

Agility Side Step Test Development Test Device Motion Sensor Based

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Abstract — Agility is a very important component in sports activities. Almost every sport requires agility as a differentiator for everyone's physical skills. Various agility instruments have been created such as Side Step Test, Illinois Agility Run, Shuttle Run Test, Zig Zag Test, T-Test, Agility Cone Drill, Arrowhead Drill, 20 Yard Agility, Balsom Agility Test, and others (www.topendsport.com). Some of the agility test instruments above are instruments that have been tested and developed in various countries. The weakness in conventional side step test implementation with observations using the eyes is when the teste does no movement whether the feet have crossed the left side or the right side. The method used in this research is Research and Development Sources of data in this study were obtained from athletes in the form of treatment tests and measurement of agility side step tests based on motion sensors. Side step test is a form of agility test that aims to measure agility (where the sideways movement is changed in the opposite direction of motion). With the existence of the side step test based on the motion sensor based, it is expected to help facilitate the implementation of the test to be more effective and the results are more valid. In addition this side step test tool is also in accordance with advances in digital technology so that it is more relevant.

Keywords: *agility, development, motion sensor*

I. INTRODUCTION

Agility is a very important component in sports activities. Almost every sport requires agility as a differentiator for everyone's physical skills. The better one's agility, the better the mastery of one's skills in carrying out physical activities in sports. To find out the level of agility of a person it is necessary to test and measure agility. Various agility instruments have been created such as Side Step Test, Illinois Agility Run, Shuttle Run Test, Zig Zag Test, T-Test, Agility Cone Drill, Arrowhead Drill, 20 Yard Agility, Balsom Agility Test, and others [1]. Some of the agility test instruments above are instruments that have been tested and

developed in various countries. The weakness in conventional side step test implementation with observations using the eyes is when the teste does no movement whether the feet have crossed the left side or the right side. In relatively fast movements, sometimes our observation cannot see clearly whether the feet of the sects have crossed the line or not. If this happens, the data obtained will be less valid. In this case the rationale of researchers in designing side step test aids to facilitate the implementation of agility tests [2]. With the existence of the side step test based on the motion sensor based, it is expected to help facilitate the implementation of the test to be more effective and the results are more valid. In addition this side step test tool is also in accordance with advances in digital technology so that it is more relevant [3].

II. THEORETICAL BASIS

In this case the rationale of researchers in designing side step test aids to facilitate the implementation of agility tests. In carrying out this test, the assistive device used is a motion sensor that can be used to indicate whether the leg of the teste has crossed the line or not [4]. With the existence of the side step test based on the motion sensor based, it is expected to help facilitate the implementation of the test to be more effective and the results are more valid. In addition this side step test tool is also in accordance with advances in digital technology so that it is more relevant. From the description above, researchers are interested in researching about "Development of Agility Side Step Test Based on Motion Sensor". This research was conducted at the Faculty of Sport Science, Medan State University. This research was conducted in December 2019. This product is expected to provide convenience and accuracy in seeing the results of the agility side step test [5].

III. METHOD

The method used in this research is Research and Development [6]. Sources of data in this study were obtained from athletes in the form of treatment tests and measurement of agility side step tests based on motion sensors. The population in this study are students who are members of the Unimed football team, amounting to 24 people. The sampling technique in this study uses total sampling.

IV. RESULTS AND DISCUSSION

From the results of tests conducted on students who are members of the Unimed football team which numbered 24 people, the use of the Agility Side Step Test Tool Based on Motion Sensor is very good and effective for measuring agility . With the existence of the side step test based on the motion sensor based system, it can help to make the test more effective and the results more valid. In addition this side step test tool is also in accordance with advances in digital technology so that it is more relevant.

V. CONCLUSION

Side step test is a form of agility test that aims to measure agility (where the sideways movement is changed in the opposite direction of motion). So far, side step tests are carried out conventionally with manual equipment. The practice is to move sideways after the "go" signal to the right until the foot touches or crosses the outside line or edge, then moves to the left until the left foot touches or crosses the outside line on

the left side . The distance between the boundary lines of the left and right sides is 240 cm divided into two parts with the right mark in the middle . With the existence of the side step test based on the motion sensor based, it is expected to help facilitate the implementation of the test to be more effective and the results are more valid. In addition this side step test tool is also in accordance with advances in digital technology so that it is more relevant.

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