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The Relationship Between Sprint Running and Long Jump Results in Class X Students of SMK Negeri 1 Simpang Ulim

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ABSTRACT

This study aims to determine the relationship between sprint running speed and long jump ability among Grade X students of SMK Negeri 1 Simpang Ulim. The population of this study consisted of all Grade X students of SMK Negeri 1 Simpang Ulim, totaling 150 students. Given the relatively large population, the researcher took 20% of the total population as a sample, amounting to 30 students, using a random sampling technique. Data collection in this study involved measuring sprint running speed using a 50-meter sprint test and long jump ability using a long jump test. Data analysis was conducted using correlational statistical techniques. The data analysis results showed that the average sprint running speed of Grade X students at SMK Negeri 1 Simpang Ulim was 49.98, with a standard deviation of 0.83, and the average long jump ability was 50.10, with a standard deviation of 10.07. The correlation calculation resulted in a value of 0.41. To test the hypothesis, the t-test was used, and the calculated t-value was 2.42, which is greater than the critical t-value of 2.05553. Thus, it can be concluded that there is a relationship between sprint running speed and long jump results among Grade X students at SMK Negeri 1 Simpang Ulim. In other words, the hypothesis is accepted. It is recommended that physical education teachers emphasize that muscle strength, speed, and power are key supporting factors in athletic sports, particularly in the long jump event. Teachers should pay more attention to and provide training to improve students' long jump performance.

INTRODUCTION

Peak athletic ability is the peak of a student's performance achieved in a learning process. After going through various forms of training and trials that have been determined, a student's ability in sports is the dream of every student, in addition to that with high ability a student can become proud in his school. Therefore, in each learning period, the need for comprehensive development in the field of sports should be emphasized. There are several problems in the learning process, so that maximum results are not achieved, including the students themselves, for example the posture of different students.Running is not only a race number in athletics. But running is also an important part of other sports. Running is the body's ability to perform a series of movements that involve body organs such as limbs, hand gestures, and the balance of the two limbs.

Athletics is one of the oldest sports that has existed and been practiced by humans since ancient times until now. It can even be said that since the existence of humans on this earth, athletics have existed and been carried out by humans. This is because every movement in athletics such as walking, running, jumping and throwing is a manifestation of basic movements in daily human life.

In ancient times, the movements carried out by humans were very important because they were related to the fulfillment of their life needs, namely hunting and concocting food. For this reason, primitive humans are required to have strength, speed, endurance and agility, especially in using their ancient equipment such as javelins, arrows, boomerangs, stones and so on that they can obtain from performing various athletic movements even though they are not aware of it (Ministry of Education and Culture, 1992:1).

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Long jump is one of the numbers found in athletic sports, according to Adi Sasmita (1992:65) argues that: "long jump the four elements of movement, namely prefix, repulsion, drifting and landing, is a unity, namely the sequence of uninterrupted jumping movements. Long jump is a jumping movement using the support of one foot to reach the farthest distance. Meanwhile, according to Aip Syaifuddin (1992:90), long jump is a form of jumping movement, lifting the legs upwards forward in an effort to carry the weight point as long as possible in the air (hovering in the air) which is done quickly by repulsing one leg to reach the farthest distance. In carrying out the basic movements of a sport expressed by Sajoto (1995:2) it is necessary to have four kinds of completeness which include: 1) physical development, 2) technical development, 3) mental development, 4) champion maturity. Physical factors play an important role in improving sports performance, other factors are physical support. Physical factors are made up of various components that support each other. Physical components are also the basic abilities of the body, which include: a) heart-lung endurance; b) strength; c) speed; d) agility; e) power (explosive power); f) flexibility; g) balance; h) accuracy; and i) coordination (Pasau in Sajoto: 1995).

