




DEVELOPMENT OF A TEST INSTRUMENT TO MEASURE THE BASIC PASS TECHNIQUE IN FUTSAL



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DESENVOLVIMENTO DE INSTRUMENTO DE TESTE PARA MEDIR A TÉCNICA BÁSICA DE PASSE NO FUTSAL

DESARROLLO DE UN INSTRUMENTO DE PRUEBA PARA MEDIR LA TÉCNICA BÁSICA DE PASE EN EL FUTSAL

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ABSTRACT

Introduction: The passing technique requires a high skill level because the futsal field is narrow, and the distance between players is short, demanding strength and accuracy. **Objective:** This study aims to develop a test instrument to measure the performance of futsal passing. **Methods:** Instrument preparation and reliability validity tests were applied in 120 athletes. **Results:** The results evidenced validity in the instrument with one minute passing time; that is, pass one is 0.855, and pass two is 0.857. The reliability value of the first Pass is 0.81, and the second Pass is 0.812. **Conclusion:** The development of the pass test tool is valid and reliable for its use in measuring the basic passing technique in soccer. **Evidence Level II; Therapeutic Studies – Investigating the results.**

Keywords: Evaluation Studies as Topic; Athletic Performance; Soccer; Reproducibility of Results.

RESUMO

Introdução: A técnica de passe requer um alto nível de habilidade pois o campo de futsal é estreito e a distância entre jogadores é pequena, demandando força e precisão. **Objetivo:** O objetivo desse trabalho é desenvolver um instrumento de teste para mensurar o desempenho no passe de futsal. **Métodos:** Testes de preparação de instrumentos e validade de confiabilidade foram aplicados em 120 atletas. **Resultados:** Os resultados evidenciaram validade no instrumento com um minuto no tempo do passe, isto é, a validade de um passe é de 0,855 e de dois passes é de 0,857. O valor de confiabilidade do primeiro passe é de 0,81 e do segundo passe é de 0,812. **Conclusão:** O desenvolvimento da ferramenta no teste de passe é válido e confiável para sua utilização no aferimento da técnica básica de passe no futebol. **Nível de evidência II; Estudos Terapêuticos - Investigação de Resultados.**

Descritores: Estudos de Avaliação como Assunto; Desempenho Atlético; Futebol; Reprodutibilidade dos Testes.

RESUMEN

Introducción: La técnica del pase pide un alto nivel de habilidad porque el campo de fútbol de salón es estrecho y la distancia entre los jugadores es pequeña, lo que exige fuerza y precisión. **Objetivo:** El objetivo de este trabajo es desarrollar un instrumento de prueba para medir el rendimiento en el pase del futsal. **Métodos:** Se aplicaron pruebas de validez del instrumento y de fiabilidad en 120 atletas. **Resultados:** Los resultados evidenciaron la validez en el instrumento con un minuto en el tiempo de la pasada, es decir, la validez de una pasada es de 0,855 y de dos pasadas es de 0,857. El valor de fiabilidad de la primera pasada es de 0,81 y de la segunda de 0,812. **Conclusión:** El desarrollo de la herramienta en el test de pase es válido y fiable para su uso en la medición de la técnica básica de pase en el fútbol. **Nivel de evidencia II; Estudios terapéuticos - Investigación de resultados.**

Descriptor: Estudios de Evaluación como Asunto; Rendimiento Atlético; Fútbol; Reproducibilidad de los Resultados.



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INTRODUCTION

Futsal is a global game that is very different from football in terms of rules and tactics of the game (Caglayan et al., 2018).¹ But even though futsal was known as an instrument of the development of football in several countries, needs effort to improve the techniques and tactics of the athlete's futsal. The quality of the basic technical skills each athlete largely determines the level of playing of a futsal team. Factors contributing to differences in physical demands during competition are athletes (Vieira et al., 2016).² Instruments can help athletes to understand the dynamics, techniques, tactics and physiological factors in futsal. Futsal

athletes are required to always move, take immediate decisions in both attack and defense (Malekzadeh & Hadavi, 2018).³ Therefore, the skills of futsal athletes become an important factor when conditions of attack and defense will determine victory in the competition. One of the basic technical skills of futsal that athletes must master is passing. Passing functions as a passing to connect one player to another player in a team to score against the opponent's goal. Weak passes and not on target will hurt his team and the ball is easily controlled by the opponent. Mistakes like this occur because of mastery of passing that has not been good. To know a good passing mastery required passing test instruments on the

basic techniques of futsal. In compiling the test, it is necessary to carry out validity and reliability to determine the accuracy and stability of the test instrument in carrying out its measuring function. Reality in the field in measuring the mastery of futsal passing still adopts instruments from football skills tests because of the similarity of the game in both sports. However, this is not appropriate because the football test instruments are adjusted to the characteristics of the game such as distance, time and difficulty level adjusted to the actual game.

