



## **The Effect of Harness Training Variations on the Speed of Spartan Athletic Club Jambi Sprint Athletes**

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### **ABSTRACT**

The aim of this research was to determine the effect of variations in harness training on the speed of Jambi Spartan Athletic Club sprint athletes. This type of research includes research using a one-group pre-test-post-test design, namely the group that is given treatment. The sample was 3 male sprint athletes from the Jambi Spartan Athletic Club. Harness training is a type of training that uses weights when running. The goal of this exercise is to improve running ability and increase dynamic strength. These exercises can be performed at short or long distances, depending on the training goals. The ability of a person to cover a certain distance in a very short time is known as speed. Based on field data, the Jambi Spartan Athletic Club sprint athletes found that the pre-test data in the Shapiro-Wilk test was significant at 0.611, then the post-test data was significant at 0.628. Based on data from the results of the homogeneity test for the pre-test and post-test results for sprinter athletes at the Spartan Athletic Club, the number was significant at 0.983. Pre-test and post-test data have homogeneous variants or the data comes from populations with the same variance. Based on the results of the one-sample t-test showing this data, it can be seen that with the same number of samples in the pre-test and post-test data, a sig value  $<0.05$  was found, which shows that there is an influence of variations in harness training on the running speed results of sprinter athletes at the Spartan Athletic Club. The magnitude of the difference between pre-test and post-test data is (5). The data obtained was concluded from the hypothesis or conjecture that  $H_a$  was accepted and  $H_o$  was rejected, because it showed that the pre-test and post-test were different. From the research results, it can be concluded that there is an influence of variations in harness training on the speed results of Spartan Athletic Club Jambi sprint athletes.

**Keywords:** *Harness, Speed, Sprinter, Athlete, Spartan Athletic Club Jambi*

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## **INTRODUCTION**

According to (Jane Ruseski) in (Rosa et al., 2022), exercising or doing regular physical activity can reduce the risk of long-term illness, reduce stress and depression, improve emotional well-being, energy levels, self-confidence, and increase social satisfaction. Sport is generally considered a source of fun and entertainment, and helps maintain physical and mental health.

According to (Suleyman Yildiz) in (Wani et al., 2023) Basically, sports can be divided into several special categories:

1. Educational sports, which are carried out as part of a regular and ongoing educational process.
2. Recreational sports, which are done to maintain health and are done in a fun way, and
3. Achievement Sports, which develops and fosters sports to achieve achievements.

Sports achievement is the maximum result that can be achieved by an individual athlete, team or squad in the form of their abilities and skills in completing an event or championship, both in individual and team competitions. By getting proper and structured training, athletes can achieve better achievements in their sports. (Hermanu) in (Sitanggang et al., 2024). The Indonesian government and society pay great attention to the development of sports to improve health and fitness. According to Law Number 3 (2005:8) concerning the national sports system, the purpose of national sports is to maintain and improve health and fitness, achievement, human quality, instill moral values and noble character, sportsmanship, discipline, strengthen and foster unity and national unity, strengthening national resilience, and increasing the nation's honor, dignity and honor. Many parties must support this, not just the government.

Athletes in Indonesia need intensive training to improve their performance. Activities carried out systematically and planned are called training. Sport is very beneficial for every individual or group who participates in a particular sport. These activities allow athletes to improve their performance and achieve their best results. Therefore, the most important element is how the coach prepares his athletes from the start, including mental, physical, technical and tactical preparation. (Chan) in (Alimuddin et al., 2023)

According to Sukendro and Yuliawan (2019:2) that athletics is an official sport founded by the "International Amateur athletic federation (IAAF)." In Indonesia, athletics is

also an official part of the "All Indonesian Athletic Association (PASI). Athletics is a type of sport which is part of physical education and health which emphasizes balanced physical growth as well as mental, social and emotional development. The athletic sports movements of walking, running, throwing and jumping are the most basic and most natural human movements. These movements are very important for human life (Khomsin, 2011) in (Ilham, 2017). According to (Hermanu & Sidik, 2009) This strength training utilizes a weight that must be pulled after being tied with a rope around the waist to carry out the movement. Therefore, Harness training is a type of strength training that is constantly changing. According to Alexander Okhoyvutun in (Alfadil et al., 2023), "Running training using a harness is aimed at increasing strength, strength endurance, and stride length. In this exercise, the harness is used as a load on the outside of the body, and the harness will be tied and attached to the athlete's body during running." Athletes can carry out various training activities in this training program, which are adjusted to the load and training intensity. To improve this ability, physical training must be done carefully, repeatedly, and with increasing loads. This allows an increase in one's fitness. To improve physical abilities, coaches must implement training programs. Athletes use Harness training patterns to increase speed, strength, and endurance. This exercise is strength because the movement uses weights that are pulled after being tied with a rope around the waist or like carrying a bag on the shoulder.

There are several categories of progress that can be achieved during short distance running training, such as increasing running speed, increasing speed endurance, increasing lactic acid endurance, increasing aerobic ability, and increasing aerobic endurance. Harness training is training that has very few specific references. Dynamic strength training principles are applied in harness training patterns. A harness training pattern is a type of exercise that is carried out using assistive devices as resistance or weights during running movements or a form of exercise that increases speed, strength and endurance. This training method aims to increase speed, agility and quickness, dynamic strength and the ability to change direction.

