



Information Article

Proprioceptive-Kinesthetic Perception and Visual Span in Relation to Tactical Decision-Making Efficiency in Elite Youth Footballers

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ARTICLE INFO	ABSTRACT
Keywords: Kinesthetic Perception, Visual Perception, Tactical Decision-Making in Football.	This study aims to examine the correlational relationship between kinesthetic perception, visual perception, and their interactive effect on tactical decision-making in football. To achieve this, the researcher employed a descriptive approach using survey and correlational methods. The target population comprised youth football players in Najaf Al-Ashraf Governorate participating in the provincial league for the (2025–2026) sports season, totaling (198) players. The research sample included (64) players for the main experiment and (16) players for the pilot study, selected via equal stratified random sampling from each participating club. The pilot study data were integrated with the main experimental data, yielding a total statistical sample of (80) datasets. Following the preparation and psychometric validation of the test battery, the main testing protocol was executed over three days at the Najaf International Stadium at 3:00 PM. Data were processed using SPSS. The findings revealed statistically significant positive correlations between kinesthetic perception, visual perception, and their interaction with tactical decision-making efficiency in football.

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1. Introduction

Football (soccer) is undeniably the foremost sport that captures global interest and is practiced across nearly the entire world. Consequently, researchers globally investigate its finer aspects in a race alongside scientific advancements to achieve noticeable improvements in players' performance levels. However, its components are interconnected and require precise scientific analysis to understand the interactions among various factors. Such analysis is essential for designing training programs and identifying errors as well as the strengths and weaknesses of each player, both collectively and individually, to adjust the trajectory of the team as a whole and the player as an individual within the group. Football encompasses a player's skills as well as their visual, mental, and cognitive abilities across all forms and branches. Thus, this study highlights correlational relationships to identify whether certain visual or mental dimensions actually exert a noticeable influence, a minor influence, or no relationship whatsoever in football. Accordingly, tactical behavior is a broader concept than any single set of skills or abilities; all player actions are attributed to it, whether physical, technical, or mental across multiple domains. This broad nature creates diagnostic challenges that necessitate comprehensive awareness of the subtle factors that are particularly important in age-group and youth categories.

Tactical preparation is one of the most demanding aspects of football, as it requires considerable time and effort by placing the player in real-match situations. Tactical behavior demands rapid decision-making, information processing, and the interpretation of players' positions, potential, and movements on the pitch.

The significance of the research lies in establishing a foundational framework for coaches, enabling them to utilize this study as an indicator that contributes to developing tactical behavior through specific components—whether directly related or unrelated to player actions—thereby saving time and effort. Furthermore, any training or talent-identification program must be preceded by analytical and correlational studies to identify the factors influencing both processes.

Research Problem

The problem of the current research lies in answering the following questions:

- Is there a correlation between kinesthetic perception and tactical behavior in football?
- Is there a correlation between visual perception and tactical behavior in football?
- Is there a correlation between the interaction of (kinesthetic perception and visual perception) and tactical behavior?

Research Objectives

1. To identify the correlation between kinesthetic perception and tactical behavior in football.
2. To identify the correlation between visual perception and tactical behavior in football.
3. To identify the correlation between the interaction of (kinesthetic perception and visual perception) and tactical behavior in football.

Research Domains

- **Human Domain:** Youth football players in Najaf Governorate.
- **Temporal Domain:** The period from February 1, 2026, to February 14, 2026.
- **Spatial Domain:** An-Najaf International Stadium.





2. Research Methodology and Field Procedures

2.1 Research Method

The researcher utilized the descriptive method employing survey and correlational approaches, given their appropriateness for the nature of the research problem.

2.2 Research Population and Sample

The researcher identified the research population, which comprised youth football players in Najaf Governorate participating in the governorate league for the sports season (2025–2026), totaling 198 players. As for the research sample, 64 players were selected for the main experiment and 16 players for the pilot study. Participants were selected using a stratified random sampling method with equal representation from each club, as shown in Table 1.

Table 1. Research Population and Sample Distribution

No.	Club Name	Total Number	Pilot Study Sample	Main Experiment Sample
1	Al-Najaf Al-Ashraf	23	2	8
2	Al-Kufa	24	2	8
3	Naft Al-Wasat	25	2	8
4	Al-Tadamon	26	2	8
5	Al-Meshkhab	25	2	8
6	Al-Izdihar	25	2	8
7	Al-Haydariya	26	2	8
8	Al-Manathera	24	2	8
Total		198	16	64

2.3 Data Collection Tools

The researcher employed the kinesthetic perception test, the visual perception test, and the tactical behavior in football test as tools for data collection.

