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ORIGINAL STUDY

Psychomotor Exercises and Their Impact on Enhancing the Skill Performance of Football Players at the Espanyol Academy Aged 16–18 Years

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Abstract

Identifying the impact of psychomotor exercises on the skill performance of players at the Espanyol Academy aged 16–18 years. The researchers opted to rely on exercises to develop skill performance, as the psychological aspect affects the player's mindset, which in turn reflects on the player's overall performance and skill performance in particular. The researchers decided to use psychomotor exercises and adopted the experimental method to align with the nature of the research. The sample consisted of 24 players from the Espanyol Academy, divided into two groups: an experimental group and a control group. The control group received traditional exercises, while the experimental group underwent the training program. Pre-tests were conducted for both groups, followed by the implementation of the training program with the experimental group over 24 training units. At the end of the study, post-tests were conducted, and all data were subjected to statistical analysis to derive reliable results. The study concluded that psychological-motor exercises have a statistically significant positive effect on enhancing the skill performance of Espanyol Academy players. This approach is based on the integrative combination of the motor-skill component and the cognitive-psychological component through intelligent training scenarios that simulate the pressures and realities of matches, thereby developing their psychological aspect.

Keywords: Psychomotor, Exercises, Skill performance, Football players

1. Introduction

Modern football training is a planned process based on scientific principles, with the aim of helping players reach the highest athletic levels through rapid improvement in their physiological, functional, technical, psychological, and mental abilities. In this sense, training in football is a means to an end rather than an end in itself, as it works to achieve the common goals of both the coach and the players by performing their duties at the highest level of efficiency while developing and improving the physical, technical, mental, and ethical abilities of the players. Football training, in its comprehensive sense, is defined as a systematic, planned, and guided process aimed at improving the level of players. A

study by Størdal et al. (2025) indicates that organized football training for young people enhances the physical results of all players and the psychological results, especially for the most skilled players. "The overall goal of sports training in football is achieved through continuous and organized training and the calm work of the coach with his players to achieve the highest performance and use successful experiences to achieve this, while working to complete and develop physical qualities that positively reflect on the development of moral qualities, with the selection of the most appropriate training methods and assessment techniques" (Fathy, 2017). Sports psychology is one of the sports sciences that helps improve the athletic performance of athletes as individuals and teams as a whole. This science focuses on studying

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the psychological factors that affect individuals and, consequently, their athletic activity in various fields and levels, as well as their behavior. Psychology is related to team and individual sports, including soccer, where study (Rossi et al., 2023) proposed a methodology based on a simple example of a taekwondo kick using a virtual human model, but it can be applied generally to all types of psychomotor exercises. Football is a game that differs from other games in that it is characterized by direct and strong contact between players and requires multiple psychological abilities that players must possess in order to achieve success in this game. Football is a team sport that requires its players to have specific characteristics that enable them to perform various movements and skills, as well as the physical and mental abilities, planning, and skills required for these movements. It is characterized by its highly competitive nature due to its distinctive features, as it achieves a high level of excitement, thrill, enjoyment, and aesthetic goals, and is characterized by fast play and exciting technical touches, in addition to the size of the soccer field and the length of the match. Therefore, the study highlights the importance of coaches paying attention to the psychological aspect of football players, including physical exercises during training sessions, as they play an important role in developing the psychological and technical aspects and their reflection in official matches, thereby improving performance in all aspects. Therefore, the researcher aimed to apply physical exercises and their impact on skills to develop the research sample, which consists of Espanyol Academy players aged 16-18.

Research problem: Training is currently a difficult and complex task due to the rapid developments in sports science. Poor performance by players can be due to internal factors beyond their control or external factors beyond their control. Working with players of this age requires regulating the training load, monitoring intensity and other components of the load, and providing psychological training programs that address pressure and the player's need for development and psychological knowledge in order to cope with pressure and develop. Players at this age will develop at all levels, and this is due to the weakness and lack of interest in psychological and motor training in this group.

Based on this, the research problem is formed by the need to answer the following questions:

As for the research hypotheses

1- There are statistically significant differences between the pre-test and post-test in the skill performance of the players at the Espanyol Academy, favoring the post-test.

