Needs Analysis of Stroke Stand and Legged Hop as an Android-Based Balance Test Tool

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Abstract: Technology-based tests and measurements in today's era are indispensable. The author finds problems related to balance tests that are still not technology-based in terms of input cannot be said to be practical. Therefore, the authors were intrigued to develop new tests to fill the gaps. However, in the development of a tool, needs analysis is needed as material for rationalizing problems and strengthening data. The purpose of this study is to conduct a needs analysis to develop an android-based stroke stand and legged hop test. The research method is exploratory descriptive with a quantitative approach. Observation data collection techniques, document analysis in the form of articles in journals and questionnaire distribution. Data analysis using percentages. Participants were 34 people including coaches, athletes and sports activists. The results of the 10 statements given are basically very important and it is necessary to develop a stroke stand and legged hop as an android-based balance measuring tool with the answer mostly being 100% meaning "strongly agree". It is hoped that this research will provide information and insight for coaches, athletes and sports activists. However, this study has many limitations, including exploratory descriptive research, target dissemination time is less than one month, samples are still minimal, data analysis is still very simple. Future research hopes to improve from the author's research to make it better.

Keywords: Stroke stand, legged hop, android

INTRODUCTION

As a sports academic, the author feels intrigued to develop a tool based on android technology to facilitate the work and analysis of teachers, coaches, and sports activists. In the 5.0 era, it is a challenge for us how to develop a sophisticated tool so as not to be left behind by developed countries (Sriyono, Rizkiyah &; Widiyarto, 2022). Moreover, when talking about science, of course, it is very dynamic and must always be updated (Bindra et al, 2020).

Recently, the author has created an android-based pedometer, a software to measure short-distance running (Akhiruyanto, Pribadi &; Yudhistira, 2022). The measuring instrument received a positive response and received praise that it makes it easier for an athletic trainer to monitor athletes while running.

The creation of the test did not make the writer's soul feel satisfied. The author tries to find ideas with elegant problem-based through observational studies and

document analysis in the form of articles in journals. The authors found a GAP in balance measuring instruments, namely the standing stroke test and the single leg hop test.

Both test kits are conventional balance tests that are often used by coaches, teachers and sports activists. The difference between the two tests is to maintain a static and dynamic body position. Stroke stand test to maintain body position statically, then single leg hop test to maintain body position dynamically and in the movement contained physical components such as coordination and strength

Both tests have advantages and disadvantages. Of course, when talking about the advantages of both tests are economical and easy to use, besides that the test can be said to have good security from the use procedure. But the author did a simple analysis, both tests actually have weaknesses, namely the assessment and data input are still manual, moreover most sports tests and measurements are technology-based.

Recently a test to measure the balance of an athlete and sportsman has been invented (Pranoto, 2023). The balance test is without using objects and using objects (Pranoto, 2023). The author's analysis is that the test used focuses more on a sample of children, besides that the assessment is still manual, namely using athletes. Assessment based on questionnaires according to the author, the level of objectivity is still questionable and still not technology-based.

Other studies have been found on reactive balance measuring instruments (Verschueren et al, 2019). The procedure for using the tool subjects were given instructions to turn off the led light with one leg randomly and maintain harmony within response times of 1.5, 2 and 2.5 seconds (Verschueren et al, 2019). This reactive balance test refers to dynamic motion and movement changes without being planned so that a stimulus is needed on this test (Verschueren et al, 2019)

The balance test already has elements of technology and according to the authors this test is a good test. However, it should be noted that tests related to static movements are still needed to determine the basic balance and post-injury in athletes. The criticism obtained is when post-injury athletes use the balance test tool is not appropriate because there are movements that should not be done, moreover the balance test there are action and reaction movements so that it requires speed to perform, this of course can make athletes injured.

