks. Therefore, a free kick is a form of reward for the team that was fouled. Types of free kicks in soccer can be distinguished based on their distance from the opponent's goal: long-range free kicks, when the ball is far enough from the opponent's goal that it is usually not guarded by a wall. In this situation, the ball is generally kicked high or passed to the nearest teammate. A short-range free kick occurs when the ball is close enough to the opponent's goal to be guarded by the wall. This short-range free kick can be taken directly into the goal or used as a pass to create a goal-scoring opportunity.

Successfully executing a powerful and accurate free kick is influenced by various factors, one of which is the player's physical condition. These factors include leg muscle strength, eye-foot coordination, body balance, and a good and perfect mastery of basic techniques.

There are various training methods that can be used to increase leg muscle strength and explosive power, one of which is ankle weight training. Fitriani (2015) explains that ankle weight training is a form of exercise that aims to strengthen leg muscles by applying additional weight to the lower legs. This exercise is performed by attaching weights or an ankle vest to the lower legs, allowing the leg muscles to react more quickly and powerfully, especially during movements such as kicking.

According to Heri (in Pratiwi, 2020), ankle weights are leg weights made of cloth and filled with iron filings as a weight. Kicking training using ankle weights is a form of kicking exercise that does not involve a punching bag or kicking machine. Weights are placed on the ankles and the movement is repeated. These weights are generally between 28 and 34 cm long and vary in weight from 0.5 kg, 1 kg, 2 kg, to 3 kg. Ankle weight training serves to increase leg muscle strength. The weight can be gradually increased according to individual ability. This weight-based training is considered effective in increasing muscle strength, producing maximum kicking speed, and helping athletes kick the ball quickly and accurately (Suparyanto & Rosad, 2020).

Observations of 22 students yielded the following data: a) 6 students had average (sufficient) free kick results, b) 11 students had poor free kick results, and c) 5 students were in the very poor free kick performance category.

This indicates that students participating in the soccer extracurricular at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School still face various obstacles in executing free kicks. Some common mistakes include lack of practice, weak kicking power, and technical errors such as improper contact with the ball and incorrect foot positioning when kicking. To produce a good and accurate kick, optimal leg muscle strength is required to kick the ball powerfully and achieve the correct direction and distance.

Given the above issues, a new training method is needed to improve free kick performance in soccer. Therefore, the researchers chose the research title "The effect of ankle weight training on free kick performance in soccer games among students at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School."

METHOD

The research method used was a pre-experimental research method with the aim of determining the effect of the independent variable on the dependent variable. The dependent variable in this study was the results of free kicks in soccer games, and the independent variable was the ankle weight training method. The purpose of this study was to determine the effect of the ankle weight training method on the results of free kicks in soccer games. The research design in this study was a one-group pretest and posttest design. In this design, observations were conducted twice, before and after the experiment. Observations before the experiment are called the pre-test, and observations after are called the post-test.

Participants

The population is the total number of research subjects (Arikunto 2014). Based on the explanation above, the population selected was 30 students from the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School's soccer extracurricular program.

According to Sugiyono (2010), a sample is a subset of the population's size and characteristics. This study used purposive sampling. According to Jogiyanto (2014), purposive sampling is a sampling technique that involves drawing samples from a population based on specific criteria, with a sample size of 22 individuals. The reason the researcher used purposive sampling was due to the numerous limitations that prevented researchers from randomly sampling. By using purposive sampling, the researcher hoped that the sample criteria obtained would truly align with the research objectives.

Instrument

This study used a test instrument, namely a kicking ability measurement developed by Abdul Haris Handoko (2018). The measurement was carried out in two stages, namely during the pretest (before being given training) and posttest (after being given training). The subject stood behind the ball placed at a point 16.5 meters in front of the target line. The subject was given two opportunities to kick the target. The kick was taken from a distance of 16.5 meters from the ball in front of the penalty spot or penalty box. The scores from the two opportunities were added together and used as research data. If the ball from the kick hit the rope or the line separating the scores on the target, then the highest score from the two targets was taken.

Procedure

1. Pretest: A pretest was conducted before giving treatment to the subjects to determine their initial abilities in order to see the extent to which the subjects were able to master the free kick technique.
2. Experiment/treatment: The subjects will be given treatment in the form of ankle weight training for a period of approximately 5 weeks with an allocation of 16 meetings, 3 meetings per week.
3. Posttest: This posttest is the same as the pretest, namely to see how far the ankle weight training has progressed and whether the ankle weight training program has an effect or not.