2.4 Instruments and Equipment Used

- Chalk
- Measuring tape
- Football
- Wall
- Wooden stick
- Two small colored balls
- Questionnaire
- Stationery supplies
- HP laptop

2.5 Description of Research Tests

First: Kinesthetic Perception Test (Ahmed Abdul-Amir Hamza, 2008, p. 7)

- **Test Objective:** To measure the accuracy of perception when kicking the ball.
- **Equipment Used:** Chalk, measuring tape, football, wall.
- **Test Description:** Three concentric circles with diameters of 1 m, 2 m, and 3 m are drawn on the wall, one inside the other. A parallel line is drawn 11 meters away from the wall, and a mark is designated for ball placement.
- **Performance Procedure:** The player stands blindfolded behind the ball and is given a period of 5 seconds to estimate the distance between themselves and the numbered circles, while taking sufficient and appropriate time for each attempt.
- **Scoring:** Test scores range from 0 to 18 points. The participant is given 6 attempts, and the final score is calculated as the sum of all six attempts.



- **Score Distribution:**

- 3 points if the ball hits the inner (small) circle.
- 2 points if the ball hits the middle circle.
- 1 point if the ball hits the outer (large) circle.
- 0 points if the kick is outside the circles.
- If the ball touches the dividing line between two circles, the higher score is awarded.

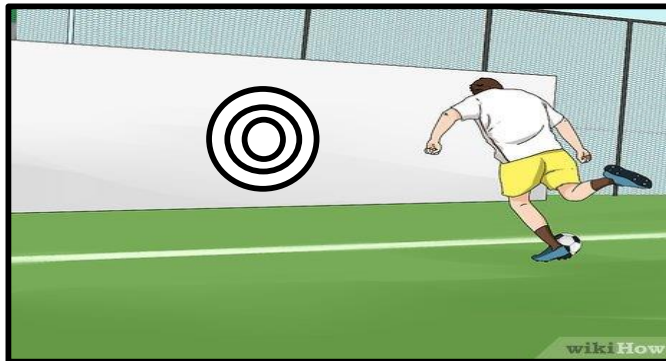


Figure 1. Performance of the Kinesthetic Perception Test

Second: Visual Perception Test (Diyar Karim Najm & Ahmed Naji Mahmoud, 2023, p. 113)

- **Test Objective:** To measure visual perception.
- **Equipment Used:** A wooden stick with two colored balls attached to its ends.
- **Performance Procedure:**
 1. The coach hands the wooden stick to the participant to hold behind their back without looking at it.
 2. The participant rotates the stick from behind while keeping the head fixed.
 3. The player extends the arm holding the stick to the side, and the participant must identify the color of the ball positioned at the top or the bottom.
- **Test Conditions:** The test is performed once with the left hand and once with the right hand.
- **Scoring:**
 - Total attempts: 10 attempts (5 attempts per side).
 - 1 point is awarded for each correct color identification.
 - Total score ranges from 0 to 10 points.

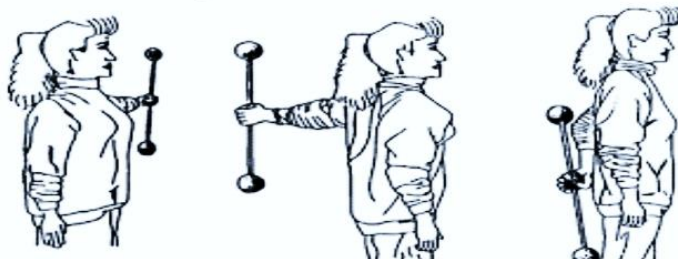


Figure 2. Performance of the Visual Perception Test

Third: Tactical Behavior Test

The researcher adopted the tactical behavior scale developed by Ahmed Salem Ahmed and Ahmed Yaqthan Saleh, which consists of 10 tactical situations. Each



situation includes three tactical responses, with scores distributed as 1, 2, and 3. Consequently, the total score on the scale ranges from 10 to 30 points.

2.6 Pilot Study

Experts and specialists recommend conducting a preliminary study for research tests to verify the suitability of tools and equipment and to assess the appropriateness of the tests for the research sample. Accordingly, the pilot study was administered on Monday, February 2, 2026, on 16 players at An-Najaf International Stadium at 3:00 PM, yielding the intended results.

2.7 Main Experiment

Once the tests were prepared, the researcher initiated the main experiment on the research sample of 64 players. The experiment was conducted during the period from February 10 to February 12, 2026, at An-Najaf International Stadium at 3:00 PM.

2.8 Statistical Methods

The researcher used the Statistical Package for the Social Sciences (SPSS) to analyze the data and extract the results.