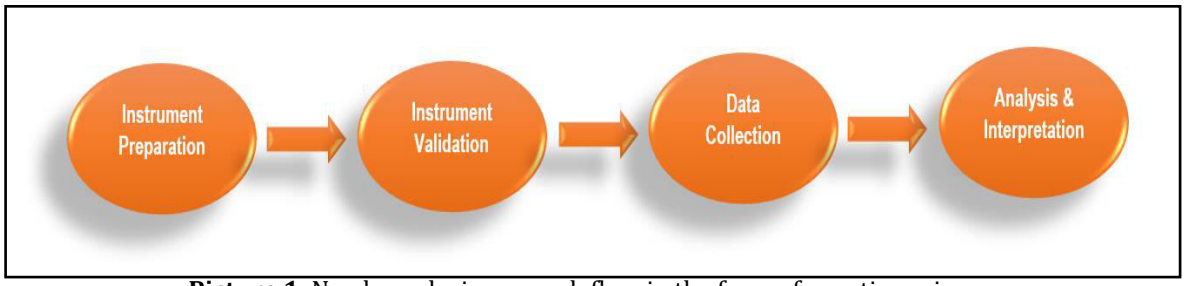
Based on the problems found, of course, it can be rationalized for the development of a new balance test tool, namely stroke stand and legged hop as an android-based balance test tool. Basically, development research is to create tools that do not yet exist and analyze tools that already exist but do not provide optimal solutions so as to create simpler and more sophisticated tools with the aim of making a more optimal contribution

In addition, development research is not enough to conduct needs analysis in the form of field observation and document analysis. However, a needs analysis

in the form of a questionnaire is needed. The rational reason the author added a needs analysis using questionnaires is that the proposed questions can be sent through online communication media so that they are practical. In addition, it will get a wider range of subjects. Therefore, the purpose of this study is to conduct a needs analysis in the form of a questionnaire by digging up information on how important stroke stands and legged hops are as Android-based balance test tools to be developed.

METHOD

Descriptive, exploratory as this research method (Widiawati, Hanief &; Rahayuni, 2022). The subjects of the study were coaches, athletes and sports activists totaling 30 people. The exploratory descriptive method is a method for interpreting research results but cannot be used to make conclusions more generally (Muliadi &; Imran, 2021). This means that this research is a data booster and rationalization material to create a new tool, namely stroke stand and legged hop as an android-based balance test tool. Data collection techniques use observation, document analysis in the form of articles in journals and questionnaire distribution. Data analysis techniques use percentage analysis (Yudhistira et al, 2023). The research instrument is a questionnaire that has been tested using person product moment and Cronbach alpha. To be clearer, the flow of this research is presented in the picture below as follows:



Picture 1. Needs analysis research flow in the form of questionnaires

RESULTS

The questionnaire as an instrument in the form of a google form after being sent to the subject will then be carried out a data analysis. The results of data analysis are presented below as follows:

Table 2. The results of the needs analysis are in the form of quantitative percentage data

No	Statement	Answer Options	Answer	Percentage
1	Balance is an important aspect in sports, namely the ability to maintain posture in a state of movement, especially exercise	Totally Agree	34	100%
		Agree	0	0%
		Neutral	0	0%
		Disagree	0	0%
		Strongly Disagree	0	0%
		Total	34	100%

2	Static balance is a basic aspect that athletes and sportsmen need to have	Totally Agree	20	59%
		Agree	12	35%
		Neutral	2	6%
		Disagree	0	0%
		Strongly Disagree	0	0%
		Total	34	100%
3	Dynamic balance is an advanced aspect of static balance so it must be owned by athletes and sportsmen	Totally Agree	23	68%
		Agree	7	21%
		Neutral	3	9%
		Disagree	1	3%
		Strongly Disagree	0	0%
		Total	34	100%
4	The balance test so far that is known is the standing stroke stand	Totally Agree	0	0%
		Agree	16	47%
		Neutral	0	0%
		Disagree	18	53%
		Strongly Disagree	0	0%
		Total	34	100%
5	The balance test so far is still conventional-based, there is still no element of Android technology	Totally Agree	34	100%
		Agree	0	0%
		Neutral	0	0%
		Disagree	0	0%
		Strongly Disagree	0	0%
		Total	34	100%
6	The balance test so far cannot be said to be practical in terms of inputting data	Totally Agree	34	100%
		Agree	0	0%
		Neutral	0	0%
		Disagree	0	0%
		Strongly Disagree	0	0%
		Total	34	100%
7	Further development related to balance tests is needed in the field of sports tests and measurements	Totally Agree	34	100%
		Agree	0	0%
		Neutral	0	0%
		Disagree	0	0%
		Strongly Disagree	0	0%
		Total	34	100%
8	Android-based static balance test is needed to facilitate data input	Totally Agree	34	100%
		Agree	0	0%
		Neutral	0	0%
		Disagree	0	0%
		Strongly Disagree	0	0%
		Total	34	100%
9	Android-based dynamic balance test is needed to facilitate data input	Totally Agree	34	100%
		Agree	0	0%
		Neutral	0	0%
		Disagree	0	0%
		Strongly Disagree	0	0%
		Total	34	100%
10	The android-based balance test to be developed is	Totally Agree	34	100%
		Agree	0	0%

