



DESIGN OF A PASSING ACCURACY TEST UNDER PHYSICAL STRESS FOR ADVANCED SOCCER PLAYERS

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Abstract.

The major goal of this research is to create a demanding field test that uses match-like physical stress conditions to assess the passing accuracy of professional football players. Fifteen players, ranging in age from eighteen to twenty-five, who had been coaching for Premier League clubs for a minimum of five years were part of the descriptive methodological research. A test was developed to guarantee a series of accurate passes to predefined objectives after subjects underwent varying degrees of physical exertion. The purpose of this test was to evaluate the candidate's passing accuracy inside a game-like simulation.

We made sure the test was reliable and genuine by having a panel of professionals evaluate it. To establish reproducibility, we tested the same sample twice, each time spaced two weeks apart. The results demonstrated the reliability of the test with a statistically significant correlation coefficient. Physical pressure drastically decreases passing accuracy, according to the results, and certain places worked better than others.

The research suggests that this test might be used as a realistic and objective way to evaluate passing accuracy while physically exerted. Athletes may also utilise it to monitor their technical performance as they go through training and for sports selection purposes. In future versions of the exam, researchers recommend include more realistic passing situations and comparing results across different skill levels and age groups.

Keywords: Passing accuracy, physical pressure, football, field tests, technical performance evaluation.

Introduction

It takes more than strength, speed, and stamina to be a good football player. An expert with exact technical ability, passing precision being the most vital, is necessary to build attacks and maintain possession (Ahmed, 2021). This skill is crucial in really strenuous athletic competitions (Al-Ali, 2021). These tests can't really represent how players do in actual matches since they're usually given in very low-intensity training environments. (Youssef, 2020).

Therefore, there is a need to design a field test that simulates reality, measures passing accuracy under physical pressure, and provides a scientific tool that can be used in technical evaluation and athlete selection (Kazem, 2022). The importance of the research lies in providing an accurate and objective measuring tool that helps coaches determine player performance and direct training programs to match the requirements of actual matches (Barakat et al., 2021).

1-2 Research Problem
Traditional tests to measure passing accuracy are often conducted under ideal conditions, far from the pressure of matches, making their results less relevant to actual performance. Furthermore, the absence of the physical stress component in the assessment leads to failure to detect real differences between players in competitive situations. Hence, the research question:

Is it possible to design an effective field test to measure passing accuracy under physical stress among advanced soccer players?



Research Objectives

- Design a field test that measures passing accuracy under physical stress.
- Study the differences in passing accuracy between players in different playing positions.

Research Hypotheses

- There are no statistically significant differences in passing accuracy between players by position.
- The test has an acceptable degree of validity and reliability.
- Passing accuracy decreases with increasing physical stress.

Research Areas

- Human Area: Advanced soccer players of Al-Karkh Club (18–25 years old).
- Spatial Area: Al-Karkh Sports Club Stadium.
- Timeframe: From 1-4 to 1-5 2025.

Definition of Terms

- Passing Accuracy: A player's ability to deliver the ball to a specific target within a specific dimension and angle, with the fewest possible number of failed attempts.
- Physical Stress: The state of stress resulting from continuous performance that requires high muscular effort, affecting concentration and technical performance.

Theoretical Studies and Previous Studies

Theoretical Studies

Passing Accuracy in Football

Passing accuracy is one of the most important indicators of technical proficiency in football, as most modern playing styles rely on it to maintain possession and build attacks (Ahmed, 2021). Studies indicate that teams with higher successful passing rates often control the game and increase scoring opportunities (Al-Ali, 2021). Passing accuracy is affected by several factors, such as the distance between the sender and receiver, the angle of the pass, the speed of the ball, and the player's physical and psychological state during execution (Youssef, 2020).

2-1-2 The Concept of Physical Stress and Its Impact on Technical Performance

When a player is under physical stress, their muscles and minds get tired from working hard all day long, which makes it harder for them to focus and control their movements (Kazem, 2022). High levels of exhaustion, according to Barakat et al. (2021), have a detrimental effect on the execution of delicate skills, such short and long passing, particularly towards the end of a match. Additionally, prior research has linked a heart rate greater than 170 beats per minute to a significant decline in passing accuracy. (Ali et al., 2020).