Futsal is a variation of football in the room (Hermans & Engler, 2011).⁴ Futsal game is a game of team sports that require the cooperation in a team. Besides requiring the involvement of cooperation between individuals in a team, futsal is also a sport that has a complex element of motion. During the match, athletes must maintain intermittent to high intensity activities, so that maximum physical, technical and tactical performance is required (Balyan & Vural, 2018).⁵ Futsal athletes must have endurance capacity, repetitive sprint ability, and great leg power on technical elements including shooting and passing, agility, and coordination (Naser et al., 2017).⁶ Passing was used at most games, compared to other basic techniques. Basic technique of futsal consists of dribbling, ball control techniques and ball shooting style that must be possessed by every athlete. Skill and techniques that should be owned by the athlete futsal including of (1) controlling and dribbling, (2) kicking, (3) passing, (4) shooting, and (5) heading (Göral, 2018).⁷

Passing in the futsal game needs the level of accuracy, because the field is narrow, and the distance between athletes is close, so the passing must be strong and accurate. This basic passing technique can be done with the inside, outside, instep, or toe tips. But it is usually done used an inner leg which is considered more accurate. Futsal is characterized by lower limb movements specifically used to regulate the ball (passing), as well as torso movements and heading the ball using the head (Kocic, et al., 2016).⁸ This importance to pay attention to obstacles and potential that focus on passing skills and abilities in futsal (Oppici et al., 2019).⁹ This is because almost all futsal games use passing. To master passing, needs mastery of movement so that the desired target is achieved. The ability to feel special motor rhythms is essential for athletic in training (Polevoy, 2017).¹⁰ The steps to make the passing movements are as follows:

- Place the pivot foot on the side parallel to the ball.
- The foot that will kick the ball back slightly behind the ball.
- Use your inner legs for passing.
- The kick starts from pulling the leg and swinging forward.
- When touch the ball, the eye sees the ball and continues to look at the target.
- Continue with the follow through i.e. the swing of the foot following the ball direction.

METHODOLOGY/MATERIALS

Time and Place of Research

The research was carried out for 6 months at GOR Sebelas Maret University

Research Type

Researchers use development research that provides scientific and applicable problem solutions, with the aim of producing innovative products (Akker et al., 2006).¹¹

Research steps

The development research comprises the steps of: (1) preparation of instruments including trials, (2) testing the reliability and validity. The reliability and validity coefficients with a range of values 0-1 are quantities that indicate the quality or consistency of test measurement results, (3) revisions based on results from stage 2, and (4) retest revised stages (Haroz et al., 2014).¹²

Data collection

Data collection techniques were used observation and tests. Observation is used to collect initial condition data. The test was used to determine the validity and reliability of the instruments developed.

Data Analysis

Data analysis was used product moment analysis to test the validity and reliability of the instrument.

Results and Findings

Research Results

Limited discussion

At this stage discussions were held with 1 academic expert and 1 futsal practitioner expert. From discussions with experts obtained the following results:

- The futsal passing test instrument that previously used a wall and 1 goalgate.
- Previous test instruments had limited use of walls which were rarely found; test instruments not yet equipped with scores and segment divisions; previous instruments of the ball that hit the target and did not return to the starting line were calculated scores; previous test instruments had not yet classified the athlete's value criteria category.
- It is necessary to develop a futsal passing test instrument that was equipped with a score and classification of the value criteria category. The instrument developed was in the form of the use of a scoreboard consisting of division of score segments and passing time restrictions.

Following is the figure of developed test instrument.

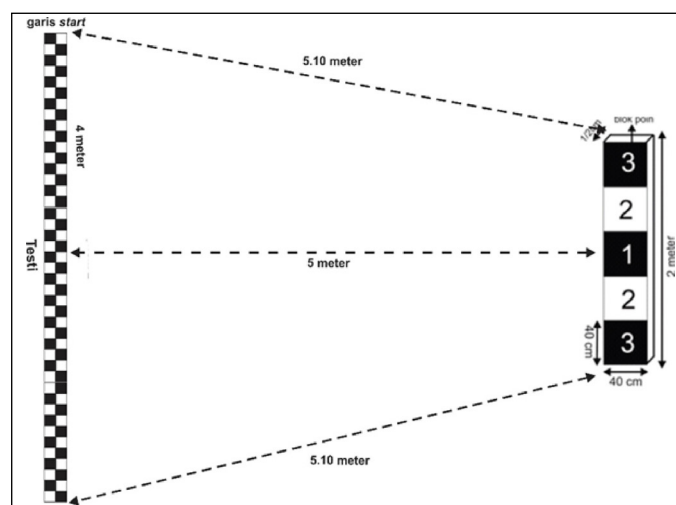


Figure 1. Developed Passing Test Instrument.

