THE RELATIONSHIP BETWEEN DYNAMIC STABILITY AND SHOOTING ACCURACY IN STATIONARY AND MOVING CONDITIONS AMONG ADVANCED SOCCER PLAYERS

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ABSTRACT

Background. Football is one of the most popular sports in the world in terms of the number of spectators and the level of physical and technical proficiency required. In football, the main objective is to score as many goals as possible during the game. **Objectives.** The study aims to explore the relationship between dynamic stability and shooting accuracy in stationary and moving conditions among advanced soccer players in the city of Samarra, Iraq. **Method.** This study used a descriptive-analytical method with a correlational design. The study consisted of 54 participants, chosen from premier football teams in Iraq. Two tests were conducted in the field to assess the accuracy of shooting in stationary and movement situations. **Results.** The study found that the accuracy of shooting in stationary situations is significantly higher than in movement situations. On the other hand, the study found that the accuracy of shooting is significantly influenced by knee angle, contact time, center of mass deviation, and trunk oscillation in both stationary and movement situations, whereas ankle angle and execution time are significantly influenced in movement situations only. The study also found that the proposed model is able to explain 58% and 64% of the total variance in shooting accuracy in stationary and movement situations, respectively, using multiple regression analysis, whereas the results showed statistically significant differences in favor of stationary shooting using repeated-measure ANOVA. **Conclusion.** The study concluded that the accuracy of shooting is significantly influenced by dynamic balance, and this is an important factor in the accuracy of shooting in soccer games. In addition, the study also found that the use of Kenova software in the Iraqi sports arena is effective in producing reliable results, which can be used by coaches in improving the accuracy of shooting in soccer players.

Keywords; dynamic stability, shooting accuracy, moving conditions, advanced soccer players.

A. INTRODUCTION

Football is one of the most popular sports in the world in terms of the number of spectators and the level of physical and technical proficiency required. In football, the main objective is to score as many goals as possible during the game. This is the main factor that determines the outcome of the game and is related to the level of proficiency in the technical skills of the game (Blair et al., 2020).

Among the factors that affect shooting performance in football, dynamic stability is one of the most critical factors. This is because dynamic stability allows footballers to control the center of mass and maintain stability while performing different skills during the game. This can be performed while the player is either at rest or while the player is in motion. It is critical to understand that dynamic stability is not only a physical ability but is the result of the coordination of the neuromuscular system and the cognitive processes of the player (Gardasevic & Bjelica, 2019; Jefri et al., 2023; Stone & Oliver, 2009; Sung & Shin, 2018). Footballers can maintain dynamic stability while shooting the ball. This is because dynamic stability is critical in the maintenance of ball directedness toward the target. In addition, the level of proficiency in maintaining dynamic stability has been identified as one of the critical factors that determine the success of the shooting performance in football. This has been identified as the main factor that differentiates footballers from less proficient footballers (Donofrio et al., 2023; Moriyama et al., 2024).

In the context of the Iraqi sports field, there are many limitations in terms of access to advanced technological tools. Therefore, there is an emerging need to use simple measurement methods in the field of sports clubs. Video analysis tools such as Kinovea and MediaPipe are emerging as viable tools for the analysis and calculation of biomechanical parameters without the need for expensive tools such as force plates.

Therefore, the purpose of this study is to examine the relationship between dynamic stability and the accuracy of shooting in stationary and moving positions for elite soccer players. It is expected that this research would be highly beneficial in the field of science and would contribute to the development of appropriate training programs in the field of balance and accuracy. Moreover, this research would be highly effective in the context of the local scientific field and would be in alignment with the latest international research in the field of sports science. The current study adds to the field of applied sports biomechanics with its contribution in suggesting a field-based approach for the analysis of dynamic stability using accessible video analysis tools like Kenova, which can be an alternative for sports settings with limited technological resources.