Data Analysis

The data will be analyzed using the Kolmogorov-Smirnov test to determine whether the sample comes from a normally distributed population or not. The One Way ANOVA test to determine whether the samples taken have uniform variance or not. The paired sample t test to find out and see whether there is a difference in the average between two paired or related samples. The decision making in this test is if the significance value (2-tailed) <0.05 means that H_0 is rejected and H_a is accepted, meaning there is an influence and difference between the two data. Meanwhile, if the significance value (2-tailed) >0.05 then H_0 is accepted and H_a is rejected, meaning there is no difference and influence between the data.

RESULT AND DISCUSSION

This research data description aims to provide an overview of the variables and samples studied. The data in this study were obtained through a series of tests and measurements conducted on 22 samples who participated in kicking tests at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School.

Table 1. Descriptive Pretest Free Kick

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Pretest Free Kick	22	1	10	4.14	2.281
Valid N (listwise)	22				

Based on Table 1, the descriptive statistics of the free kick pretest can be seen as a minimum of 1, a maximum of 10, an average of 4.14, and a standard deviation of 2.281. The frequency of the free kick pretest can be seen as follows:

Table 2. Frequency Distribution of Pretest Free Kick

Interval	Frequency	Percentage (%)
1 – 2	4	18%
3 – 4	13	59%
5 – 6	3	13%
7 – 8	1	5%
9 – 10	1	5%
Total	22	100%

Based on Table 2, regarding the frequency distribution of the free kick pretest results from 22 samples, data was obtained that 4 samples (18%) were in the value range 1-2, 13 samples (59%) were in the value range 3-4, 3 samples (13%) were in the value range 5-6, 1 sample (5%) was in the value range 7-8, and 1 sample (5%) was in the value range 9-10.

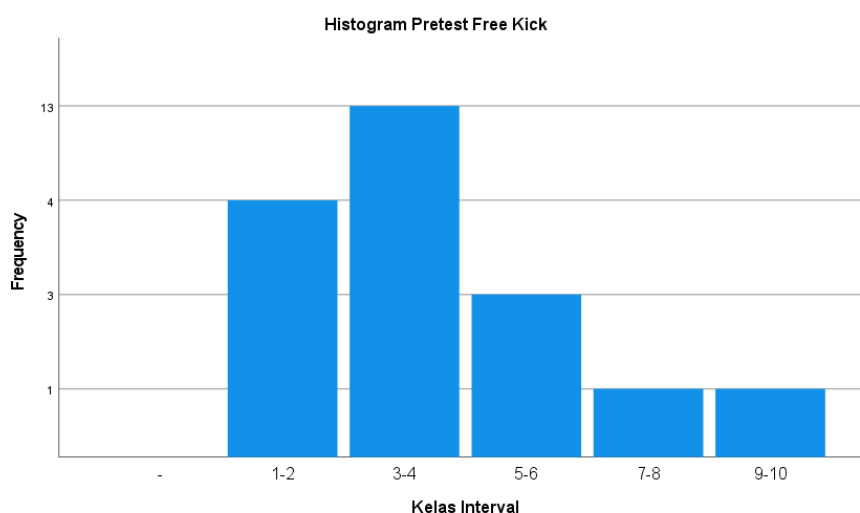


Figure 1. Free Kick Pretest Histogram

From the histogram figure of 1 percentage of free kick pretest. It can be seen in the histogram that there are 4 people with scores in the range of 1-2 with a percentage of 18%, 13 people with a score range of 3-4 with a percentage of 59%, 3 people with a score range of 5-6 with a percentage of 13%, 1 person with a score range of 7-8 with a percentage of 5%, and 1

person with a score range of 9-10 with a percentage of 5%. It can be concluded that the score of 3-4 is the most common score when doing the free kick pretest.

Table 3. Descriptive Posttest Free Kick

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Posttest Free Kick	22	3	12	6.91	2.308
Valid N (listwise)	22				

Based on Table 3, the descriptive statistics for the pretest free kicks can be seen as a minimum of 3, a maximum of 12, an average of 6.91, and a standard deviation of 2.308. The posttest free kick frequency can be seen as follows:

Table 4. Frequency Distribution of Posttest Free Kick

Interval	Frequency	Percentage (%)
3 – 4	3	14%
5 – 6	10	45%
7 – 8	6	27%
9 – 10	1	5%
11 – 12	2	9%
Total	22	100%

Based on Table 4, regarding the frequency distribution of the free kick posttest results from 22 samples, it was found that 3 samples (14%) were in the value range of 3–4, 10 samples (45%) were in the value range of 5–6, 6 samples (27%) were in the value range of 7–8, 1 sample (5%) was in the value range of 9–10, and 2 samples (9%) were in the value range of 11–12.

