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- BIOMATERIAŁY WE WSPÓŁCZESNEJ MEDYCYNIE I STOMATOLOGII;
- ZABURZENIA CZYNNOŚCIOWE UKŁADU RUCHOWEGO NARZĄDU ŻUCIA;
- BIOMECHANIKA UKŁADU RUCHOWEGO I STOMATOGNATYCZNEGO; ORTOPODOLOGIA;
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The validity of basic futsal technique instruments for performance

Rzetelność narzędzi do oceny podstawowych technik w futsalu

Roma Irawan^{1(A,B,C,D,E)}, Ardo Okilanda^{1(A,B,C,D)}, Alex Aldha Yudi^{1(C,D,E,F,G)}, Ikhwanul Arifan^{1(B,C,D,E,F,G)}, Andri Irawan^{2(C,D,E,F,G,H)}

¹Department Of Coaching Faculty of Sport Science, Universitas Negeri Padang, Indonesia.

²Department of Sports Coaching Education, Faculty of Sport Science, Universitas Negeri Jakarta, Indonesia

Abstract

The current condition of futsal athletes' playing techniques cannot be known completely and this also takes time for coaches to measure the techniques one by one. This study is a development study which carried out in several scientific steps, to determine overall techniques performance. The population of this study were futsal athletes which they are the students of Sports Science Faculty, State Universitas Negeri Padang. Those athletes' were taking Basic Futsal courses in the Sports Coaching Education Study Program students. The field trial sample was only male students with a limited number of athletes or students taking Futsal. The number of samples is 9 people, the small group trial sample is 9 participants this count performance from position in futsal Flank, Anchor and Pivot. The results of the expert validation study were three experts as follows: 1) Measurement test expert, 2) Futsal Expert performance, 3) Technology test. The conclusion for the average expert due diligence is a percentage of 93.33%. Furthermore, for small group field trials, validity and reliability analysis was carried out; the results of the analysis were obtained; 1) The validity level of the test. 2) The level of reliability of the test. Furthermore, the results of testing the large group obtained the results of the analysis. From the results of data analysis carried out by the Basic Futsal Technique Instrument for performance $r\text{-count } 0,80 > 0,72$, it can be used to measure the ability of futsal athletes to increase athletes' performance.

Keywords

test instrument, basic technique, futsal, performance

Streszczenie

Aktualna analiza technik gry zawodników futsalu często pozostaje niepełna i wymaga znacznego nakładu czasu od trenerów na indywidualną ocenę każdego z graczy. Prezentowane badanie, o charakterze rozwojowym, przeprowadzono zgodnie z naukową metodologią, aby ocenić ogólną wydajność techniczną. Badanych stanowili zawodnicy futsalu, będący studentami Wydziału Nauk o Sporcie na Państwowej Uniwersytecie Negeri Padang, uczestniczący w kursie Podstawy Futsalu w ramach programu kształcenia trenerów sportowych. W próbie badawczej na potrzeby testów terenowych znaleźli się wyłącznie mężczyźni, ograniczając liczbę uczestników do grupy studiującej futsal. Liczba osób w próbie wyniosła 9, a ocena dotyczyła wydajności z takich pozycji na boisku jak Skrzydłowy, Obrońca i Pivot. Walidacja ekspercka objęła trzech specjalistów: eksperta ds. testów pomiarowych, eksperta ds. wydajności w futsalu i eksperta ds. technologii. Średnia ocena z due diligence przez ekspertów wyniosła 93,33%. Dodatkowo, podczas prób terenowych z małą grupą przeprowadzono analizę ważności i rzetelności testu, uzyskując: 1) poziom ważności testu, 2) poziom rzetelności testu. Na podstawie analizy danych z testów przeprowadzonych na większej grupie, instrument do oceny technik podstawowych w futsalu, z wynikiem $r\text{-rzeczywistym } 0,80 > 0,72$, okazał się skutecznym narzędziem do mierzenia zdolności zawodników futsalu oraz do poprawy ich wydajności.

Słowa kluczowe

instrument testowy, technika podstawowa, futsal, wydajność

Introduction

Futsal is a football game type that has undergone an evolution of games and rules that are currently starting to have a lot of enthusiasts [1–4]. Futsal etymologically comes from Spanish, namely the words Futbol (football) and Sala (room) so that when these two words are combined, they become a single word, namely indoor football (Futsal) [5]. The sport of Futsal, which is currently evolving, emphasizes speed and unique strategies, including attack patterns that involve the goalkeeper. The history of Futsal, which was first developed by the Argentine coach Juan Carlos Ceriani [6] is noteworthy. Futsal has evolved significantly, with strategies now including body play to maneuver opponents out of their area or into a desired zone. Currently, the level of competition in Southeast Asian countries, especially Indonesia, has improved to the point where they are among the top three in the region. Futsal game looks more beautiful with high speed and skills. This high-skill game is often shown off the pitch by Brazilian players. Meanwhile in Europe, Portugal has become king in recent years. Futsal is played in several positions called anchor, flank, pivot and goalkeeper [3]. The size of the 40×20 meter futsal field is played with a higher activity intensity because futsal players should have sprint speed, explosive power and leg muscle strength, passing ability, dribbling with fast turns and shooting strength and coordination. Reserve players in futsal games must also be as qualified as the core players who play on the field so that in rotation the players have a balanced game with opponents [6].

The game of futsal does not only require power struggles, but high ability in processing the ball is an advantage in being able to score goals against opponents [7, 8]. In addition, there are other aspects that support the success of playing futsal such as physical, technical, tactical and mental aspects [7]. Technique which is an important part of the game of futsal must be able to be measured by a coach so that it becomes a strength and as an evaluation for improving abilities. In futsal, techniques consist of passing, controlling, dribbling, and shooting [3, 9, 10], which are supporting the success of running tactics to achieve game goals [7]. Futsal requires good basic technical skills, because a team that has good playing skills will have more control over the ball and the game.