In athletics, especially the long jump number, the components of physical condition according to Sajoto (1988:57) include strength, endurance, explosiveness, speed, flexibility, agility, coordination, balance and reaction. One of the physical components needed in the long jump is speed. Speed is a person's ability to perform balance movements in the same form in the shortest possible time (Ministry of Education and Culture, 1997:6), while according to Suharno HP (1986:43) speed is the ability of the athlete's organism to perform movements in the shortest possible time to achieve the best results. The speed here is the running speed in the long jump where the running speed is determined by the successive movements of the steps taken quickly and precisely. Quickly means that after the initial run in the long jump, you can get a long jump, precisely it means that after running at high speed the fulcrum can fall on the fulcrum beam. The faster the start and the stronger the repulsion made by a jumper, the longer it will take to carry the weight point floating in the air (Syarifudin, 1992:92). Thus it is clear that in the long jump number speed and power have a huge influence on the result of the jump.

SMK Negeri 1 Simpang Ulim School is one of the schools in East Aceh Regency. The physical education learning curriculum at school has been well implemented, in accordance with one of the main subjects of discussion contained in the penjas subject, namely the sports of the game, one of which is the long jump number athletics. The author noticed that every student when making a jump, in the initial movement they did, the students of SMK Negeri 1 Simpang Ulim were able to do a long jump well, but the distance of the students' jumps was still very invariable, some students could make jumps with a considerable distance, and some did not. The author pays attention to the aspects that affect this, and the author observes the influence of the initial attitude of running before jumping, each student at the beginning of the jump by running but at a different speed, and the author begins to think about whether sprint running at the beginning of the long jump has a relationship with the students' jumps.

METHOD

In this study, the author uses quantitative research with a descriptive approach. Population is the entire research subject. According to Siyoto and Sodik (2015:64) states that population is a generalized area consisting of objects or subjects that have certain quantities and characteristics that are determined by the researcher to be studied and then drawn conclusions. The population in this study is all students of class X of SMK Negeri 1 Simpang Ulim which totals 150 students. Meanwhile, the sampling technique in this study uses a technique (*random sampling*). The sample in this study is 20% of the total class X students of SMK Negeri 1 Simpang Ulim which totals 30 students. In this

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study, the research data was collected using a 50-meter running test to measure speed, as well as a long jump test to find out the results of the farthest jump from each sample. This data analysis technique uses statistical techniques.

RESULTS AND DISCUSSION

The research data obtained in the test results conducted on grade X students of SMK Negeri 1 Simpang Ulim. namely in the form of *quantitative* data or numerical data, this data was obtained directly from the sprint running speed test and the long jump test Then the data was tabulated into a table and the results were as follows:

Sprint Running Speed Test Results

Table 1. Data Recapitulation and T-Score Research Results of Sprint Running Speed Test in Class X Students of SMK Negeri 1 Simpang Ulim

No	Sample Name	Sprint Speed Test (X)		Information
		Row Score (Amount)	T-Score	
1	M. Rafi	6,55	49,48	
2	Nasrulah	6,18	50,08	
3	Zul Hijjrah	5,15	51,73	
4	M. Khatis	5,10	51,81	
5	M. Razi	7,17	48,49	
6	Muksal Mina	6,50	49,56	
7	M.Najar	7,10	48,60	
8	Arya Zuhdi	6,20	50,04	
9	Fazilon	6,19	50,06	
10	Zuhari	6,65	49,32	
11	Mursalim	5,88	50,56	
12	M.Riza	7,12	48,57	
13	Faisal	6,43	49,67	
14	Irwan Saputra	6,78	49,11	
15	M.Halim	6,35	49,80	
16	Ziya Huddin	5,56	51,07	
17	Ibnu Hajar	5,84	50,62	
18	M. Hatami	6,10	50,20	
19	Iqbal	5,62	50,97	
20	Hermansyah	6,09	50,22	
21	Hasanuddin	5,94	50,46	
22	Aris Munandar	6,50	49,56	
23	Asra Juddin	6,66	49,30	
24	Firdawin	6,12	50,17	
25	Rizki Munandar	5,65	50,93	
26	M. Rais	6,10	50,20	
27	Mukhsin	6,78	49,11	
28	Reza	6,65	49,32	
29	Iksan	6,10	50,20	
30	Ramli	6,12	50,17	
Total		**187,18**	**1499,55**	
AVERAGE		**6,23**	**49,98**	
SD		**0,52**	**0,83**	

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Long Jump Test Results

Table 2. Data Recapitulation and T-Score Research Results of Long Jump Test in Class X Students of SMK Negeri 1 Simpang Ulim.