Descriptive Statistic

In the trial, the data obtained from the measurement of passing results within 1 minute were carried out 2 times and after data calculation, the results are presented in Table 1.

Table 1 shown the description of passing test scores used a scoreboard 1 minute was carried out 120 athletes. Passing 1 has a minimum score of 27, maximum score of 83, average score of 60.78, and SD of 8.98. Passing 2 has a minimum score of 42, maximum score of 85, average score of 62.98, and SD of 9.04.

Validity and Reliability Test

The validity and reliability test obtained the degree or significance level of validity or reliability. The validity and reliability coefficient criteria used for selecting test instruments are explained in the Table 2.

Based on Table 2, it can be compared with the validity and reliability of the trial results on the research subjects in Table 3.

Table 1. Descriptive statistics.

	Min	Max	The mean	Std. Deviation	N
Passing1	27	83	60.78	8.98	120
Passing2	42	85	62.98	9.04	120

Table 2. Instrument Validity and Reliability Test Results.

Classification	Validity	Reliability
Perfect	0.80 - 1.00	0.90 - 1.00
High	0.70 - 0.79	0.80 - 0.89
Is	0.50 - 0.69	0.60 - 0.79
Low	0.00 - 0.49	0.00 - 0.59

Table 3. Instrument Validity and Reliability Test Results.

	Validity	Reliability
Passing 1	0.855	0.811
Passing 2	0.857	0.812

Table 3 shown the results of instrument validity and reliability test in a time of 1 minute used the scoreboard passing test instrument. Based on the table the validity of passing 1 is 0.855 and passing 2 is 0.857. The reliability value of passing 1 is 0.811 and passing 2 is 0.812.

RESULTS & DISCUSSION

The expert discussions were carried out in stages, namely discussions carried out with futsal academics and futsal practitioners. In a limited discussion with the focus on the development of passing test instruments on the futsal basic techniques, the following matters were agreed:

a. Passing was declared right on target or good accuracy if the ball returns to the starting line (bounces) without being controlled and can be kicked again.
 b. Implementation of futsal passing tests limited by time. This was intended that the athlete has the pressure to perform the test properly.
 c. The instructions for implementing the passing test instrument on the futsal basic technique are as follows:

1. Purpose: This test purpose to measure passing on the futsal basic technique.

2. The equipment of passing tests on basic futsal techniques:

a. Futsal court

b. Score board target with a length of 2 meters

The size of block point are:

length: 40 cm

width: 40 cm

thickness: ½ cm

c. Six futsal balls

d. Gauge

e. Lines

f. Stopwatch

3. Implementing officer

a. 1 person arranges a turn and also a starter

b. 1 person as target supervisor

c. 1 person records the results

4. Implementation:

a. Testee stands behind the starting line and is ready to kick the ball towards the target.

b. On the "yes" signal, the testee immediately passes down to the target provided.

c. The ball must bounce back to the starting line and be kicked back by the testee.

d. Perform as many passes as possible without breaks.

5. Implementation time: 1 minute

6. Scoring: The calculated score is a valid passing which is passing which hits the target board and returns to the starting line and the testee does

not step on the start line. The total score is the sum of all points from 2 opportunities.

a. Point 0 if the ball does not return to the starting line

b. Point 1 if the ball hits the middle target and returns to the starting line

c. Score 2 if the ball hits the middle side target and returns to the starting line

d. Score 3 if the ball hits the end side target and returns to the starting line

7. Value criteria

Table 4. Value Criteria.

