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MEASUREMENT OF PHYSICAL FITNESS ASPECTS OF LOWER LIMB MUSCLE STRENGTH IN STUDENTS USING WALL SQUAT TEST INSTRUMENTS

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Abstract

Leg muscle strength is a very important component as an effort to improve overall physical because leg muscle strength is the main driver of any activity that involves physical activity, especially physical fitness. Muscle Strength serves as a support for all body components and also stabilizes the point of balance when kicking is done by one leg. The purpose of this researcher is to find out how much physical fitness the lower leg muscle strength is in junior high school. Therefore, the author is interested in measuring the physical fitness of lower leg muscle strength. This type of research is descriptive quantitative is to analyze the data by describing or describing the data collected. The population in this study were students of SMPN 1 Bangkalan. The sampling technique in this research is using Quota sampling. The number of samples that will be used in this research are 30 students of Bangkalan 1 State Junior High School. The results of the validity test showed that the wall squad test that was carried out was valid and could be tested on students of SMPN 01 Bangkalan. Obtained Person Correlation 0.848> 0.361 item 1 and 0.843> 0.361 for item 2. Reliability test obtained by Cronbach Alpha of 0.600> 0.361 it can be concluded that the data we test is reliable. used is normally distributed.

Keywords: *Wall Squat Test; Muscle Strength*

INTRODUCTION

Physical fitness is closely related to human activities in doing work and moving. Physical fitness is needed to support a person's daily activities (work) so that the work or activity is optimal (Kljajević et al., 2022; Nurhasan et al., 2020). Work or activity can affect a person's physical fitness. High physical fitness is an essential capital to complete activities passionately, effectively, and efficiently, resulting in productivity, and all of this is used as an indicator of the quality of human resources which is highly expected to exist in individuals as part of a

society that is actively engaged in doing activities development (Permadi et al., 2021). One way to improve body fitness is through exercise that is carried out regularly, measurably, programmed, systematic and always improving. In addition, physical fitness also serves to improve performance for anyone, so that they can carry out their duties optimally to get better results. According to (Rodriguez et al, 2020) Stating that, "physical fitness is the body's ability to carry out activities without experiencing significant fatigue".

The development of physical conditions through exercise is the foundation for improving physical fitness, so that they can move well (Awali, 2020). Someone who has good physical fitness will avoid the possibility of injury when doing physical activities or more strenuous sports. Lack of endurance, joint flexibility, muscle strength, speed and agility are the main causes of sports injuries (Goldring et al., 2014). The development of a person's physical fitness through a sports activity aims to improve a person's physical condition and endurance to be able to participate in learning activities well. Someone who has a high degree of physical fitness will support his learning activities and improve performance and be able to carry out other physical activities.

To get good physical fitness, regular exercise is needed, so that you get good results. One of the physical activities that can be done is to train leg muscle strength. In sports, practicing leg muscle strength is very important to make the leg muscles not stiff, so there is no problem when doing daily sports (Gusti Ayu Agung Nina Utari Dewi & I Gusti Putu Ngurah Adi Santika, 2020; Mardhika, 2016; Permadi et al., 2021). According to Rahman et al., (2021) leg muscle strength can be interpreted as a force that is carried out together in carrying out a movement. The wall squat test is one form of exercise (Goldring et al., 2014; Lea et al., 2021; Vaegter et al., 2019). The purpose of this test is to determine the strength of lower body muscles, specifically the superficial calf muscles (gastrocnemuius and soleus), quadriceps, hamstring, and gluteus muscles (Gusti Ayu Agung Nina Utari Dewi & I Gusti Putu Ngurah Adi Santika, 2020; Rofik et al., 2021). This test is carried out without any additional load or external load. The

advantage of this test is that minimal equipment is required, it is simple to set up and perform and can be performed almost anywhere. While the disadvantage of this test is that an assistant is needed to administer the test (Pangemanan et al., 2013; Supriatna & Perdana, 2021). The wall squat test is divided into 3 parts, namely, test norms, test procedures and test categories.

Leg muscle strength is a very important component as an effort to improve overall physical because leg muscle strength is the main driver of any activity that involves physical activity, especially physical fitness. Muscle Strength serves as a support for all body components and also stabilizes the point of balance when the kick is made by one leg (Racutisyah et al., 2019; Saputra, 2019).

The purpose of this researcher is to find out how much physical fitness the lower leg muscle strength is in junior high school, therefore the author is interested in measuring the physical fitness of lower leg muscle strength so the author takes the title "Measuring the physical fitness of lower leg muscle strength at SMP Negeri 1 Bangkalan by using the Wall Squat Test Instrument.

METHOD

This study uses a series of tests, namely the wall squat test (the purpose of this test is to measure the level of strength of athletes). secondary through measurement tests. Data collection techniques carried out in this study, the sample must carry out tests and re-tests. What is meant by the test is that the participant must do 3 test trials in which the data obtained is the best. This research is using the type of research instrument test which in order to be declared valid and reliable so through external validity testing. The instrument to be achieved if the data generated from an instrument is in accordance with the data obtained regarding the intended research variables (Suryana, 2012).