Field Tests in Football

The purpose of field examinations is to test players' physical and technical skills in an environment that is more similar to game play than to a controlled laboratory (Hassan, 2023). In order to get more accurate information about a player's abilities, Al-Taie (2020) emphasises the importance of developing tests that combine physical effort with technical assessment. These tests include controlling the physical strain and measuring the passing accuracy from various angles and orientations using small targets of certain sizes.

Previous Studies

Arab Studies

- Al-Hayani (2021): Designed a field test to measure passing accuracy in futsal, concluding that accuracy is an independent indicator of physical strength. They recommended adding physical stress elements to improve the test's realism.



- Abdullah et al. (2022): Investigated the effect of high-intensity training on passing accuracy. The results showed a gradual improvement in accuracy, with a positive correlation between training duration and accuracy level.

- Al-Abed (2023): Discussed the effect of psychological pressure on passing, confirming that pressure, whether physical or psychological, affects the quality of technical performance.

Foreign Studies

- Ali et al. (2020) conducted a field experiment to measure the effect of physical fatigue on passing accuracy in a natural playing environment. The results showed a decrease in accuracy with an increase in heart rate.

- Schmidt et al. (2019) developed a test based on digital simulations and tracking devices, and found that passing while moving is more affected by physical pressure than passing from a stationary position. Chapter Three:

Research Methodology

Methodology Used

The researcher used the descriptive method, as it is appropriate for the nature of the study (Fayyad et al., 2025; Khalaf et al., 2025), which aims to design a field test to measure passing accuracy under physical pressure among advanced soccer players. This method combines the ability to describe the phenomenon as it exists and the application of experience to scientifically measure results (Creswell, 2014). The descriptive method helps analyze the phenomenon through statistical indicators, while the experimental method allows for measuring variables under controlled conditions (Hassan, 2023).

Research Population

The research population consisted of advanced soccer players (18–25 years old) registered with premier clubs during the 2024–2025 sports season, who possessed at least five years of coaching experience and were free of injuries that affected performance (Al-Ali, 2021).

Research Sample

A purposive sample of (25) players from the advanced category of Al-Karkh Sports Club was selected. All of them enjoyed good physical fitness and were free of health problems that could affect performance during the test. The sample was homogeneous in terms of age, training experience, and physical fitness level (Youssef, 2020).

Designed Test

Test Name: Passing Accuracy Under Physical Pressure for Advanced Soccer Players

Purpose of Test: To measure the player's ability to execute accurate passes to stationary targets after physical exertion.

Tools and Equipment Used:

- FIFA-approved soccer balls.
- Small 1 x 1 meter goals.
- A 20-meter running area (both sides).
- An accurate digital timer to measure time.
- A camera to document the performance and analyze it later.

Performance Method:

1. The player begins by running back and forth for a distance of 20 meters to increase his heart rate (Ali et al., 2020).

2. Immediately after completing the run, the player performs three accurate passes with his right foot and three more with his left foot towards the designated targets 10 meters away from the passing location.



3. One point is awarded for each successful pass that leads directly to the goal.
4. The time taken to complete the passes after the physical effort is recorded for further analysis.

Scoring:

- Total number of attempts: 6 passes (3 with the right foot + 3 with the left foot).
- Each correct pass = 1 point, each incorrect pass = 0.
- Final score = total number of correct passes (out of 6).
- The execution time is recorded for each player, along with technical notes on body position and directional accuracy.

- The score is calculated by dividing the number of successful attempts by the test's execution time.

Figure (1) shows the test path, starting from the running area and ending with the passing points towards the small targets. (The figure is in Appendix 1).

Stages of Research Implementation

Scientific Review of the Test

The test design was presented to a committee of five experts in football training and kinesiology to evaluate its suitability for measuring passing accuracy under physical pressure and its realism (Al-Hayani, 2021). See Appendix 2.