According to Meirizal in (Alfadil et al., 2023) a person's ability to cover a certain distance in a very short time is known as speed. Someone who is fast will be more effective in carrying out their performance. but an athlete also needs to be trained to increase speed. means that the athlete learns and understands the programs, techniques and types of training used to increase the athlete's speed. Skills should be trained at maximum or near maximum movement speed to increase speed. Running as hard as you can is the best way to achieve maximum running speed. Speed is defined as "the ability to perform successive movements in a short time or the ability to cover a distance in a very fast time". (Harsono) in

(Andriansyah & Winarno, 2020). Short distance running (sprinting), namely running at full speed over the distance that must be covered or up to a predetermined distance, is one of the most popular ones. The runner is called a sprinter. Short distance running has numbers of 100 meters, 200 meters and 400 meters. What differentiates short distance running from middle and long distance running is the speed at which runners run.

## **METHOD**

This research is quantitative research because the data is numbers and analyzed using statistics. To find out how treatment affects other people in a controlled situation, this research uses an experimental method (Sugiyono, 2012).

This research was designed using a one group pretest-posttest design, which means that the group that was given treatment but carried out an initial test before being given treatment. ran a 100 meter speed test and then after the treatment was finished they carried out a final test on a 100 meter running speed.

**Table 1.** Men's 100 Meter Running Norms Source (Yuwono, 2019)

No	Time Interval	Norm
1	9.00	Very Good
2	10.00 – 11.99	Good
3	12.00 – 13.99	Enough
4	14.00 – 15.99	Noot Enough
5	16.00	Very Little

Data analysis was carried out to determine whether variations in harness training had an effect on the 100 meter sprint results of Spartan athletic club Jambi sprint athletes. Pretest and posttest scores form the resulting data. Data analysis requires several stages. First, the analysis prerequisite tests are carried out, which include normality tests and homogeneity tests, and the hypothesis is then calculated by increasing the percentage.

## **RESULTS AND DISCUSSION**

### **Result**

The research results discuss several things based on the results of data analysis to find out the results and answer the research hypothesis. In detail, the research results discuss data descriptions, analysis test requirements which include normality tests and homogeneity tests, as well as research hypothesis tests.

**Table 2.** Description of Pre-Test and Post-Test data

Source of Variation	Mean	Standard Devias	Variance	Max Score	Min Score	N
<i>Pre-Test</i>	12.21	0.83	0.684	13.21	11.50	3
<i>Post-Test</i>	12.16	0.82	0.673	13.06	11.45	3

From the table above, it can be seen that the mean in the pre-test was 12.21 with a standard deviation of 0.83 and a variance of 0.684, while the maximum score was 13.12 seconds and the minimum score was 11.50 seconds. For the post-test, it was found that the mean was 12.16 with a standard deviation of 0.82 and a variance of 0.673, while the maximum score was 13.06 seconds and the minimum score was 11.45 seconds. It can be seen that there is an increase based on the pre-test and post-test even though it is based on data descriptions only.

## 2. Pre-Test dan Post-Test

### 1) Pre-Test

The Pre-Test in this study carried out a 100 meter running speed test, so in this Pre-Test there was no treatment for sprinter athletes at the Spartan Athletic Club. In this Pre-Test, the total score for the 100 meter run for sprinter athletes at the Spartan Athletic Club was 36.64 seconds, so the average result for the 100 meter run for the sprinter athletes at the Spartan Athletic Club was 12.21 seconds.

**Table 3.** Frequency of Pre-Test data

No	Interval	Frequency		Norm
		Fa(N)	Fr(%)	
1	09.00	0	0%	Very Good
2	10.00 – 11.99	1	33%	Good
3	12.00 – 13.99	2	67%	Enough
4	14.00 – 15.99	0	0%	Noot Enough
5	16.00	0	0%	Very Little
		3	100%	

Based on the frequency of pre-tests over 100 meter running among sprinter athletes at the Spartan Athletic Club. In the Fair category there were 2 athletes with a percentage of 67%, in the Good category there was 1 athlete with a percentage of 33%.

### 2) Post-Test

post-test, which is a test carried out after sprint athletes from the Jambi Spartan Athletic Club are given a pre-test and then treated or given training. Then a post-test is carried out where the athletes are given variations of harness training on the running speed of sprinter athletes at the Spartan Athletic Club. In the post-test, the number was 36.49 seconds. Thus, the average result of the 100 meter run for sprinter athletes at the Spartan Athletic Club is 12.16 seconds, so the results of the 100 meter post-test can be categorized as good.

**Table 4.** Frequency of *Post-Test* data

No	Interval	Frequency		Norm
		Fa(N)	Fr(%)	
1	09.00	0	0%	Very Good
2	10.00 – 11.99	2	67%	Good
3	12.00 – 13.99	1	33%	Enough
4	14.00 – 15.99	0	0%	Noot Enough
5	16.00	0	0%	Very Little
		3	100%	

Based on the frequency of pre-tests over 100 meter running among sprinter athletes at the Spartan Athletic Club. In the Fair category there was 1 athlete with a percentage of 33%, in the Good category there were 2 athletes with a percentage of 67%.