Shooting accuracy represents a fundamental technical ability in football, which significantly affects the outcome of a match, reflecting the technical competence of a player. According to previous literature, various aspects are believed to influence goal-scoring ability, including muscular strength and the speed of execution of skills. However, the influence of dynamic stability has received relatively little attention in the Iraqi sports environment, a situation attributed to the lack of technological facilities required to carry out advanced biomechanical analyses, such as force plates and three-dimensional motion analysis systems, as suggested by Hrysomallis (2011, p. 222).

In Iraqi football clubs, coaches and researchers face several challenges in assessing the level of dynamic stability and shooting accuracy of footballers (Aminudin et al., 2020; Jefri et al., 2023; Ramadani & Jatra, 2025). One of the most important barriers facing researchers in this area is the lack of standardized procedures used to measure the level of dynamic stability and shooting accuracy, which are applicable to the field environment. This forces researchers to rely on subjective observation, which might affect the accuracy of assessment and limit the ability to develop training programs based on accurate data.

Several local studies focused on various aspects of physical fitness, such as muscular strength, speed, and power, but did not explore the relationship between dynamic balance ability and shooting accuracy under different performance conditions, including stationary and moving positions. Therefore, there is a clear need to carry out field-based studies, relying on accessible technology, such as Kinovea, to derive a quantitative measure of dynamic stability, then link this measure to the level of shooting accuracy (Erčulj & Supej, 2018; Jelaska et al., 2022; Okazaki & Rodacki, 2012).

Thus, the problem of this study, as perceived in the Iraqi context, lies in the lack of local studies that explore the relationship between dynamic stability and shooting accuracy under stationary and moving positions, focusing on advanced soccer players, as well as the need to develop practical procedures to measure the level of dynamic stability applicable to the Iraqi football clubs environment.

Research Objectives

1. Identify dynamic stability and shooting accuracy indicators under stationary and moving conditions for advanced soccer players.
2. Investigate the relationship between dynamic stability indicators and shooting accuracy under stationary and moving conditions for advanced soccer players.
3. Identify the difference in shooting accuracy between stationary and moving conditions for advanced soccer players.

B. METHOD

The descriptive-analytical method with the correlational approach was used in this study to explore the correlation between dynamic stability parameters and shooting accuracy among proficient football players in the city of Samarra. The design allowed the researcher to explore the level and direction of the correlation between kinematic parameters and shooting accuracy using Kenova motion analysis software and the corresponding statistical methods.

Research Population and Sample

The target population included elite football club players in the city of Samarra. The subjects were selected intentionally to represent the population of advanced-level players in the city. In addition, the subjects were required to be registered with the clubs and have at least five years of training and competitive experience to ensure homogeneity and comparable performance level among the subjects.

The sample included 54 elite football players from football clubs in Samarra. The respondents were purposively sampled and had to be registered with the respective football clubs, with at least five years of training and competitive experience to ensure homogeneity in the sample's technical and physical qualities. The homogeneity of the sample was checked using statistical parameters such as age, height, body mass, and experience.

Table 1. Homogeneity of the Sample N = 54

Variables	Unit of Measurement	Mean	St.d	Skewness	Kurtosis	Homogeneity Decision
Age	Years	23.7	2.4	0.11	-0.42	Homogeneous
Height	cm.	177.2	4.8	-0.09	0.27	Homogeneous
Body Mass	Kg.	73.5	3.6	0.14	-0.38	Homogeneous
Experience	Years	6.9	1.3	0.07	-0.21	Homogeneous

From Table 1, it is evident that the value of skewness and kurtosis for all the variables falls within the range of ±1, which is the acceptable statistical range. This confirms the normality of the distribution of the main variables. It is therefore safe to consider the sample as homogeneous and appropriate for the conduct of correlational research in order to determine the relationship between dynamic stability and accuracy in shooting.