2- There are statistically significant differences between the experimental and control groups in the post-test regarding the skill performance of Espanyol Academy players, favoring the experimental group.

Human domain: Players of the Espanyol Academy in Baghdad aged 16 to 18 during the 2025-2026 academic season

Temporal scope: from 1/9/2025 to 15/12/2025

Spatial domain: Espanyol Academy fields at the College of Physical Education and Sports Sciences/University of Baghdad

2. Methodology and procedures

The nature of the research, its hypotheses, and its plan, which control the steps of implementation and the selection of tools such as necessary tests (Al-Liqaa' and others, 2024, p. 344), the research sample community was determined to be the youth of the Espanyol Academy aged 16-18, from the 24 players of the Espanyol Academy, consisting of 10 control, 10 experimental, and 4 exploratory, with a total of 24 players.

The following tools, means, and resources were used to conduct the study: Arabic and foreign sources, peer-reviewed scientific journals, the internet, the Espanyol Academy field, a registration form, and a stopwatch.

The statistical description of the data obtained from the study sample relates to psychomotor exercises from the reference (Practical Applications in Football) (Dhamad, 2018), and the exercises and tests were presented to a group of experts [Appendix 2](#).

The results of the pre-test and post-test were calculated after applying the exercises for two months, and the results were positive (statistically significant).

The researchers conducted the pilot study on four football players from the academy who were drawn from the original community but excluded from the main sample. The tests and exercises were conducted on Tuesday, September 2, 2025, with the assistance of the support team [Appendix 1](#). The purpose of the pilot study was to identify potential difficulties that researchers might encounter during the main experiment.

Composite Offensive Skills Tests (Alwan, 2015):

The researcher reviewed scientific sources and references to identify the most important composite skills in football, and thru this, he arrived at the following composite skills:

- Passing, receiving, rolling, and shooting.
- Passing, dribbling, and shooting.

2.1. *The first composite skill test*

- Test Name: Measuring composite skill performance in soccer for the following skills:
- (Handling, receiving in a specific area with fast rotation, fast running with the ball and then handling and receiving, scoring accuracy).
- Testing tools: (3 balls), 1m high and 2m wide wall, tape measure, dyes, small goal (1m wide and 1m high).
- Method of performance: With the start signal, the tester as quickly as possible handles the ball (5 consecutive handles) to the wall that is 3 m away, then starts spinning the ball inside a rectangle (2 m wide and 1.5 m long), then the player runs fast for a distance (4 m), then the player performs the handling before entering a second rectangle (2 m wide and 1 m long) with another wall with the same measurements, then receiving it inside the rectangle and then the player scores towards the goal that is (7 m) away.
- Scoring method: The player performs three attempts and takes his best attempt (a time of (0.3 s) is added to the total time in the case of wrong handling, and a time of (0.3 s) is added in the case of wrong scoring).

2.2. *Second composite skill test*

- Test name: Soccer Composite Skill Performance Measurement.
- For the following skills: (running, ball control, speed of change of direction, scoring accuracy)
- Test Tools: (7) screens, (2) soccer balls, (2) small goals, (2) measuring tape and dye.
- Method of performance: At the starting signal, the tester runs from the starting line and controls the ball between the strips, then quickly changes direction towards some of the strips and then scores from a distance of (10 m) to one of the two goals.
- Scoring method: The tester performs two attempts and then extracts the arithmetic mean of their times, and in the case of a missed shot, a time (0.3 s) is added.

2.3. *Third composite skill test*

- Test Objective: Measuring the composite skill performance in soccer for the following skills: (Handling and receiving, rapid rotation in a specific area, accuracy of scoring towards a divided goal)
- Test Tools: (10) balls, 1m high and 2m wide wall, tape measure, dye and goal.

- Method of performance: With the start signal, the tester as quickly as possible handles the first ball to the wall (3 m), then receive and rotate inside a rectangle (2 m wide and 1.5 m long), then the player shoots at the goal divided into four sections (12 m) and then repeats the other nine balls.
- Scoring Method: The total time of the ten-ball performance is recorded, with a time of (0.3 s) added for each missed shot, each missed tackle to the wall, and each missed reception.

3. Exploratory experiment

According to (Abdel Hadi, 2001, p. 89), “A pilot study is a miniature version of the full research, conducted by researchers to identify potential strengths and weaknesses that may accompany test procedures or major experimental steps.” The exploratory experiment was conducted on (4) of the Academy’s players who were placed outside

the original research sample of (20) players, the exploratory test was conducted on Sunday 7/9/2025 at 3:00 pm in order to identify the obstacles that the researchers will face during the tests as well as in the training phase, and the main objective of the exploratory experiment was:

- Identify potential obstacles that may arise during the tests
- Train the support staff on how to conduct the test and how to record the results accurately.
- Ensure that the instructions for the tests and exercises are clear to the players

3.1. *Scientific basis for testing*

One of the most important features of a good test is that it achieves accuracy, consistency, and objectivity, which confirms the scientific approach adopted by the researcher in his research. In order to verify the scientific basis of the tests used in the research, the researcher applied these tests to a sample outside the sample in order to assess and verify the validity, consistency, and objectivity of the research tests, and thus identify the scientific approach adopted by the researcher in his research.

3.2. *Validity of tests*

There are several types of test validity, so the researcher extracted validity using the discriminatory power of the tests, since discriminatory power can be determined by knowing the total score of the tests of the individuals in the sample under study, then arranging the scores in descending order. “Then, two

Table 1. Shows the discriminatory power of the tests under investigation between the upper and lower groups.

Tests	upper group		Lower group		T value	p-value	significance
	M	SD	M	SD			
First composite skills test	17.410	0.695	14.498	0.501	11.876	0.000	Sig
Second composite skills test	19.640	0.556	15.765	0.460	14.445	0.000	Sig
Third composite skills test	59.790	1.363	54.458	1.397	15.675	0.000	Sig

Significant < (0.05).

Table 2. Shows the stability coefficient for the tests under investigation.

N.	Test	Stability coefficient	p-value
1	First composite skills test	**0.893	0.000
2	Second composite skills test	**0.727	0.002
3	Third composite skills test	**0.649	0.000

Below the significance level (0.05).

extreme groups are selected, representing 27% of the total sample that underwent the tests: a lower group represented by the individuals with the lowest scores, and an upper group represented by the individuals with the highest scores (Rahim, 2024). It was found that all statements were statistically significant at a significance level of 0.05, as shown in Table 1.

3.3. Test stability

The tests were administered and then re-administered after one week to the same sample individuals. The second tests were conducted at the same time and in the same place as the first tests to ensure the same conditions. After statistically processing the results using Pearson's simple correlation coefficient, it appeared that all significance values (Sig) were less than 0.05, as shown in Table 2.

3.4. Objectivity of tests

The objectivity of the test refers to the agreement among more than one examiner in ranking and evaluating individuals during the test. Since the tests used rely on clear measurement tools and the test results are recorded in units (grades, time, seconds), the researcher considered the tests used in the study to be highly objective.

3.5. Pre-testing

The researchers supervised the pre-testing of the research sample for both the experimental and control groups on Tuesday, September 16, 2025 at 5 pm at the Espanyol Academy courts. The pre-tests were carried out where they performed a routine for all participants in the two groups. All spatial and temporal conditions were controlled and documented to

ensure consistency with the conditions under which the post-tests would be conducted. After that, the research sample was randomized using the lottery method based on random numbers into experimental and control groups with 10 players in each group.

3.6. Training program

The training program for the experimental group was implemented using the exercises in Appendix (3), while the control group followed the traditional training program approved by the trainer. The program lasted for eight weeks from 19/9/2025 to 21/11/2025 with three training units per week (Tuesday-Friday-Saturday). Each training unit was implemented at the Espanyol Academy outdoor fields at the Faculty of Physical Education and Sports Sciences for soccer on Tuesdays from 7:00 p.m. to 9:00 p.m. and on Fridays and Saturdays from 9:00 a.m. to 11:00 a.m. The unit consisted of three main parts

Preparation (warm-up): 20 minutes Main part: 60 minutes Conclusion (cool-down): 20 minutes. Plus 20 minutes for technical and psychological guidance as in Appendix (4). Players should be grouped by age and attend at least two training sessions per week, plus one match during the weekly training sessions.

3.7. Post-tests

After completing the training program, the researchers conducted the post-tests for both the experimental and control groups on Tuesday, 11/25/2025 in the same stadiums, keeping the conditions identical to the pre-tests.

4. Result

5. Discussion

The statistical results indicate a clear superiority of the experimental group over the control group in all variables and tests measured, reflecting the effectiveness of psychomotor exercises in enhancing skill performance and improving the skill and psychological level of players at the academy.

Table 3. Results of the pre- and post-tests and the percentage of improvement.

Test	Group	M	SD	T value	p value	Percentage	Result
First Test	pretest	21.900	4.701	5.348	0.000	18.721%	Sig
	posttest	17.800	4.341				
Second Test	pretest	2.145	0.445	5.061	0.001	17.249%	Sig
	posttest	1.775	0.439				
Third Test	pretest	2.225	0.375	4.398	0.002	15.730%	Sig
	posttest	1.875	0.411				

Significant below the significance level < (0.05) and degree of freedom (9).

The data presented in [Table 3](#) illustrate the differences between the two groups in the post-test, where the experimental group showed higher results in skill performance as well as development rates in the post-tests in favor of the experimental group. This supports the second hypothesis of significant differences in favor of the experimental group. This highlights the positive impact of the exercises included in the training program compared to the exercises that were given in the traditional way to the control group. The improvement in the average scores of the experimental group can be attributed to several factors resulting from the implementation of the strategy, including the development of a systematically organized training curriculum. This curriculum provided students with opportunities for field thinking and proper behavior in various play situations, training on different play scenarios, and enabling all players to reach excellent performance levels. As [Alwan \(2014\)](#) confirmed, “exercises that focus on both the psychological and skill aspects complement each other and address the player in all aspects.” The researchers, thru the comparison between the performance of the control and experimental groups, indicate that the psycho-motor training program has proven its efficiency and effectiveness in developing the skill performance of the players affiliated with the Espanyol Academy. This was achieved by integrating motor and cognitive exercises, as these exercises organize training situations that simulate reality, leading to an increase in attention levels, optimal timing in decision-making, and focus under pressure in executing skills during training situations as well as in matches for the players of the experimental group. The study ([Majeed & Jamel, 2024](#)) confirms that focused training exercises on psychomotor tasks, including decision-making under pressure, can enhance overall response speed and performance. The post-tests reveal the percentage of players’ improvement resulting from the training program provided by the researchers, which supports the first hypothesis regarding the existence of significant differences in favor of the post-tests. The improvement percentage in the first test reached (18.721%), in the second test (17.249%), and in the

third test (15.730%). This reflects the suitability of the exercises for the sample group, as players in these age groups tend to have decreasing reaction times with advancing age and increased training experience. This can be justified by neural maturation and the development of sport-specific tactical understanding. Younger players have longer reaction times due to less developed motor skills and cognitive processing abilities, which may hinder performance during critical moments in the match. Many studies on various sports show that younger players exhibit lower levels of perceptual skills, field thinking, and decision-making complexity compared to their older peers. In youth volleyball, improvement is expected to begin around the age of 11, with decision-making maturity around the age of 13, and optimal decision-making appearing around the age of 16 ([De Walles et al., 2021](#)). The researchers explain this superiority by several key factors included in the developed curriculum, which are: the organization and logical sequence of exercises, providing opportunities for guided practice in various game situations, and its suitability for the developmental characteristics of the target age group. The curriculum takes into account that neural maturation and cognitive development with age play a pivotal role. The study results showed that players were empowered to know themselves and improve their performance. These exercises have proven effective in enhancing skill performance and elevating the psychological and cognitive levels of players. By fostering self-awareness and performance development, a structured training program simulating real match situations has been designed. This program is based on the integrative combination of the motor-skill component and the cognitive-psychological component, thru the design of intelligent training scenarios that mimic the pressures and realities of matches. This integration has contributed to the development of players’ abilities in critical areas such as decision-making speed, focus under pressure, timing, and tactical field thinking. Which improved the players’ attention, their ability to make decisions under pressure, and enhanced their motor skills.

6. Conclusions

1. Psychomotor exercises had an effect on improving the skill performance of the experimental group.
2. There was a statistically significant correlation between psychomotor exercises and skill performance.

7. Recommendations

1. Always include psychomotor exercises in training programs for soccer coaches.
2. Pay attention to the psychological aspect of players in different age groups.
3. Conduct more studies in this field to support the development of the sport.

Conflict of interest

None.

We confirm that all tables and figures in this article are ours and written by the researcher himself.

Ethical clearance

This manuscript was approved by **Assistant Lecturer Mohammed Munther Mohammed** on (18/12/2025).

Author contributions

All contributions of this study were made by the Assistant Lecturer Mohammed Munther Mohammed and Asst. Lecturer. Abdul Latif Mushtaq Abdul Latif who got the main idea and worked on writing and concluding. In addition to statistics. In addition to some experts, Prof. Dr. Mowafaq Ubaies Khudair, Professor Assist. Prof. Dr. Abdulrazzaq Waheeb Yaseen, Assist. Prof. Dr. Ali Khalifa Bris and translator omar waled Al-Obaidi.

Facilitate the task: This study was supported by the Espanyol Football Academy.

Roles of each researcher in the research:

1. First researcher: Assistant Lecturer Mohammed Munther Mohammed and Asst. Lecturer. Abdul Latif Mushtaq Abdul Latif was responsible for the conceptualization, design, literature review, data collection, interpretation of results, drafting, and final revision of the manuscript.

Funding statement

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Data availability

We would like to present the research data that was statistically analyzed by Dr. Haider Radi.

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Appendix (1): Experts' background information

Name	Specialization	Workplace
Mudar Ali Nasser	University Professor	University of Baghdad / College of Physical Education and Sports Sciences
Abdullah Yaseen Ahmed	University Professor	University of Baghdad / College of Media
Jalal Ibrahim Mohammed	Coach	Ministry of Youth and Sports

Appendix (2): Committee members' information

No.	Name and Academic Title	Workplace	Specific Specialization
1	Prof. Dr. Mowafaq Ubaies Khudair	University of Baghdad / College of Physical Education and Sports Sciences	Football / Sports Psychology
2	Assist. Prof. Dr. Abdulrazzaq Waheeb Yaseen	University of Diyala / College of Physical Education and Sports Sciences	Football / Sports Psychology
3	Prof. Dr. Dhia Hamoud Mouloud Al-Hassan	University of Baghdad / College of Physical Education and Sports Sciences	Football / Sports Psychology
4	Assist. Prof. Dr. Ali Khalifa Bris	University of Diyala / College of Physical Education and Sports Sciences	Football / Training
5	Assist. Lecturer Basim Khudair Abbas	University of Babylon / College of Physical Education and Sports Sciences	Football / Training

Appendix (3)

First exercise:

Psychological objectives: mental preparation through body positioning, decision-making ability, positive player motivation, high concentration and attention to variables, self-confidence, consistency and decisiveness, reducing wasted opportunities

Motor objectives: Rolling and running with the ball while changing direction, ball control, dribbling, scoring, speed and accuracy of performance.

Organization of the exercise: Playing area 20×20m.

Description of performance: 1 vs. 1 + goalkeeper Free play

Exercise time: 2 minutes per player

Exercise period: 14 minutes.

Training intensity: Match pace.

Second exercise:

Psychological objectives: Self-control, decision-making ability, awareness, courage and patience, enjoyment, self-confidence.

Motor objectives: Moving in space, rolling the ball, scoring position.

Organization of the exercise: Playing area 20×20 m, cones and cones divided as shown in Fig. 15. The exercise can be organized in multiple locations on the playing field.

Description of performance: A player challenges the goalkeeper and scores from different playing positions by organizing the playing area.

Exercise time: 3 minutes.

Exercise period: 15 minutes.

Training intensity: Match pace.

Third exercise:

Psychological objectives: mental flexibility, quick decision-making, competitive spirit, overcoming early jitters.

Motor objectives: integrated sensation (strategic skills), movement and transition according to space (gaps), focus, attention, and reaction speed (support and coverage).