	expected to make an optimal contribution in sports tests and measurements	Neutral	0	0%
		Disagree	0	0%
		Strongly Disagree	0	0%
		Total	34	100%

DISCUSSION

Results have been obtained from statement number one that 100% of subjects "strongly agree" balance is an important aspect due to maintaining posture in a state of movement, especially exercise. The second statement that 59% of subjects "strongly agree" when balance is a basic aspect that athletes and sportsmen need to have. The third statement that 68% "strongly agree" dynamic balance is a further aspect of static equilibrium that athletes and sportsmen should have. The fourth statement that 53% of subjects "disagree" with balance tests so far is known only standing stroke stands, meaning that subjects including athletes, coaches and sports activists already have insight into balance tests, but not all subjects know the various balance tests with evidence 47% say "agree". The fifth statement that 100% "strongly agree" balance tests so far are still conventionally based or there is no element of Android technology.

The sixth statement that 100% "strongly agree" with the balance test has so far not been said to be practical in terms of data input. The seventh statement that 100% "strongly agrees" further development of balance tests is needed in the field of sports tests and measurements. The eighth statement that 100% "strongly agree" Android-based static balance tests are needed to facilitate data input. The ninth statement that 100% "strongly agree" Android-based dynamic balance tests are needed to facilitate data input. The tenth statement that 100% "strongly agrees" the android-based balance test to be developed is expected to make an optimal contribution in sports tests and measurements.

The results that have been found from 10 statements submitted through questionnaires, in essence all subjects stated that the need to develop stroke stand and legged hop tests as an android-based balance test tool. Balance in sports is one of the important physical aspects to have. Most sports activities require elements of static and dynamic balance. Like plank movements, standing on one leg, kicking certainly requires elements of static and dynamic balance (Haqiyah et al, 2017). However, to know the level of balance is very necessary tests and parameters to measure it, with tests and measurements coaches and sportsmen know the level of balance individually. The required test results can be benchmarks and practice programming.

Sports tests and measurements are crucial in sports, because when tests do not have elements of validity, reliability, objectivity, practicality and so on, of course, measurement tests have not been said to be adequate (Yudhistira &; Tomoliyus, 2020; Yudhishthira et al, 2021). Therefore, the attempt to develop a balance test is

an accurate decision. Through efforts to develop balance tests, new concepts will be obtained so that the contribution of technology-based tests can be felt at the regional, national and international levels

If you often read and follow the development of articles in international journals, of course, you can map to where technology-based research on sports needs. According to the authors, technology-based research, especially for tests and measurements, needs a more serious breakthrough. It turns out that we are two or three steps behind in the field of technology-based tests and measurements. Although there have been technology-based tests that have been developed, it cannot be said to have a significant impact.

Based on the results of this needs analysis, the author will be more confident and more enthusiastic to develop a tool based on Android technology, especially for measuring balance statically and dynamically. Therefore, the author can interpret that the stroke stand and legg hop balance test that will be developed will be useful for sports people, especially in the field of measurement and evaluation tests

CONCLUSION

Based on the results and discussion that have been described, the author can conclude that the stroke stand and legged hop as a balance measuring tool are very important and need to be developed. Hopefully this research can provide information and insight for coaches, athletes and sports activists about the importance of developing technology-based test kits for the advancement of sports in Indonesia. However, this study has many limitations, including exploratory descriptive research, target dissemination time is less than one month, samples are still minimal, data analysis is still very simple. Future research hopes to improve from the author's research to make it better.

Conflict of Interest

All authors declare no conflict of interest

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