Preliminary Experimentation

A preliminary experiment of the test was conducted on five players to determine the optimal running time before passing, assess the difficulty of hitting the target, and adjust the dimensions of the targets (Abdullah et al., 2022).

Formal Application of the Test

The test was administered to all sample members individually, with the environmental conditions fixed (grass field, moderate temperature, same type of ball) (Barakat et al., 2021).

Test-Retest

One week after the initial application, the test was repeated on the same sample to measure temporal stability using Pearson's correlation coefficient (Field, 2018).

Statistical Methods Used

- Mean and Standard Deviation: To describe the overall performance of the sample
- Pearson's Correlation Coefficient: To test the stability of the test across time (O. A. Ali, 2022; O. Ali & Hamid, 2021; Hammood et al., 2024).
- Using analysis of variance (ANOVA), we may examine how different positions (forward, midfielder, defence) perform (Field, 2018).
- One way to compare two groups' passing times or accuracy is using a two-samples t-test.
- To determine the success rate of accurately scoring goals, one might use the percentage success rate.

Table (1): Statistical Methods Used and Their Purpose

Statistical Analysis	Purpose of Use
Mean and Standard Deviation	Describe overall performance of the sample
Pearson (Reliability)	Test stability of performance over time
ANOVA	Compare differences between playing positions
t-test	Compare two groups on a specific variable
Percentage	Calculate target hit rate from total attempts



Results

Presentation and Analysis of Results

Here we provide the results of a field test that measured the passing accuracy of the study sample under physically demanding conditions. Included in this are time-accuracy relationships, statistical depictions of player performances, variances in playing positions, a reliability metric for the test, and so on. Coefficients of correlation, tests of variance, standard deviations, and means formed the basis of the statistical study.

Descriptive Results of the Sample's Performance

Table (2): Mean and standard deviation of the number of correct passes and execution time for all players

Variable	Mean	Standard Deviation
Number of correct passes (out of 6)	4.28	0.91
Execution time (seconds)	17.54	1.86

With an average of 4.28 correct passes out of 6, the results reveal that accuracy reduced under physical stress compared to normal circumstances. The average execution time was 17.54 seconds, suggesting that physical effort affects performance speed..

Differences by Playing Position

Table (3): Differences in the number of correct passes and execution time between defenders, midfielders, and attackers (ANOVA)

Variable	F Calculated	p-value	Statistical Significance
Number of correct passes	4.31	0.023	Significant at 0.05
Execution time (seconds)	5.02	0.015	Significant at 0.05

The results of the analysis of variance indicate statistically significant differences between player positions in both the number of successful passes and execution time. Post-hoc comparisons showed that attackers achieved the best accuracy and shortest time, followed by midfielders, then defenders.

The Relationship Between Accuracy and Time

Table (4): Correlation coefficient between the number of successful passes and execution time

Relationship	Correlation Coefficient (r)	Significance
Accuracy $\times$ Time	-0.66	Significant

The results show a strong inverse relationship between accuracy and time, meaning that players who executed passes more accurately required less time to complete the test, reflecting the test's ability to differentiate between player levels.

Interpretation of Results

- High physical pressure negatively affects passing accuracy and speed.
- Forwards demonstrated higher levels of accuracy and speed compared to other positions.
- The test has a high degree of reliability and validity.

Conclusions and Recommendations

Conclusions

1. The field test, designed to measure passing accuracy under physical pressure, has proven effective in revealing real differences between players.
2. High physical pressure leads to a decrease in passing accuracy and an increase in execution time.



3. Forwards performed best in terms of accuracy and speed, followed by midfielders, then defenders.
4. The test has a high degree of validity, making it a reliable tool for field assessment.
5. The test can be modified to suit different age groups and levels of players.