Determination of the Research Tests

After perusing the literature, the researcher has chosen two assessment tests: (i) shooting accuracy while stationary, and (ii) shooting accuracy while in motion. These tests are suitable for the target population of advanced soccer players, do not require complex equipment, and are not necessarily carried out in a laboratory setting but are easy to perform on a standard football field or sports hall**.**

Each of the tests is amenable to analysis using freely available digital tools, such as Kinovea, which allows for a clear visualization of joint movements in a video clip, thereby allowing the researcher to extract specific information pertinent to player performance.

Shooting Accuracy Test from a Stationary Position

Purpose of the Test: To assess the accuracy of the kicking foot in shooting performance.

1. Five footballs
2. wall placed in front of a level ground surface
3. Three nested rectangles drawn on the wall with dimensions as illustrated in Figure (1).

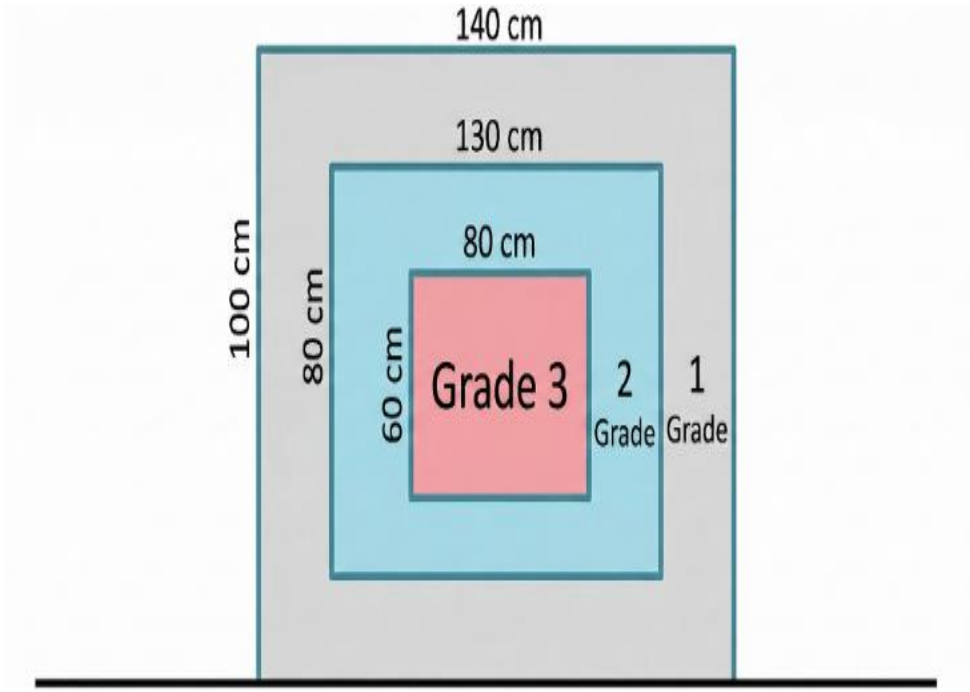

Figure 1. shows the Shooting Accuracy Test

Performance specs: The person stands behind the line, faces the wall, and fires five balls in sequence towards three rectangles, targeting the smallest rectangle. Either foot can be used in this test.

Scoring:

1. If the ball hits the small rectangle (inside or on the boundary), it is worth 3 points.
2. If it hits the middle rectangle (inside or on the boundary), it is worth 2 points.
3. If it hits the large rectangle (inside or on the boundary), it is worth 1 point.
4. If it hits outside all three rectangles, it is worth 0 points.

(Mohamed Hassanein, 1979, p. 451)

Shooting Accuracy Test While Moving

What the test measures: It measures the accuracy and power a player has in shooting and scoring while moving.