No	Sample Name	Long Jump Test (Y)		Information
		Row Score (Amount)	T-Score	
1	M. Rafi	4,00	37,5	
2	Nasrulah	4,20	39,88095	
3	Zul Hijjrah	6,00	61,30952	
4	M. Khatis	6,37	65,71429	
5	M. Razi	3,96	37,02381	
6	Muksal Mina	3,80	35,11905	
7	M.Najar	3,96	37,02381	
8	Arya Zuhdi	5,42	54,40476	
9	Fazilon	4,96	48,92857	
10	Zuhari	6,75	70,2381	
11	Mursalim	6,36	65,59524	
12	M.Riza	5,08	50,35714	
13	Faisal	5,12	50,83333	
14	Irwan Saputra	5,40	54,16667	
15	M.Halim	6,52	67,5	
16	Ziya Huddin	4,55	44,04762	
17	Ibnu Hajar	5,20	51,78571	
18	M. Hatami	6,10	62,5	
19	Iqbal	4,93	48,57143	
20	Hermansyah	5,08	50,35714	
21	Hasanuddin	4,92	48,45238	
22	Aris Munandar	4,36	41,78571	
23	Asra Juddin	4,80	47,02381	
24	Firdawin	6,08	62,2619	
25	Rizki Munandar	4,96	48,92857	
26	M. Rais	4,80	47,02381	
27	Mukhsin	3,96	37,02381	
28	Reza	4,36	41,78571	
29	Iksan	4,36	41,78571	
30	Ramli	5,40	54,16667	
	Amount	**151,76**	**1503,09**	
	AVERAGE	**5,05**	**50,10**	
	SD	**0,84**	**10,07**	

Data Analysis

a. Analysis of Average and Standard Deviation of T-Score Sprint Speed Test Results

Based on the results of the sprint running speed test in grade X students of SMK Negeri 1 Simpang Ulim, the average value of the sprint running speed in grade X students of SMK Negeri 1 Simpang Ulim is 49.98, with a standard deviation of 0.83.

b. Analysis of Average and Standard Deviation of T-Score Long Jump Test Results

Based on the results of the Long Jump ability test as contained in table 2, the average long jump ability in class X students of SMK Negeri 1 Simpang Ulim is 50.10 with a standard deviation of 10.07.

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c. Calculating the Correlation Coefficient (X by Y)

Calculate the correlation coefficient of sprint running speed (X) and long jump (Y) data. The prices required to calculate the correlation coefficients of X and Y are as follows:

Table 3. Calculating the Data Correlation Coefficient of Sprint Running Speed (X) with Long Jump Ability (Y)

