

The Effect of Pull up Exercise on Achievement of Javelin Throw Cross Step

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Abstract. The purpose of this study was to determine the effect of pull up exercise on achievement of javelin throw cross step the athletic students of Musamus University in Academic Year 2018-2019. The method which applied in this study is One Group Experiment and its called as Treatment By Subjects Designs. Subjects used in this study were 28 students consisting of males and females. The data analysis technique used in this study is dependent t test, which is an analysis technique that seeks to compare data from the javelin throw cross step before and after the treatment. Based on the results of the study, it can be concluded that there is an effect of Pull Up Exercise on Students' Achievement of Javelin Throw Cross Step, Musamus University, in Academic Year 2018-2019. After the student is given the PULL UP training, it can be calculated tcount of 11.008 which is higher than ttable 2.131 ($31.3 > 2.131$). The results of this study also prove that pull up exercises have a very positive impact for the Athletics Student' Achievement of Musamus University in Academic Year 2018-2019.

Keywords: Javelin Throw, Experiment, Pull Up Exercise, Students' Achievement,

1. Introduction

In Indonesia, athletic is defined as a sport that competes in the street numbers, running, jumping and throwing[1]. Pull up is one of the best back muscle exercises which performed by hanging on an iron bar and pulling the body until the chin can be parallel (or slightly above) with the bar. This exercise mainly involves biceps and forearms, so the key to being able to play pull up properly is to exercise strength in your biceps and forearms. Being able to repeat pull up frequently, students need to have fitness physically and enough energy to faced something unexpected[2], while Ronai and Scibek stated that pull up is a kind of exercise which requires high level of relative strength[3] and it is a oppugnancies' exercise that used in width through a variety of vigor[4]. Similar with Hewit, he states that pull up is defying exercise and it requires musculature of upper body weight throughout[5].

Javelin throw is one of athletics can be done by any normal person[6]. The athletes with able-bodied, it consists of two parts—the approach run and the delivery (also called the final thrust or launch phase)[7]. Learning it will be more attractive when teachers to be creative in the development of teaching form[8]. There are several factors which can influence for achieving javelin performance, such as: weight, arm muscle strength, and style used and body condition when throwing it. Based on that reasons, the

researcher conduct a research entitle “The Effect of Pull up Exercise on Students’ Achievement of Javelin Throw Cross Step in Academic Year 2018-2019”.

2. Methods

A. Research Type

This study has an experimental research, meaning it finds a special variable influences to another which aim to connect the causality. In getting strong data, this study utilizes pretest-posttest one group design to compare the result before and after given the treatment[9]. In addition, Waliman states that this research requires prediction to make sure what variables are to be tested, controlled and measured[10] then the researcher executes in getting enough data in proving or disproving its hypothesis[11].

B. Population and Sample

The population of this study is the athletes in Musamus University totally 28 students which at the same time became the research sample. The research time needed was 1 month consisting of pretest, treatment and posttest. The instrument used in this study is the Pull Up test, a form of test to measure the strength of the arm muscles.

C. Data Analysis Technique

The data analysis technique used in this study is the dependent t test, which is an analysis technique that seeks to compare data from the Javelin Throw Cross Step before and after the subject is given a 1-month pull up exercise throtug this formula below:

$$t = \frac{Md}{\sqrt{\frac{\sum xd^2}{N(N-1)}}} \tag{1}$$

Mean of pretest and posttest trials (Md), d (Gain pretest - posttest), Deviation of each subject (Xd), Total squared deviation (Xd²), Subject and Stamp (N), Specified by N-1 (d:b).

The decisions made comparison between t_{count} with t_{table}. If the t_{count} is higher than t_{table}, then there is the effect of pull up exercises on the achievement of javelin throw cross step at the University of Musamus, Merauke and vice versa.

3. Result

Pull up is one of the best back muscle exercises (lattisimus dorsi) performed by hanging on an iron bar and pulling the body until the chin can be parallel (or slightly above) with the bar. The position of the legs can be straight or bent, but generally it is by bending the legs. This exercise mainly involves biceps and forearms, so the key to being able to play pull up properly is to exercise strength in your biceps and forearms. [1] Here are the results of data analysis can be summarized in table form.

Table 1. The pull up exercise test and javelin throw cross step achievement

No	Initial	Pull Up Exercise		Javelin Throw Cross Step	
		Achievement	Score	Achievement	Score
1	ZF	17.19 sec	62	3.60 m	84
2	MR	17.01	72	3.90 m	118
3	AR	16.38	109	3.98 m	128
4	SW	15.82	164	4.20 m	154
5	SJ	16.20	127	3.80 m	105
6	RL	16.17	127	3.80 m	105
7	MF	17.15	62	3.70 m	95
8	MR	16.03	146	4.00 m	130
9	AM	17.44	50	3.35 m	60
10	MR	17.21	62	3.70 m	95
11	NQ	17.18	62	3.60 m	84
12	RD	17.32	56	3.70 m	95
13	MH	16.16	94	4.00 m	130
14	NR	17.00	72	3.80 m	105

15	SH	16.05	137	4.10 m	142
16	ED	16.00	146	3.92 m	120
17	DA	17.18	62	3.71 m	96
18	LS	16.60	94	4.15 m	147
19	IR	17.18	62	3.60 m	84
20	RJ	17.05	72	3.74 m	99
21	SP	17.41	51	3.50 m	74
22	NA	16.41	109	3.80 m	105
23	SW	17.05	72	4.10 m	142
24	MZ	17.04	72	3.50 m	74
25	IS	17.41	51	3.50 m	74
26	GW	16.41	109	3.80 m	105
27	NF	17.05	72	4.10 m	142
28	MN	17.04	72	3.50 m	74
N =28		$\Sigma X =$ 2446	$\Sigma Y =$ 1960	$\Sigma X^2 = 244170$	$\Sigma Y^2 =$ 331674

From the results above, the value of t_{count} is 11.008 which is higher than t_{table} 2.131 ($31.3 > 2.131$). The results of data analysis using the product moment correlation formula obtained the value of product moment correlation coefficient (r_{count}) of 1.339 while the magnitude (r_{table}) with the number of samples $N = 28$ at the significance level of 5% is 0.325. It can be concluded that pull up exercises are very good for being a training material for javelin athletes throwing cross step, at Musamus University, Merauke because it has been proven to improve the performance of athletes.

4. Conclusion

The findings obtained from this research process is the significant influence of pull up exercises to increase athletic performance in javelin throw cross step, at Musamus University, Merauke. The evidence supporting this statement that the results of processing statistical data are obtained, namely the value of t_{count} equal to 11.008 which is higher than t_{table} 2.131 ($31.3 > 2.131$). The results of data analysis using product moment correlation formula obtained value product moment correlation coefficient (r_{value}) of 1.339, while the magnitude (r_{table}) with a sample of $N = 28$ at the 5% significance level are 0.325. Based on these data, the pull up exercise is very good to be a training material for javelin athletes throw cross step at Musamus University, Merauke because it has been proven to improve the performance of athletes.

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