What you'll need:

1. Six marker cones
2. Measuring tape
3. Tape for sectioning the goal
4. Electronic stopwatch
5. Six footballs
6. Whistle

How to run it:

Arrange the six cones in a straight line with 2 meters separating each cone. The last cone will be 2 meters from the edge of the penalty area line and without a goalkeeper in the goal. Section the goal into three sections: 1 meter from the left post, 1 meter from the right post, and the middle section 5.40 meters in width. Draw a line 2 meters before the first cone. The player starts at this line and passes through the course and ends at the last cone. After the end cone, the player shoots outside the penalty area. If the shot does not have enough power, the player shoots again. If the second time fails as well, the shot is considered a failure.
Scoring:

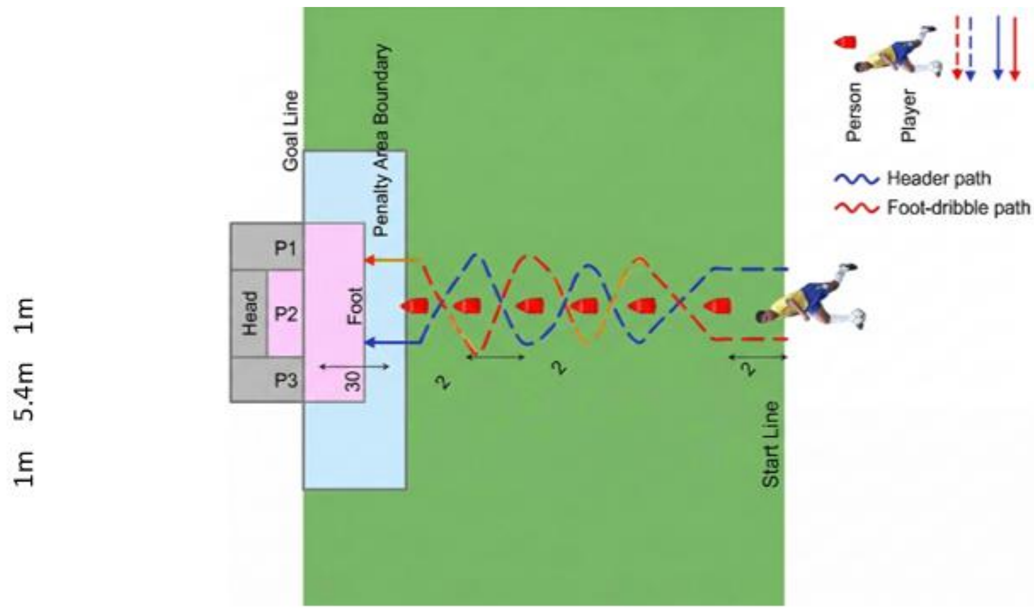

Figure 2. Shooting Accuracy Test During Movement

1. 2 points if the ball enters any of the two sections at the side of the goal
2. 1 point if the ball enters the middle section
3. 0 points if the ball fails to enter the goal; the shot is considered a failure
4. The test is done four times for each player: two times using the right foot and two times using the left foot as shown in the diagram. (Thamer Mohsen et al., 1991, p. 210)

Determination of Biomechanical Variables

In this regard, a set of kinematic variables was chosen in accordance with a previously conducted study on the relationship between dynamic stability and shooting accuracy in footballers. The choice of these variables was supported by face validity through a review of relevant scientific literature, which emphasized their importance in evaluating sports performance. In this case, this approach was more applicable in Iraq because access to advanced technology was limited in the research environment.

The variables used in this study include:

1. Knee Angle (°): This variable is a main determinant in ball trajectory, contributing to the regulation of both linear and angular movements of the foot during ball contact (Lees et al., 2013).
2. Ankle Angle (°): This variable contributes to the regulation of the orientation of the feet during ball contact, which in turn affects ball trajectory during the kicking movement (Donofrio et al., 2023).
3. Contact Time (s): Contact time refers to the duration for which the supporting foot regulates body stability during ball contact, relating to the athlete's ability to maintain balance during skill execution (Zemková & Kováčiková, 2022).
4. Execution Time (s): Execution time refers to the time taken by the athlete in kicking the ball from the moment of contact until the moment when the feet separate from the ball during skill execution, relating to both kicking speed and accuracy (Springer, 2018).
5. Recovery Time (s): This variable relates to the moment after skill execution when the athlete attempts to restore body balance (Weber et al., 2024).
6. Center of Mass Deviation (cm): Center of mass deviation relates to body movement during skill execution in relation to football shooting accuracy (Hrysomallis, 2011).
7. Trunk Oscillation (°/s): Trunk oscillation relates to the extent of body fluctuation during skill execution in relation to dynamic stability (Moriyama et al., 2024).