3. Results, Analysis, and Discussion

3.1 Descriptive Statistics of the Research Variables

Table 2. Descriptive Statistics of the Research Variables

Variables	Unit of Measurement	Sample Size	Test Score Range	Mean	Standard Deviation	Median	Skewness Coefficient	Standard Error
Kinesthetic Perception	Point	64	0–18	12.193	2.067	13	0.244	0.231
Visual Perception	Point	64	0–10	7.025	1.292	7	-0.156	0.144
Tactical Behavior	Point	64	0–30	19.175	2.579	19	0.324	0.288

3.2 Correlational Results Among Variables

Table 3. Correlation Coefficients and Contribution Rates Between Dependent and Independent Variables

Variables	Correlation Coefficient (R)	Significance Level	Contribution Rate (R ²)	Adjusted Contribution Rate	Standard Error
Kinesthetic Perception × Tactical Behavior	0.803	0.000	0.645	0.636	1.55687
Visual Perception × Tactical Behavior	0.795	0.000	0.633	0.628	1.57293

Table 3 shows a statistically significant correlation between kinesthetic perception and tactical behavior, as the Pearson correlation value was statistically significant. It also indicates that kinesthetic perception accounts for 64.5% of the variance in tactical behavior. This implies that tactical behavior does not rely solely on kinesthetic perception, but also depends on other variables, such as physical or psychological factors, among others.

Additionally, the table demonstrates a statistically significant correlation between visual perception and tactical behavior, as the significance level for the Pearson correlation test was statistically significant. It further reveals that visual perception explains 63.3% of the variance in tactical behavior, indicating that tactical behavior does not depend exclusively on visual perception, but also relies on other variables, such as technical, physical, or psychological factors.



The researcher then examined the correlation between the interaction of (kinesthetic perception and visual perception) and tactical behavior, as presented in the following table:

Table 4. Correlation Coefficient and Contribution Rate for the Interaction of (Kinesthetic Perception and Visual Perception) with Tactical Behavior in Football

Predictive Variables	Outcome Variable	Correlation Coefficient (R)	Significance Level	Contribution Rate (R ²)	Adjusted Contribution Rate	Standard Error
Kinesthetic Perception	Tactical Behavior	0.772	0.000	0.596	0.590	1.38741
Visual Perception						

Table 4 shows that the interaction of (kinesthetic perception and visual perception) has a statistically significant correlation with tactical behavior, as the significance level for the Pearson test was statistically significant.

The table also indicates that the interaction between the variables explains 59.6% of the variance in tactical behavior in football. This demonstrates that tactical behavior does not rely solely on this interaction, but also depends on other variables not included in this interaction.

3.3 Discussion of Results

The research results revealed a statistically significant correlation between kinesthetic perception, visual capability, and tactical behavior, indicating that decision-making varies according to specific play situations. Football, with its rapid dynamics, requires not only a player who executes skills correctly or possesses high physical capabilities, but also a player who possesses visual capabilities. Through these visual capabilities, the player performs rapid visual scanning of the pitch, observing the ball, teammates, and opponents. This was demonstrated by the statistical results showing a significant correlation with tactical behavior.

Undoubtedly, the statistically significant correlation of kinesthetic perception with tactical behavior is likewise complementary and an integral part of a player's action. The findings demonstrated that precision in passing or accelerating to create a clear scoring opportunity is insufficient on its own; rather, the player must possess the ability to determine when to sprint, what speed to maintain, when to decelerate or stop, and when and with what force to shoot the ball. All of these factors are manifested in kinesthetic perception, which relates to the player's decisions and thereby influences the player's tactical behavior. Hence, it is crucial that skill execution training emphasizes raising the head and gaze to scan, identify, and perceive the movements of teammates, the ball, and opponents due to their profound importance in player tactical behavior.

Alan (2010, p. 93) states that tactical behavior depends on the player in possession of the ball and their ability to view the pitch accurately, while tracking the movement of teammates and their ability to occupy the correct and available spaces.

Mohammed Nasr (2017) notes that in the sports domain, the eyes play a vital and primary role in discerning the details of objects, which contributes to making appropriate decisions.

4. Conclusion

The researcher concluded that:

- Kinesthetic perception has a positive correlation with tactical behavior among football players.





- Visual perception has a positive correlation with tactical behavior among football players.
- The interaction between kinesthetic perception and visual perception has a positive correlation with tactical behavior among football players.
- Kinesthetic perception exhibits a higher contribution rate and correlation with tactical behavior in football than visual perception.

The researcher recommends the following:

- Utilizing the kinesthetic perception test to evaluate the level of kinesthetic perception among football players.
- Utilizing the visual perception test to evaluate the level of visual perception among football players.
- Utilizing the tactical behavior test to evaluate the level of tactical behavior among football players.
- Coaches should incorporate exercises aimed at enhancing kinesthetic perception and visual perception into their training regimens, given their significant role in tactical behavior.
- Conducting further studies to investigate the relationship between kinesthetic perception, vision, and tactical behavior among futsal players.

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