Measuring the player's ability use a test kit which is a procedure to find out an atmosphere or a person's situation, by means or rules that have been determined. To do this test depends on the instructions provided [5, 8, 9, 11]. In line with what was stated by [12] that tests in general are a data collection tool. A test is a tool or instrument used to obtain information about a person or object, especially in sports skills or measuring a person's physical fitness [13, 14, 15].

This instrument was developed to facilitate the activities of basic futsal technical abilities which initially used manual calculations such as the basic futsal technical skills test instrument developed by [5, 10, 11, 15, 16] which was later developed so that the basic futsal technical ability tests were carried out using a digital timer. This digital timer basic futsal technical skill test uses a stopwatch replacement tool, with the working system of the tool disconnecting the sensor at the initial post, the time will be stored in memory, at the last post,

namely after the shooting testee runs to the side of the goal and the time will be recorded on the timer board. The development of this test was prepared with the hope that it could be used to evaluate the skill level of basic futsal techniques for athletes.

This study aims to determine the results of the validity test of the basic futsal technique skills test kit that has been developed. Validity can be classified into several types, namely: content validity, construct validity, criteria-based validity and predictive validity. According to [13] states content validity is the degree to which an evaluation test measures the scope of the substance to be measured. That is, the test must be able to reveal the contents of a concept or variable to be measured. Data analysis with statistical techniques, including: Pearson product moment coefficient of correlation for validity and reliability, and Cronbach's alpha formula for objectivity [10, 5]. This approach is basically a method for measuring agreement among raters about the importance of a particular item. While the research procedure is in the form of steps carried out in the study. The steps in research and development research according to [17] are 1) potential problems, 2) data collection, 3) product design, 4) design validation, 5) design revision, 6) product trial, 7) product revision, 8) trial use, 9) product revision, 10) mass production [18].

Method

The design or design of this research took the form of developing a skills test instrument, using the R&D (research & development) method. This research can be classified as development research. Research and development is a process or steps to develop a product or perfect a product [10, 17] explained that research and development are interactions or steps to grow other items or work on current items, which can be represented. Research and development methods are chosen to produce what is desired in the form of a particular product, and its effectiveness is tested. From the type of research described above, the authors attempted to collect data regarding the development of a basic futsal technique skill test instrument.

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Result and discussion

The initial product design tests a series of basic futsal techniques using several components. These include: 1) a digital timer, which replaces a stopwatch. This timer has a system that disconnects the sensor at the initial post and stores the time in memory. At the last post, after the shooting testee runs to the side of the goal, the time is recorded on the timer board. 2) a series of posttests for the basic techniques of futsal games with implementation instructions as below.

Table 1. The validity test of 3 experts

Numb	Operating Procedure Standard			Digital Data Accurate			Effectiveness Test			Total
	1	2	3	1	2	3	1	2	3	
1	4	3	3	3	4	4	3	4	3	31
2	1	2	1	2	1	2	1	2	1	13
3	2	3	3	2	3	2	3	2	3	23
4	3	4	3	1	3	4	3	2	4	27
5	1	2	2	1	1	1	1	2	2	13
6	1	2	3	2	2	3	1	2	3	19
7	4	3	3	3	4	3	4	4	4	32
8	1	2	1	1	2	1	1	2	1	12
9	4	4	2	3	3	4	4	3	3	30
R Account	0.96	0.81	0.71	0.72	0.93	0.85	0.93	0.77	0.85	1.00
R table	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66	0.66
V/Not Valid	v	v	v	v	v	v	v	v	v	v

The experts tested the validity of the data by carrying out a series of tests on 9 participants, resulting in data analysis in the form of the first standard operating procedure in the test. This relates to the tests carried out at 5 posts that must be in accordance with the time sequence and when the participants must start from post 1 to post 5. Analysis in the form of digital data accuracy, when carrying out tests on the same person, the results are significantly the same, it can be seen that the most basic at the start time and end time when the participant performs the test activity. The final analysis from the expert was in the form of the effectiveness of the tests carried out, the tests which were carried out effectively reduced the number of staff carrying out the tests and provided energy savings for the testers who carried them out because a series of futsal techniques were included in the series of tests.

The value results are proven by validity and reliability data with Cronbach's alpha value of $0.80 > 0.72$. In terms of test the instrument can be accepted and applied to a larger sample with the aim of providing a better data validity value. It is highly recommended for coaches to retrieve data quickly and analyze the athlete's basic futsal technical abilities.

Conclusion

The instruments that have been produced from this study provide an easy impact with results which are the implementation

of a tester directly displaying technology data without waiting a long time. Compatibility with the usual practice of requiring a large number of people with this tool can be reduced in order to give a valid value to the sample. At one short time the implementation of this test can also be done with many people and many test instruments include 3 techniques in futsal.

After receiving input from the field test results, it was determined that this test should be conducted indoors due to its reliance on an electrical system. Tools also need to be developed that have water resistance because futsal games are held indoors, so this tool is appropriate from an indoor implementation point of view. A coach should be able to use technology as an aid in obtaining initial analysis results from the implementation of measuring athlete abilities. Finally, for the tools that have been tested in the field, the validity and reliability values are high, so the researchers also provide recommendations for further research on the physical aspects using data with test instruments using technology for performance athletes.

Adres do korespondencji / Corresponding author

Roma Irawan

E-mail: romairawan@fik.unp.ac.id

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