Main Experiment

The main experiment was carried out following a systematic methodological protocol. Firstly, the environment was set up to conduct the experiment in the field setting by arranging the necessary equipment, footballs, marker cones, measuring tape, goal division tape, electronic stopwatch, whistle, and digital video camera with a resolution of 1080p and 60 frames/second frame rate and mounted on tripod stands**.**

The goal was divided into three sections based on the predefined measurements. Additionally, the wall was marked with three nested rectangles for the stationary shooting test. In the movement shooting test, the cones were arranged in a straight line with a 2-meter gap between two consecutive cones**.**

Subsequently, the experiment design was implemented based on the study sample as follows**:**

1. Stationary Shooting Test

   Each participant was required to stand behind the line facing the wall and shoot five consecutive shots using either their left or right foot. The points for the shots were based on the rectangle hit by the ball. Three points were awarded for hitting the smallest rectangle, two points for the middle rectangle, one point for the largest rectangle, and zero points if the ball fell outside the target area**.**

2. Shooting During Movement Tes

   The participant was required to start from the starting line and dribble the ball through the cones and reach the end cone and then shoot the ball outside the penalty area in the

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direction of the goal, which was divided into three sections. A participant was awarded two points if the ball entered either the left or right side sections of the goal, one point if the ball entered the middle section of the goal, and zero points were awarded if the ball went outside the goal. The participant was required to make four attempts, two using the right foot and two using the left foot**.**

All the attempts were recorded from two angles. The side camera recorded the angles of the joints such as the knee, ankle, hip, and trunk, and the other camera recorded the deviation of the center of mass and the oscillations of the trunk**.** Finally, the videos were trimmed and arranged according to a standardized naming convention. The videos were then analyzed using Kinovea software, and the relevant kinematics related to dynamic stability were extracted. The extracted data were then arranged in statistical tables and analyzed using correlation coefficients and linear regression analysis to determine the relationship between the indicators of dynamic stability and the accuracy of the shooting motion in stationary and moving positions within the sample.

Statistical Methods

The study used the software programs SPSS and Microsoft Excel in gathering and statistically analyzing the data using the following methods: 1) Mean, 2) Standard Deviation, 3) Skewness Coefficient, 4) Kurtosis Coefficient, 5) Pearson Correlation Coefficient, 6) Paired-Samples t-test, 7) Simple and Multiple Linear Regression, and 8) Analysis of Variance.

C. RESULTS AND DISCUSSION

The results indicate statistically significant differences between the pre- and post-tests in favor of the post-test for the experimental group across all studied variables.

The entire data is shown in the table below:

Table 2. Descriptive Statistics of the Shooting Accuracy Tests

Variables	Mean	St.d	Skewness	Kurtosis
Shooting from a Stationary Position	7.9	1.5	-0.12	-0.38
Shooting During Movement	6.4	1.7	0.09	-0.29

As shown in Table 2, it is clear that the mean of the stationary position shooting accuracy is higher than that of movement, and both are normally distributed.

Descriptive Statistics of the Kinematic Variables in Stationary and Moving Shooting

The following table presents the entire data set:

Table 3. Descriptive Statistics of the Kinematic Variables Examined for Stationary and Moving Shooting

Variables	Unit of Measurement	Stationary		Movement	
		Mean	St.d	Mean	St.d

Knee Angle	Degree	42.8	4.5	41.3	4.7
Ankle Angle	Degree	19.7	3.4	18.9	3.6
Contact Time	Second	0.30	0.05	0.28	0.06
Execution Time	Second	0.36	0.06	0.38	0.07
Recovery Time	Second	1.29	0.22	1.35	0.23
Center of Mass Deviation	cm.	2.9	0.8	3.2	0.9
Trunk Oscillation	°/s	6.5	1.4	6.9	1.5

As presented in Table 3, it was found that knee angle, ankle angle, and contact time were slightly higher in stationary shooting than in moving shooting. Execution time, recovery time, deviation of center of mass, and trunk oscillation increased in moving shooting, which may be associated with dynamic stability and accuracy of shooting.

Pearson Correlation Results Between Kinematic Variables and Shooting Accuracy

Table 4. Pearson Correlation Coefficients Between Kinematic Variables and Shooting Accuracy

Variables	Stationary		Movement	
	r	p	r	p
Knee Angle	0.51	0.001	0.46	0.002
Ankle Angle	0.27	0.062	0.30	0.041
Contact Time	0.44	0.004	0.48	0.001
Execution Time	0.33	0.018	0.36	0.012
Recovery Time	0.20	0.142	0.23	0.098
Center of Mass Deviation	-0.47	0.002	-0.52	0.001
Trunk Oscillation	-0.40	0.006	-0.45	0.003

From the results provided in Table 4 above, it is evident that the knee angle, contact time, center of mass deviation, and trunk oscillation have a significant correlation with shooting accuracy. However, the ankle angle and execution time have a moderate correlation with shooting accuracy but achieve statistical significance only during the movement condition. Moreover, the results showed that the recovery time was not significantly correlated with shooting accuracy. This implies that the recovery time has little influence on shooting accuracy**.**

Differences between Stationary and Moving Shooting (Paired Samples t-test)

The differences between the stationary and moving shooting conditions are presented in the table below:

Table 5. Differences between Stationary and Moving Shooting (Paired Samples t-test) N = 54

Indicator	Stationary		Movement		t-value	df	p-value
	Mean	St.d	Mean	St.d			
Knee Angle	42.8	4.5	41.3	4.7	2.12	53	0.038

Ankle Angle	19.7	3.4	18.9	3.6	1.45	53	0.154
Contact Time	0.30	0.05	0.28	0.06	2.01	53	0.049
Execution Time	0.36	0.06	0.38	0.07	-1.72	53	0.091
Recovery Time	1.29	0.22	1.35	0.23	-1.58	53	0.121
Center of Mass Deviation	2.9	0.8	3.2	0.9	-2.34	53	0.023
Trunk Oscillation	6.5	1.4	6.9	1.5	-2.11	53	0.039

The table above shows that there is a statistically significant difference in favor of the stationary shooting condition with respect to knee angle, contact time, center of mass deviation, and trunk oscillation. This means that the body stability and accuracy of the shooting skill are higher when the skill is performed from the stationary rather than the moving shooting condition. However, there is no statistically significant difference with respect to ankle angle, execution time, and recovery time, which means that these skills are not affected by the differences between the two shooting conditions.

Simple Regression Analysis Between Kinematic Variables and Shooting Accuracy from a Stationary Position

The following table presents the entire set of results:

Table 6. Simple Linear Regression Results Between Kinematic Variables and Shooting Accuracy from a Stationary Position

Indicator	B	Beta	t	p-value
Knee Angle	0.160	0.48	3.28	0.002
Ankle Angle	0.095	0.27	1.89	0.064
Contact Time	-4.62	-0.44	-3.14	0.003
Execution Time	-3.10	-0.29	-2.09	0.041
Recovery Time	-1.08	-0.18	-1.50	0.139
Center of Mass Deviation	-0.74	-0.47	-3.02	0.004
Trunk Oscillation	-0.55	-0.40	-2.78	0.007

Table 6 shows that knee angle, contact time, center of mass deviation, and trunk oscillation are significantly related to shooting accuracy in stationary conditions. On the other hand, ankle angle and execution time are moderately related to shooting accuracy, although statistically not significant. Recovery time is found to be statistically not significant in relation to shooting accuracy.

Results for Simple Linear Regression Between Kinematic Variables and Shooting Accuracy During Movement

The following table shows the complete set of results:

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Table 7. Simple Linear Regression Results Between Kinematic Variables and Shooting Accuracy During Movement

Indicator	B	Beta	t	p-value
Knee Angle	0.145	0.46	3.06	0.004
Ankle Angle	0.112	0.30	2.07	0.044
Contact Time	-4.98	-0.48	-3.21	0.002
Execution Time	-3.42	-0.36	-2.36	0.022
Recovery Time	-1.16	-0.23	-1.67	0.101
Center of Mass Deviation	-0.81	-0.52	-3.29	0.002
Trunk Oscillation	-0.60	-0.45	-2.93	0.005

Table 7 shows that knee angle, contact time, center of mass deviation, and trunk oscillation were significantly related to shooting accuracy during movement. Ankle angle and execution time were also found to be important variables under movement conditions. On the other hand, recovery time failed to show any statistically significant relationship with shooting accuracy.

Results of Multiple Regression Analyses for Kinematic Variables and Shooting Accuracy from a Stationary Position

The following table presents the entire dataset:

Table 8. Results of Multiple Linear Regression Relating Kinematic Variables to Shooting Accuracy from a Stationary Position

Indicator	B	Beta	t	p-value
Knee Angle	0.155	0.41	2.94	0.006
Ankle Angle	0.088	0.22	1.77	0.082
Contact Time	-4.41	-0.41	-2.68	0.010
Execution Time	-2.86	-0.25	-1.95	0.057
Recovery Time	-0.96	-0.15	-1.40	0.167
Center of Mass Deviation	-0.69	-0.39	-2.60	0.012
Trunk Oscillation	-0.52	-0.35	-2.44	0.018

$R^2 = 0.58$ ، $F(7, 46) = 9.06$ ، $p < 0.001$

Table 8 reveals that the model explained 58% of the variance in stationary shooting accuracy. The strongest predictors were the knee angle, contact time, center of mass deviation, and trunk oscillation. In contrast, ankle angle, execution time, and recovery time were found to be non-significant.

Results of Multiple Regression Between Kinematic Variables and Shooting Accuracy from Movement

The following table presents the complete data:

Table 9. Results of Multiple Regression Between Kinematic Variables and Shooting Accuracy from Movement

Indicator	B	Beta	t	p-value
Knee Angle	0.137	0.39	2.80	0.008
Ankle Angle	0.109	0.26	2.05	0.045
Contact Time	-4.86	-0.42	-3.01	0.004
Execution Time	-3.21	-0.27	-2.26	0.028
Recovery Time	-1.03	-0.16	-1.59	0.119
Center of Mass Deviation	-0.77	-0.41	-2.88	0.006
Trunk Oscillation	-0.57	-0.36	-2.57	0.013

$R^2 = 0.64$ ،$F(7, 46) = 11.65$ ،$p< 0.001$

Table (9) shows that the combined model explained 64% of the variance in shooting accuracy from movement. The knee angle, contact time, center of mass deviation, and trunk sway were found to be the most salient predictors. The ankle angle and execution time were also found to be statistically significant when shooting from movement, while the recovery time failed to reach statistical significance**.**

Repeated Measures Analysis of Variance (ANOVA) for the Difference in Accuracy between Stationary and Moving Shooting

The following table shows all of the data**:**

Table 10. Analysis of Variance (ANOVA) for Stationary versus Moving Shooting

p Value	F Value	Mean Square	Degrees of Freedom	Sum of Squares	Indicator
0.004	8.7	28.9	1	28.9	Condition (Stationary / Movement)
–	–	3.32	53	175.7	Error (Within Subjects)
–	–	–	54	204.6	Total

As shown in Table (10), statistically significant differences were found in accuracy between stationary and moving shooting, with stationary having higher accuracy in shooting than in movement at $p < 0.01$.

Discussion

The results obtained in this study revealed that stationary shooting accuracy is higher than when movement is involved in the shooting process. This can be explained by considering the ability of stationary conditions to provide stability in body posture prior to ball contact. As Blair et al. (2020) found in their study, stability in conditions provides optimal joint angle and trajectory control.

In movement conditions, it is required for shooters to perform coordination tasks among different body segments at the same time, including lower limbs and trunk segments.

Increased coordination demands in movement conditions might lead to higher center of mass movement during the shooting process, which can affect accuracy in a negative way.

The results obtained in this study revealed a significant correlation between knee angle and shooting accuracy in both conditions. However, ankle angle showed a moderate correlation with shooting accuracy in movement conditions only at a significant level. As Donofrio et al. (2023) emphasized in their study, knee joint angle plays a critical role in ball trajectory, while ankle joint angle affects only the orientation of the feet during kicking movement.

Another important result was related to contact time, which was found to be significantly related to shooting accuracy. This indicates the importance of controlling the supporting foot at the time of ball contact with the ground, as this affects the accuracy of the shot. Similarly, Moriyama et al. (2024) found anticipatory postural adjustments to be important in enhancing motor control during complex sports skills.

Recovery time was not found to be significantly related to shooting accuracy, suggesting that this period might not be as important as the previous phases in controlling the ball's accuracy, both before and at the time of contact with the ground. Similar findings were reported by Epifano et al. (2025). Negative relationships were also found between center of mass deviation, trunk oscillation, and shooting accuracy, suggesting that excessive movements of the body during the kicking process might affect the distribution of forces to the ball, hence affecting the accuracy of the shot (Abdullah & Abdullah, 2025; Haidar et al., 2025; Haniyyah et al., 2025; Hussein, 2025; Suniga et al., 2025; Zulnadila et al., 2025).

These findings suggest the importance of angular control and dynamic stability as fundamental aspects of controlling the ball during a shot in soccer. Consequently, training programs should emphasize exercises that improve supporting-leg stability, trunk control, and coordination during the kicking action.

D. CONCLUSION AND RECOMMENDATIONS

Based on the statistical results obtained and within the boundaries of this research, the following conclusions are identified: The analysis results show the presence of a significant relationship between the indicators of dynamic stability and the accuracy of shooting in a stationary position. It has been found that the knee angle, ankle angle, and contact time are directly related to the level of accuracy in shooting. The analysis results show the presence of a certain level of differences in the accuracy of shooting in the stationary and moving positions. It has been found that the accuracy of shooting in the moving position is generally lower than in the stationary position. The analysis results show the presence of a certain level of relationship between the indicators of the stability of the supporting foot and the position of the trunk during the moment of kicking and the accuracy of shooting in the stationary and moving positions. The use of Kinovea software has shown its feasibility and cost-effectiveness in obtaining the required indicators related to the analysis of the results in the context of the research in Iraq. This confirms the suitability of the use of this software as an alternative tool in the analysis. The results obtained confirm the significance of the factor of dynamic stability in the accuracy of shooting in the context of the game of soccer, as was shown in the results of the international research in this area.

Several recommendations are proposed based on the results obtained in this study. Training programs for elite soccer players need to be designed in such a way that special exercises are included in order to improve the dynamic stability of the players, especially the supporting leg and the trunk during the kicking motion. Kinovea software can be used as a valuable and cost-effective method for the evaluation of skill performance in Iraqi football clubs. To achieve this purpose, the coaching staff need to be trained properly in the use of the software in the analysis and evaluation of movements. Further research needs to be carried out in order to examine the relationship between the indicators of dynamic stability and the accuracy of the shot in various playing situations. The establishment of local measurement protocols would be beneficial in order to improve the quality of the training in Iraq and the universities in the country.

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F. AUTHOR CONTRIBUTION STATEMENT

All authors are responsible for the completed manuscript.

G. REFERENCE

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