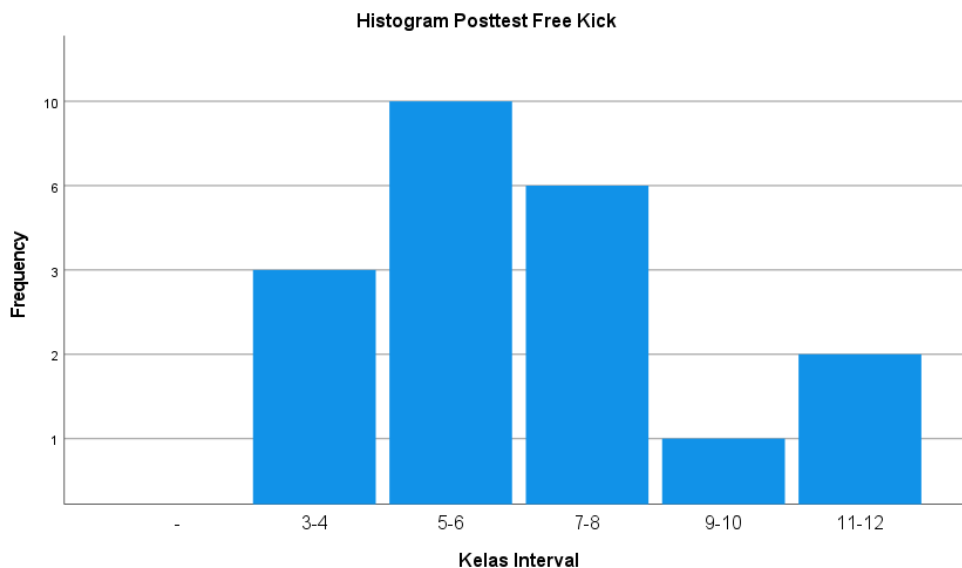


Figure 2. Posttest Free Kick Histogram

From the histogram figure of 2 percentages of posttest free kicks. It can be seen in the histogram that there are 2 people with scores from the range 1-2 with a percentage of 9%, 6 people with a score range of 3-4 with a percentage of 27%, 6 people with a score range of 5-6 with a percentage of 27%, 5 people with a score range of 7-8 with a percentage of 23%, 1 person with a score range of 9-10 with a percentage of 5%, and 2 people with a score range of 11-12 with a percentage of 9%. It can be concluded that the scores of 3-4 and 5-6 are the most common scores when doing the posttest free kick.

Data Analysis Results

The normality test is used to determine whether the analyzed data is normally distributed. In this study, the data normality test was conducted using the Kolmogorov-Smirnov test with the help of IBM SPSS version 27. The results of this test can be seen in Table 5 of the Normality Test below.

Table 5. Normality Test Results
Test of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Pretest Free Kick	.156	22	.178	.959	22	.479
Posttest Free Kick	.148	22	.200*	.947	22	.270

Based on Table 5, regarding the results of the normality test using the Kolmogorov-Smirnov test, the significance value for the pretest was 0.178, which is greater than 0.05, thus concluding that the pretest data were normally distributed. Meanwhile, the significance value for the posttest was 0.200, which is also greater than 0.05, thus concluding that the posttest data were normally distributed.

The homogeneity test is conducted to determine whether two or more populations have the same or uniform variance (Nisfiannoor, 2009). The purpose of this test is to ensure that the samples used in the study come from populations with a relatively homogeneous level of diversity. In this study, the data homogeneity test was conducted using One-Way ANOVA with the help of IBM SPSS version 27. The test results can be seen in Table 6, showing the results of the Homogeneity Test below.

Table 6. Homogeneity Test Results
Test of Homogeneity of Variance

		Levene Statistic	df1	df2	Sig.
Results	Based on Mean	1.592	1	42	.214
	Based on Median	1.517	1	42	.225
	Based on Median and with adjusted df	1.517	1	40.910	.225
	Based on trimmed mean	1.493	1	42	.229

Based on Table 6, the results of the homogeneity test using One-Way ANOVA show a Levene Statistic value of 1.592, with df1 = 1, df2 = 42, and a significance value (Sig.) = 0.214.