The data analysis technique used in this method is descriptive statistics which is for research purposes. The term statistics with the understanding of quantitative data, which is also called statistical data is data in the form of

numbers that can provide an overview of certain circumstances and events (Sugiyono, 2019). The description used in this study is as follows:

1. Descriptive data analysis to get an overview of the data which includes the total value, range, average, standard deviation, minimum value and maximum value.

2. Analysis of the frequency distribution of the data obtained from the measurement results are then converted in tabular form. After the data is converted, the results can be known, then conclusions are made from the results of the study.

This research uses Percentages, percentages are comparisons in the form of numbers up to 100 which are usually shown to be identical to the % symbol where the aim is to compare and find out what percentage of the levels obtained so that conclusions can be drawn.

Percentage Formula:

Information :

P = Percentage of results obtained

F = Frequency of the results obtained

n = Number of sample respondents who will be the conclusion.

100 = Fixed number as a percentage.

The results of this study will be formed in a frequency table and will then be calculated in the form of percentage % so that a result will be obtained from each category studied and in the end, will be described using sentences.

RESULT AND DISCUSSION

The time of the research conducted face-to-face or offline will be carried out in January, 2022. The time of the research conducted face-to-face is carried out directly, namely at the Bangkalan 01 State Junior High School. As for the time the research will be conducted face to face with participants who have previously determined the number of samples.

Validity Test

Validity test is a condition that describes whether the instrument that we use is able to measure what we are going to measure. The results obtained from the validity test are a valid or valid instrument.

Tabel 1. Validity Test Results

Correlations		ITEM_1	ITEM_2	SKOR_TOTAL
ITEM_1	Pearson Correlation	1	.428*	.848**
	Sig. (2-tailed)		.018	.000
	N	30	30	30
ITEM_2	Pearson Correlation	.428*	1	.843**
	Sig. (2-tailed)	.018		.000
	N	30	30	30
SKOR_TOTAL	Pearson Correlation	.848**	.843**	1
	Sig. (2-tailed)	.000	.000	
	N	30	30	30

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).

Based on the output above, it can be concluded that the wall squad test carried out is valid and can be tested on students of SMPN 01 Bangkalan. Obtained Person Correlation 0.848 > 0.361 item 1 and 0.843> 0.361 for item 2.

Reliability Test

Reliability is an index that shows the extent to which a measuring instrument can be trusted or reliable. If a measuring device is used twice - to measure the same symptoms and the measurement results obtained are relatively consistent, then the measuring device is reliable. In other words, reliability shows the consistency of a measuring instrument in measuring the same symptom. Reliability test is a test to determine the extent to which the measurement of a test remains consistent after repeated tests on the subject and under the same conditions. High and low reliability, empirically indicated by a number called the value of the reliability coefficient. Reliability is an instrument that can be trusted to be used as a data collection tool because the instrument is already good. A good

instrument will not be directing respondents to choose certain answers. And reliable means reliable or reliable. So that several times it is repeated the results will remain the same (consistent).

Tabel 2. Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
.600	2

Based on the output above, it can be concluded that the Cronbach Alpha of 0.600>0.361 can be concluded that the data we are testing is reliable.

Normality Test

The normality test was carried out to find out whether the research data was normally distributed or not and there were several ways to test for normality, namely with Liliefors (Kolmogorov-Smirnov) where if the significance value of the Kolmogorv-Smirnov test results was > 0.05, then normality was assumed. Obtaining calculations from written test data and questionnaires and data processing used in the IBM SPSS application with version 21.0. Whether or not an instrument is normal is called a normality test, with the criteria for a significance level of 0.05, if the significance obtained > 0.05 then the sample comes from a normally distributed population, but if the significance obtained < 0.05 then the sample does not come from a distributed population normal.

Tabel 3. Normality test results

One-Sample Kolmogorov-Smirnov Test		Unstandardized Residual
N		30
Normal Parameters[a,b]	Mean	.0000000
	Std. Deviation	23.28512408
Most Extreme Differences	Absolute	.148
	Positive	.125
	Negative	-.148
Kolmogorov-Smirnov Z		.811
Asymp. Sig. (2-tailed)		.526

a. Test distribution is Normal.
b. Calculated from data.

Based on the output above, it was found that the normality test was 0.526 > 0.05 so it was concluded that the sample used was normally distributed. Physical fitness of lower leg muscle strength in Bangkalan 01 State Junior High School students using the Wall Squat Test instrument. Physical fitness, leg muscle strength, of course greatly affects the quality of students, including the strength component in students. The test was conducted to test the validity, test reliability and normality test. The results of the validity test showed that the wall squad test that was carried out was valid and could be tested on students of SMPN 01 Bangkalan. Obtained Person Correlation 0.848> 0.361 item 1 and 0.843> 0.361 for item 2. Reliability test obtained by Cronbach Alpha of 0.600> 0.361 it can be concluded that the data we test is reliable used is normally distributed.

CONCLUSION

Based on the analysis of the research results, it can be concluded that the validity test results obtained that the wall squad test carried out is valid and can be tested on students of SMPN 01 Bangkalan.

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