Category	Value Limits
Very less	<59
Less	60 - 69
Enough	70 - 79
Good	80 - 89
Very good	> 90

This development research resulted in an instrument product in which implementation and assessment were explained. The research results supported previous research that the observation system in the futsal match analysis was presented to represent all possible offensive actions (how the ball was controlled; how the attack was prepared; and how the goal keeper's throwing was carried out) and the defensive principle (how the team was on the field; how athletes react to opponents' shots and how the ball is blocked) on futsal. Comprehensive development methods and an ideal level of reliability guarantee the quantity and quality of information on athletes and coaches as well as the validity needed for scientific use (O'Donoghue, 2007).¹³

This passing instrument used the scoreboard was developed to overcome passing problems related to the passing accuracy to the other player because the close distance of the opponent. This will benefit the athlete in a match where the athlete will easily provide the correct or accurate pass. Previous tests instruments have limited use the wall; test instruments not yet equipped with scores and segment divisions; previous instruments the ball that hit the target and did not return to the starting line were calculated scores; previous test instruments had not yet classified the value criteria category. Other studies have shown that the development of new futsal specific test of change of direction speed (CODS) and reactive agility (RAG) tests is reliable and can be used in adult futsal athletes. CODS and RAG test development involved dribbling a distance of more than 3.2 meters mainly on the dominant side, shown the reliable and valid results to differentiate levels of performance in futsal athlete (Sekulic et al., 2019).¹⁴

Other studies shown that the research purpose is present the evaluation tool of controlling, passing, dribbling, shooting in the match and the result of the validity and reliability process stated that can be classified as an evaluation tool. Significant contributions made by evaluation tools to measure match performance adopt the basic technical principles relating to attacking, maintaining ball possession, moving forward to the opponent's goal and reaching the target. This evaluation tool shown the right way to assess techniques and tactics on the ball and turn off the attacking ball (López et al., 2012).¹⁵

CONCLUSIONS

Based on the validity test that the development of passing test instruments on the futsal basic techniques is valid and reliable so that it can be used to measure passing on the futsal basic techniques. The validity values of passing 1 is 0.855 and passing 2 is 0.857. The reliability value of passing 1 is 0.811 and passing 2 is 0.812.

All authors declare no potential conflict of interest related to this article

REFERENCES

1. Caglayan A, Erdem K, Colak V, Ozbar N. The Effects of Trainings with Futsal Ball on Dribbling and Passing Skills on Youth Soccer Players. *International Journal of Applied Exercise Physiology*. 2018;7(3):2322–3537.
2. Vieira LHP, Doçramaci SN, Barbieri RA, Milioni F, Moura FA, Andrade VL et al. Preliminary results on organization on the court, physical and technical performance of Brazilian professional futsal players: comparison between friendly pre-season and official match. *Motriz: Revista de Educação Física*. 2016;22(2):80-92.
3. Malekzadeh R, Hadavi F. Identifying Factors Perceived to Influence the Talent Identification in Iranian Futsal Players. *International Journal of Sport Studies for Health*. 2018;1(2):e69865
4. Hermans V, Engler R. *Futsal: Technique, Tactics, Training*. Aachen: Meyer & Meyer Sport UK;2011.
5. Balyan M, Vural F. Futsal World Cup: Differences Created by Winning, Losing and Drawing Variables in Scored Goals and Offensive Variations. *Journal of Education and Training Studies*. 2018;6(5):65-71.
6. Naser N, Ali A, Macadam P. Physical and physiological demands of futsal. *Journal of Exercise Science and Fitness*. 2017;15(2):76-80.
7. Göral K. Analysis of Serbia UEFA Futsal Euro 2016 Competitions in Terms of Some Variables. *Journal of Education and Training Studies*. 2018;6(10):1-6.
8. Kocic, et al., 2016
9. Oppici L, Panchuk D, Serpiello FR, Farrow D. Response: Commentary: Long-term Practice with Domain-Specific Task Constraints Influences Perceptual Skills. *Frontiers in Psychology*. 2019;10:1-3.
10. Polevoy GG. Training of motor rhythm in students, practicing football. *Physical Education of Students*. 2017;21(4):189-92.
11. Akker JVD, Gravemeijer K, McKenney S, Nieveen N. *Educational Design Research*. London and New York: Roudledge Taylor & Francis Group; 2006.
12. Haroz EE, Bass JK, Lee C, Murray LK, Robinson C, Bolton P. Adaptation and testing of psychosocial assessment instruments for cross-cultural use: an example from the Thailand Burma border. *BMC Psychology*. 2014;2(1):1-9.
13. O'Donoghue P. Reliability issues in performance analysis. *International Journal of Performance Analysis in Sport*. 2007;7(1):35-48.
14. Sekulic D, Foretic N, Gilic B, Esco MR, Hammami R, Uljevic O et al. Importance of Agility Performance in Professional Futsal Players; Reliability and Applicability of Newly Developed Testing Protocols. *International Journal of Environmental Research and Public Health*. 2019;16(18):3246.
15. López LMG, Villora SG, Gutiérrez D, Serra J. Sport TK revista EuroAmericana de ciencias del deporte. *SPORT TK-Revista EuroAmericana de Ciencias Del Deporte*. 2012;2(1):89-99.