### 2. Shapiro-Wilk Normality Test Results

The purpose of the normality test is to find out whether the distribution of data is significant and whether it is normal or not. Data was tested using the Shapiro-Wilk normality test using SPSS. The following is the data from the Shapiro-Wilk normality test results.

**Table 5.** Shapiro-Wilk Normality Test Data

Test Of Nomality			
Shapiro - Wilk			
	Statistic	Df	Sig
Pre-Test	0.959	3	0.611
Post-Test	0.963	3	0.628

Decision criteria in the Shapiro-Wilk normality test are as follows:

1. If the Sig or Probability value is  $> 0.05$  then the distribution is Normal
2. If the Sig or Probability value is  $< 0.05$  then the distribution is Not Normal.

In the results of the Shapiro-Wilk normality test above, there are the following results

1. Pre-Test Sig.  $0.611 > 0.05$  Normal distribution
2. Post-Test Sig.  $0.628 > 0.05$  Normal distribution

### 3. Homogeneity Test Results

Next, the homogeneity test is to find out whether the data is homogeneous or not. The data used are the results of the pre-test and post-test of sprinter athletes at the Spartan Athletic Club. Data was tested using SPSS One-way ANNOVA. The following is the data from the ONE-WAY ANNOVA homogeneity test

**Table 6.** One Way Anova Homogeneity Test Data

Test Of Homogeneity Of Variances			
Levene Statistic	df1	df2	Sig
0.000	1	4	0.983

Decision criteria in the Homogeneity test with One Way Anova are as follows:

1. If the Sig or Probability value is  $> 0.05$  then the distribution is homogeneous

2. If the Sig or Probability value is  $<0.05$  then the distribution is Not Homogeneous.

In the results of the Homogeneity test with One Way Anova above, there are the following results

1. Sig value.  $0.983 > 0.05$  Homogeneous distribution

### 3. Hypothesis Testing

Next, test the hypothesis using One Sample T-Test. From the results of the research that was carried out, which included a pre-test, treatment and post-test on sprint athletes at the Spartan Athletic Club in Jambi, after carrying out the normality test and homogeneity test, a hypothesis test was carried out to find out what effect variations in harness training had on the speed of the jambi athletes at the Spartan Athletic Club.

**Table 7.** One Sample T-Test Hypothesis Test Data

<b>One- Sample Test</b>						
<b>Test Value=0</b>						
					95% Confidence Interval Of The Difference	
	t	df	Sig (2- Tailed)	Mean Differencee	Lower	Upper
Pre-Test	25.576	2	0.002	1221	1015.86	1426.80
Post-Test	25.676	2	0.002	1216	1012.51	1420.16

The table above is the result of a one-sample t-test showing that the data shows that with the same number of samples in the pre-test and post-test data, a sig value  $< 0.05$  was found, which shows that there is an influence of variations in harness training on the running speed results of sprinter athletes at the Spartan Athletic Club. The magnitude of the difference between pre-test and post-test data is (5).

The data obtained was concluded from the hypothesis or conjecture presented by the researcher that  $H_a$  was accepted and  $H_o$  was rejected, because it showed that the pre-test and post-test were different, and it could be concluded that there was an influence of variations in harness training on the speed results of Spartan Athletic Club Jambi sprint athletes.

### **Discussion**

This research is an experimental study which aims to determine the effect of variations in harness training on the speed of Spartan Athletic Club Jambi Sprint Athletes. Experimental research is research that aims to determine whether there is an influence or impact of something done by the sample being studied (Arikunto, 2006). The aim of this research is to describe the effect of variations in harness training on the speed of sprint



athletes at the Jambi Spartan Athletic Club, by applying variations in harness training to increase the speed of sprint athletes at the Jambi Spartan Athletic Club. In this study, the samples used were 3 male Jambi Spartan Athletic Club sprint athletes who had fundamentals, athletes who actively participated in training and athletes who had participated in events or championships.

A variety of harness training treatments were carried out with 16 exercises with a frequency of 3 times a week. To carry out this research, 2 tests were carried out, namely the initial test and the final test. The initial test is to see the initial results that have not been given treatment or treatment and, the final test aims to see the extent of the effects of the treatment given, whether there is an influence and improvement on the athlete. The tests used are Normality Test, Homogeneity Test and Hypothesis Test.

## **CONCLUSION**

Based on data analysis, it is known that the results of variations in harness training influence the speed of Jambi Spartan Athletic Club sprint athletes. In the initial test, the results for the 100 meter run averaged 12.21 seconds, after being given the treatment there was an increase in the 100 meter run results to an average of 12.16 seconds. The data obtained was concluded from the hypothesis or conjecture presented by the researcher that  $H_a$  was accepted and  $H_o$  was rejected, because it showed that the pre-test and post-test were different, and it could be concluded that there was an influence of variations in harness training on the speed results of Spartan Athletic Club Jambi sprint athletes.

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