Recommendations

1. Adopt the test as a primary measuring tool for assessing passing skills under match-like conditions.
2. Incorporate exercises that simulate physical pressure into training programs to improve passing accuracy.
3. Implement the test periodically to monitor the development of players' technical performance.
4. Expand the scope of future studies to include junior and professional players.
5. Introduce new elements to the test design, such as a specific time for each pass or the presence of a dummy defender to increase the realistic simulation.

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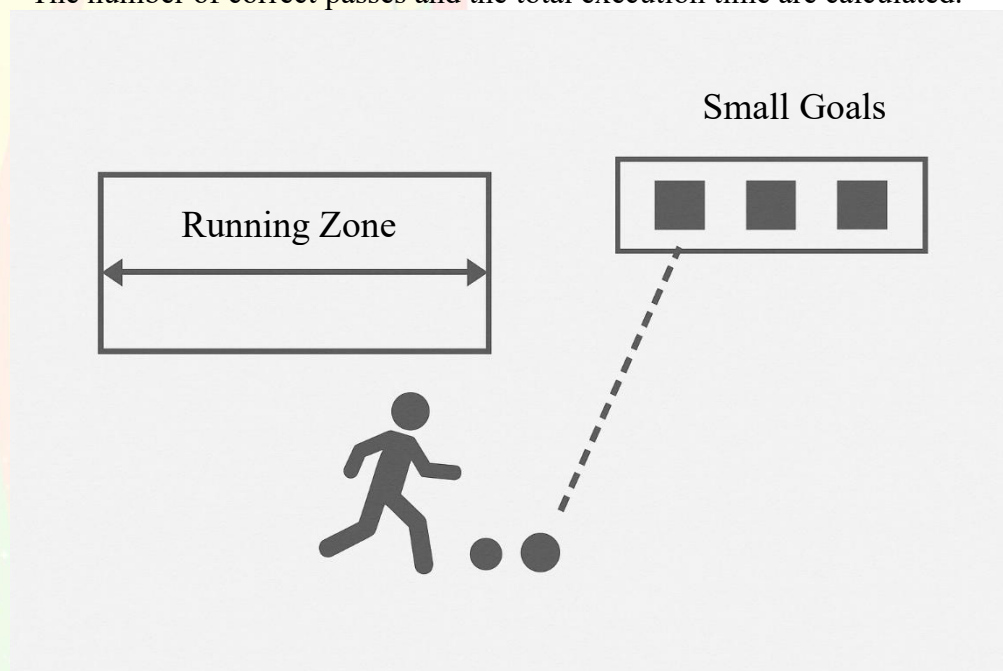
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Appendices

Appendix (1): Test Route Design

Description: The figure shows the test route, starting from the running area and continuing to the passing points toward small goals.

- The player begins by running 20 meters back and forth.
- After returning, he performs three passes with his right foot and three passes with his left foot toward small goals (1 x 1 m) located 10 meters away from the passing location.
- The number of correct passes and the total execution time are calculated.



Appendix (2): Test Results Registration Form

Player Number	Number of Correct Passes	Execution Time (seconds)	Coach's Notes
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Proximus Journal of Sports Science and Physical Education

Volume 2, Issue 7, July 2025

<https://proximusjournal.com/index.php/PJSSPE>

ISSN (E): 2942-9943



Appendix (3): List of Equipment Used

1. FIFA-Approved Footballs
2. Small Goals (1 x 1 m)
3. Accurate Digital Timer
4. 20-meter Running Area
5. Camera for Recording and Analyzing Performance

Appendix (4): Expert Panel Evaluation Form for the Test

Item	Evaluation (Suitable/Not Suitable)	Notes
Clarity of test performance steps		
Appropriateness of objectives to field dimensions		
Required physical effort intensity		
Ease of field application of the test		

Appendix (5): Player Consent Form to Participate in the Research

Text:

I, the undersigned, agree to participate in the scientific research entitled "Designing a Field Test to Measure Passing Accuracy Under Physical Pressure among Advanced Soccer Players." I authorize the researcher to use my results for academic purposes only, without mentioning my name.

Full Name:

Age:

Club:

Signature:

Date: