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UNESA Physical Test – An Alternative Way to Measure Fitness Using Step and Chair-Based Test

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ABSTRACT

Fitness indicators have a close relationship with several health indicators. Besides, that has a function to find out the people's fitness indicators, and it also has the potential to gain the fitness targets that can be achieved by doing physical exercise. However, the high variation in fitness assessments makes fitness not accessible from a single item, and it is not easy to know based on one item. This research aims to develop a fitness measurement tool that is quite easy for the general population. 500 samples male and female with ages ranging from 18 to 35 years were recruited for data collection by conducting a fitness test by sitting up and down in the 40 cm bench (UNESA physical fitness test) and supervised to apply the standard procedures. Data were processed with descriptive quantitative percentages with five rating scales. The results of the effectiveness test showed that sitting up and down bench test did not differ significantly ($p < 0.05$) with the comparison test.

Keywords: *Physical, Exercise, Fitness, Test*

1. INTRODUCTION

Physical activity can support a person's work in everyday life by increasing the efficiency of energy use in the body to avoid significant fatigue[1]. Physical activity can improve a person's fitness, both those related to skills andhealth[2]

Examination of the physical components is often carried out by common people and coaches and athletes to find out to what extent they are in both performance and health aspects. It becomes important to see how much effect the physical activity they often do on their bodies. There are currently many models on how to evaluate the physical condition both in ordinary people, women, to children[3].

However, the high variation in methods regarding physical testing often makes a person confused about doing physical tests[4]. The more specificity of the test and the number of items that must be done often makes people delay in carrying out the test. There are several kinds of tests that cause pain and discomfort for some people, especially in the elderly and women[5].

Physical tests for common people should be easy and require only minimal equipment. The literature describes that a step test such as a Harvard step test is often used to evaluate the physical condition of a person because it can describe the condition of aerobic fitness[6], further development on tests that are in the lower body is also believed to be an indicator that helps the body maintain performance[7].

UNESA developed a test that meets simple criteria. The test only takes up a small space and is very easy to do. The test can be done with the tools available at home. With the up and down bench test model and the addition of a sitting up and down movement on the bench will be used to see how the samples respond when carrying out the test.

2. METHOD

This type of study was experimental methods. The research was conducted to 500 samples (250 female and 250 male) between 11 years until 55 years old. The instrument of this study was two chairs with 44 cm height and placed parallel with the distance as far as 45 - 60 cm. Samples asked to sit on a bench and then stand up from the bench and climb onto the bench in front of the subject with one leg. After that, the subject stood on the bench with two legs, then the subject came back down with one leg alternating, and moved backward. Then sit back down. The subject will do as much as

possible for one minute. Then the calculation results are recorded for the data in determining norms

3. RESULT AND DISCUSSION

3.1. Result

The results will be presented in table 1 and table 2 :

Table 1. Male Norms Results

Category*	Age		
	11 - 17	18 – 24	>25
Very Good	>30	>35	>29
Good	22-30	22-35	20-29
Moderate	14-22	16-25	11-20
Less	6-14	6-16	3-11
Very Less	<6	<6	<3

Table 2. Female Norms Results

Category*	Age		
	11 - 17	19 – 24	>25
Very Good	>28	>34	>27
Good	21-28	24-34	19-27
Moderate	14-21	15-24	11-19
Less	6-14	6-15	3-10
Very Less	<6	<6	<3

*All numbers in category norms based on the number of times the samples make a move in one minute

4. DISCUSSION

Measuring physical capacity is a key that can be done by someone to self-assess their physical condition[8]. That can be used to make self-evaluation in order to increase awareness to maintain fitness so that in the future, they can improve their performance due to a healthy and fit body condition[9]. Making physical test items that are easy and efficient and describing the physical abilities of a person's body is the main goal of this study. This test can be done alone, easily, and cheaply and with equipment at home.

Measurements on the UNESA physical test use the basic motion of sitting up, stepping and climbing a bench and standing on the bench, then getting back down from the bench and doing the same movement as fast as possible for one minute. This is based on two movements, namely stepping and going up and down the bench. The movement model in the step is based on research on the Harvard step test, which has been proven to be used to see the condition of a person's aerobic capacity[10]. Looking at a person's aerobic capacity and ability related to one's endurance in doing a job can be described. This is important to see how long we can do an activity without distractions that can lead to fatigue.

The strength of the lower body also has a big effect on people's ability to do a job and daily activities such as walking, running, standing, and other jobs[11]. Also, this is related to balance, which is also a safety factor for some older people.

We see that combining these two forms of testing can be a solution to seeing two aspects of fitness and physical capacity and carried out in one test that is easy and accessible for some people of various age ranges.

5. CONCLUSION

The UNESA physical test can be used to see the physical fitness status data taken in Indonesia, and standardized norms can be used for some Indonesians. Further research is needed to see the validity of this test form against pre-existing test forms.

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REFERENCES

[1] W. H. O. Who, "Global recommendations on physical activity for health,"*Geneva World Heal. Organ.*, 2010, doi: 10.1080/11026480410034349.

[2] D. E. R. Warburton, C. W. Nicol, and S. S. D. Bredin, "Health benefits of physical activity: The evidence,"*CMAJ*. 2006, doi: 10.1503/cmaj.051351.

[3] K. Thompson, "Physical Activity and Health: The Evidence Explained,"*New Zeal. Phys. Educ.*, 2007.

[4] L. Vanhees *et al.*, "How to assess physical activity? How to assess physical fitness?,"*Eur. J. Prev. Cardiol.*, 2005, doi: 10.1097/01.hjr.0000161551.73095.9c.

[5] F. Sun, I. J. Norman, and A. E. While, "Physical activity in older people: A systematic review,"*BMC Public Health*, 2013, doi: 10.1186/1471-2458-13-449.

[6] W. R. Campbell, "The Harvard Step Test,"*British Medical Journal*. 1958, doi: 10.1136/bmj.1.5080.1179-b.

[7] K. H. Cho, S. K. Bok, Y. J. Kim, and S. L. Hwang, "Effect of lower limb strength on falls and balance of the elderly,"*Ann. Rehabil. Med.*,

2012, doi: 10.5535/arm.2012.36.3.386.

[8] I. M. Lee, L. Djoussé, H. D. Sesso, L. Wang, and J. E. Buring, "Physical activity and weight gain prevention,"*JAMA - J. Am. Med. Assoc.*, 2010, doi: 10.1001/jama.2010.312.

[9] K. L. Piercy *et al.*, "The physical activity guidelines for Americans,"*JAMA - J. Am. Med. Assoc.*, 2018, doi: 10.1001/jama.2018.14854.

[10] E. N. KEEN and A. W. SLOAN, "Observations on the Harvard step test.,"*J. Appl. Physiol.*, 1958, doi: 10.1152/jappl.1958.13.2.241.

[11] "Senior fitness test manual,"*Choice Rev. Online*, 2002, doi: 10.5860/choice.39-3447.

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