Based on the significance test rules:

- a. If the P value > 0.05, the data are considered homogeneous.
- b. If the P value < 0.05, the data are considered non-homogeneous.

Since the Sig. value of 0.214 > 0.05, it can be concluded that the pretest and posttest data have the same variance, indicating a homogeneous distribution.

The results of the pretest and posttest data processing using IBM SPSS can be seen in the following table. The table presents a comparison of the results before and after treatment in the form of ankle weight training, which aims to determine whether there is an improvement in free kick performance among extracurricular soccer students at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School.

Table 7. Hypothesis Test Result
Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest Free Kick	4.14	22	2.281	.428
	Posttest Free Kick	6.91	22	2.308	.492

Based on Table 7, the results of the hypothesis test show that the mean pretest free kick value is 4.14 with a standard deviation of 2.281 and the mean posttest value is 6.91 with a standard deviation of 2.308, which means that the average free kick result in the posttest is higher than the pretest.

Table 8. Paired T Test

	Paired Samples Test								
	Paired Differences						t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference					
Lower	Upper								
Pair 1 Pretest Free Kick - Posttest Free Kick	1.955	2.420	.516	3.027	.882	3.789	21	.001	

Based on Table 8, the results of the Paired T-test show a Sig. (2-tailed) value of 0.001 < 0.05, indicating a significant difference between the pretest and posttest scores.

The t-test analysis results showed a t-value of 3.789 with 21 degrees of freedom (df = 21). This t-value indicates a significant difference/influence between the ankle weight training method and free kick results. To determine the percentage increase, the data were analyzed using the following percentage calculation formula:

$$\text{Percentage Increase} = \frac{\text{Mean Posttest} - \text{Mean Pretest}}{\text{Mean Pretest}} \times 100\%$$

$$\text{Percentage Increase} = \frac{6.91 - 4.14}{4.14} \times 100\%$$

$$= 0,669 \times 100\% = 66,9\%$$

The results indicate that the ankle weight training method contributed 66.9% to the variance in free kicks. Thus, it can be concluded that the ankle weight training method has a large and significant influence on the results of free kicks in soccer games in extracurricular students at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School.

Discussion

Based on the research results, the posttest score was higher than the pretest score with the following score differences: SU (+2), MH (+4), NI (+2), SH (+4), RD (+8), MT (+2), AK (+2), IB (+2), FK (+2), JF (+2), NS (+3), AD (+3), ST (+2), DY (+3), IK (+3), DM (+2), RM (+4), PJ (+4), RJ (+1), SP (+2), AG (+2), and CL (+2), which showed an increase in free kick results after being given ankle weight training treatment. Thus, it can be concluded that this training method has a positive effect on increasing the free kick results of extracurricular soccer students at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School. The results of the Paired Sample T-Test (t-test) statistical test with IBM SPSS version 27 showed an asymp. sig. value. The t-test (2-tailed) value was 0.001, meaning it was less than 0.05. Based on the testing criteria, if the asymp. sig. (2-tailed) value is <0.05, there is a significant difference between the pretest and posttest scores.

The t-test analysis results showed a t-value of 3.789 with 21 degrees of freedom (df = 21). This t-value indicates a significant difference/influence between the ankle weight training method and free kick results. The calculation for the percentage increase yielded a value of 0.669. This means the ankle weight training method contributed 66.9% to the variance in free kicks. Therefore, it can be concluded that the ankle weight training method had a significant and significant impact on improving the free kick results of extracurricular soccer students at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School.

CONCLUSION

Based on the results of data analysis, description, testing of research results and discussion, it can be concluded that there is a significant large influence between the ankle weight training method on the results of free kicks in soccer games for extracurricular students at the Al-Amanah Al-Islami Ridan Permai Islamic Boarding School. With the statistical output value "Test Statistic", it is known that Sig. (2-tailed) is 0.001. Because the value of 0.001 is smaller than 0.05. So it can be concluded that "there is a significant difference between the results of the pretest and posttest values". Based on the calculation for the percentage increase, a value of 0.669 was obtained. This means that the ankle weight training method contributed 66.9% to the free kick variance.

The results of this study indicate a significant correlation between pretest and posttest free kick results. This is due to the ankle weight training method used to improve students' free kick performance. With regular and well-programmed training, optimal results are achieved.

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