No	Sample Name	X	X^2	Y	Y^2	XY
1	M. Rafi	56,00	3136,00	37,89	1435,65	2121,84
2	Nasrulah	48,80	2381,44	40,11	1608,81	1957,37
3	Zul Hijjrah	29,00	841,00	71,22	5072,29	2065,38
4	M. Khatis	28,10	789,61	64,22	4124,21	1804,58
5	M. Razi	67,90	4610,41	37,44	1401,75	2542,18
6	Muksal Mina	55,00	3025,00	35,67	1272,35	1961,85
7	M.Najar	66,50	4422,25	37,44	1401,75	2489,76
8	Arya Zuhdi	49,20	2420,64	53,67	2880,47	2640,56
9	Fazilon	49,00	2401,00	48,56	2358,07	2379,44
10	Zuhari	57,90	3352,41	68,44	4684,03	3962,68
11	Mursalim	43,10	1857,61	64,11	4110,09	2763,14
12	M.Riza	66,90	4475,61	49,89	2489,01	3337,64
13	Faisal	53,70	2883,69	50,33	2533,11	2702,72
14	Irwan Saputra	60,40	3648,16	53,44	2855,83	3227,78
15	M.Halim	52,10	2714,41	65,89	4341,49	3432,87
16	Ziya Huddin	36,90	1361,61	44,00	1936,00	1623,60
17	Ibnu Hajar	42,30	1789,29	51,22	2623,49	2166,61
18	M. Hatami	47,30	2237,29	61,22	3747,89	2895,71
19	Iqbal	38,10	1451,61	48,22	2325,17	1837,18
20	Hermansyah	47,10	2218,41	49,89	2489,01	2349,82
21	Hasanuddin	44,20	1953,64	48,11	2314,57	2126,46
22	Aris Munandar	55,00	3025,00	41,89	1754,77	2303,95
23	Asra Juddin	58,10	3375,61	46,78	2188,37	2717,92
24	Firdawin	47,70	2275,29	61,00	3721,00	2909,70
25	Rizki Munandar	38,70	1497,69	48,56	2358,07	1879,27
26	M. Rais	47,30	2237,29	46,78	2188,37	2212,69
27	Mukhsin	60,40	3648,16	37,44	1401,75	2261,38
28	Reza	57,90	3352,41	41,89	1754,77	2425,43
29	Iksan	47,30	2237,29	41,89	1754,77	1981,40
30	Ramli	47,70	2275,29	53,44	2855,83	2549,09
TOTAL		**1499,60**	**77895,12**	**1500,65**	**77982,78**	**73629,99**

Then based on the data above, the correlation coefficient between sprint running speed (X) and long jump ability (Y) in grade X students of SMK Negeri 1 Simpang Ulim is 0.41.

1. Hypothesis Testing

The statistical hypothesis to be tested reads:

H0 : There was no significant relationship between sprint speed and jumping ability in grade X students of SMK Negeri 1 Simpang Ulim.

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Ha : There was a significant relationship between the running speed of 50 M sprint and the ability to jump long in class X students of SMK Negeri 1 Simpang Ulim.

Testing Criteria:

1. If $T_{hitung} \geq T_{tabel}$, then H_0 is rejected meaning *Significant*
2. Jika $T_{hitung} \leq T_{tabel}$, then H_0 is accepted meaning *Not Significant*

To test the hypothesis, the following t-test statistics are used:

$$t = \frac{r\sqrt{n-2}}{\sqrt{1-r^2}}$$

$$t = \frac{0{,}41\sqrt{30-2}}{\sqrt{1-0{,}41^2}}$$

$$t = \frac{0{,}41\sqrt{28}}{\sqrt{1-0{,}17}}$$

$$t = \frac{0{,}41(5{,}29)}{\sqrt{0{,}82}}$$

$$t = \frac{2{,}21}{0{,}90}$$

$$t = 2{,}44$$

The value of the ttable uses the t-table with the formula:

Signific taraf $\alpha = 0{,}05$

t_{tabel} : (dk= n-2)

Based on the calculation above, it was obtained that $t_{hitung} = 3.30$ At a significant level of α=0.05 and n=30, then DK= N-2 or DK= 30-2=28 so that $t_{tabel} = 2.05553$ is obtained. It turns out that the $t_{hitung} \geq t_{tabel}$ or $2.44 \geq 2.05553$, then H_0 is rejected, meaning that there is a *significant* relationship between the variable of sprint running speed and the ability to jump long distance. Thus, it can be stated that the hypothesis in this study is that "there is a significant relationship between sprint running speed and long jump ability in grade X students of SMK Negeri 1 Simpang Ulim.

CONCLUSION

Based on the results of the research and discussion and data analysis of sprint running speed with long jump ability in grade X students of SMK Negeri 1 Simpang Ulim, it can be concluded that: there is a significant relationship between the two. This is shown by the average value of sprint running speed of 49.99, with a standard deviation of 10.06 and the average long jump ability is 50.02, with a standard deviation of 9.87. And the value of t_{hitung}=0,48 ≥ t_{tabel} =2,05553 has been obtained, so that the null hypothesis is that "there is a significant relationship between sprint running speed and long jump ability in grade X students of SMK Negeri 1 Simpang Ulim is accepted as true.

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