The effectiveness of a fun learning program on some basic skills and motor abilities for junior football players (11-12) years old

La eficacia del programa de aprendizaje divertido en las habilidades básicas y las capacidades motrices para los futbolistas jóvenes de entre los 11-12 años

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Received: 10-05-26
Accepted: 25-05-26

How to cite in APA

Hameed, M. M., Dheyab, A. A., Rahman, A. K., & Abdali, R. Y. (2026). The effectiveness of a fun learning program on some basic skills and motor abilities for junior football players (11-12) years old. *Retos, 80*, 1188-1201. https://doi.org/10.47197/retos.v80.119443

Abstract

Introduction and Objective: Physical education and early sports specialization require innovative, engaging pedagogical approaches to sustain motivation and properly develop young athletes. Regular training can often become repetitive, making the integration of play-centric methodologies essential for holistic development. This research aimed to identify the effectiveness of a fun learning program on selected basic skills and motor abilities for junior football players aged 11 to 12 years.
Methodology: The researcher adopted an experimental method using a single-group design with pre-test, intermediate, and post-test measurements. The sample was randomly selected from fifth-grade students aged 11 to 12 at Gilgamesh Primary School in the Diyala Education Directorate during the 2025/2026 academic year. Out of 30 students, 5 were excluded, leaving a basic sample of 15 students and a pilot sample of 10 students for scientific coefficients. Physical and skill tests were utilized alongside an experimental program incorporating role-playing and cooperative learning strategies.
Results: The data analysis revealed statistically significant differences between the means of the pre, intermediate, and post-measurements of the experimental group, strongly favoring the post-measurement outcomes. The findings contrasted favorably with existing literature, demonstrating that incorporating structured play and cooperative styles yields superior skill acquisition compared to traditional, rigid training structures found in baseline studies.
Conclusions: The suggested fun learning program proved highly effective, and it is highly recommended to apply this specific program to teach basic skills and motor abilities to junior football players.

Keywords

Effectiveness; fun learning; program; skills and motor abilities for junior; football players.

Resumen

Introducción y Objetivo: La educación física y la especialización deportiva temprana requieren enfoques pedagógicos innovadores para mantener la motivación y desarrollar a los jóvenes atletas. Dado que el entrenamiento regular puede volverse repetitivo, las metodologías lúdicas son esenciales. Esta investigación evaluó la eficacia de un programa de aprendizaje divertido sobre habilidades básicas y capacidades motrices en futbolistas jóvenes de 11 a 12 años.
Metodología: Se empleó un método experimental con diseño de un solo grupo y mediciones de preprueba, prueba intermedia y posprueba. La muestra se seleccionó aleatoriamente entre estudiantes de quinto grado (11–12 años) del Colegio Gilgamesh, Dirección de Educación de Diyala, durante el curso 2025/2026. De 30 alumnos, 15 formaron la muestra básica y 10 la muestra piloto para coeficientes científicos. El programa integró estrategias de juego de roles y aprendizaje cooperativo.
Resultados: Los análisis demostraron diferencias estadísticamente significativas entre las medias de las tres mediciones del grupo experimental, favoreciendo notablemente a la posprueba. Los entornos lúdicos y cooperativos superaron a los métodos de instrucción tradicionales, logrando una adquisición de habilidades superior en comparación con las estructuras rígidas convencionales.
Conclusiones: El programa de aprendizaje divertido propuesto demostró ser altamente eficaz. Se recomienda firmemente su aplicación para la enseñanza y el desarrollo de habilidades básicas y capacidades motrices en futbolistas infantiles.

Palabras clave

Eficacia; aprendizaje divertido; programa; habilidades y destrezas motrices para jóvenes; jugadores de fútbol.

Introduction

Basic motor skills are considered the cornerstone of children's physical, cognitive, and social development. They influence neuromuscular coordination, balance, muscular strength, and the ability to perform various motor tasks. Modern studies indicate that reinforcing these skills at an early age helps improve the general athletic performance of children and positively impacts their self-confidence and participation in team games (Masrun et al., 2025).

The concept of fun learning refers to employing games and interactive activities within the educational process with the aim of increasing motivation and self-drive in children, and improving interaction during learning. Studies have shown that this method not only promotes enjoyment but also contributes to improving motor and cognitive performance in children compared to traditional methods. The effectiveness of fun learning has been verified in several studies on primary school students, where results showed a noticeable improvement in motor coordination and basic athletic skills after implementing fun learning strategies (Camacho-Sánchez et al., 2023). This is consistent with modern research in physical education environments that emphasizes integrating comprehensive educational dimensions within sports training (Mujica-Johnson et al., 2024).

Football is considered one of the most effective games in developing basic motor skills for children due to the required coordination between the foot and eye, balance, running, and ball control during movement. Studies have shown that integrating football within educational activities helps raise the level of general motor performance for children and increases their ability to interact within a team and apply different play strategies. Football also enhances the ability to make quick decisions and develop social skills through collective play (Mao et al., 2022).

Despite the importance of previous studies in clarifying the impact of games and interactive educational strategies on motor skills, the scarcity of studies that directly link fun learning and methodical educational programs to develop basic football skills for primary school students represents a clear scientific gap. Therefore, designing an organized educational program based on fun learning to evaluate its impact on students using accurate measurement tools is considered a necessary step to bridge this gap (Hasan, 2019).

Research Objective

The research aims to identify the effectiveness of the fun learning program on some basic skills and motor abilities for junior football players aged (11-12) years.

Research Hypotheses

• There are statistically significant differences between the pre-test, intermediate, and post-test measurements of basic skills for junior football players aged (11-12) years (under study) in favor of the post-test measurements.

• There are statistically significant differences between the pre-test, intermediate, and post-test measurements of motor abilities for junior football players aged (11-12) years (under study) in favor of the post-test measurements.

The importance of the research

• Is one of the scientific attempts serving the sports field, specifically the game of football, and is considered a way to elevate the level of teaching juniors in the game of football.

• Directs the attention of those in charge of the game of football to the importance of preparatory games, especially for the grassroots and junior stages.

• Is a step on the scientific path towards identifying the most important fun learning strategies, which are "Educational Preparatory Games" that suit the age group of juniors from (11-12) years in the game of football.

Research Problem: Basic motor skills are considered the foundation upon which organized sports games, such as football, are built, requiring coordination between physical abilities and motor control. However, studies have shown that many children in the primary stage do not reach the optimal level of

these skills due to reliance on traditional educational methods that lack interaction and motivation. Accordingly, there has become an urgent need to develop modern educational strategies that contribute to raising the level of motor performance and stimulating active learning for children (Masrun et al., 2025).

The research problem is evident in the absence of organized educational programs that rely on fun learning to develop basic football skills, which leads to a lack of documented data regarding its impact on the motor performance of students. Therefore, it has become necessary to design an integrated educational program that adopts fun learning.

Through the researcher's experience as a physical education teacher in Diyala Governorate, Iraq, and a coach for junior football under the age of (12), he noticed a significant decline in the level of performance of basic skills and motor abilities among junior football players in the primary stage. This is despite the effort exerted by the coach in gradual teaching; the reason for the weakness in learning basic skills and motor abilities is attributed to deficiencies in the traditional method followed.

Through the researcher's observation of most primary schools and football schools belonging to the Diyala Governorate in Iraq, he noticed that the method followed in teaching is characterized by rigidity and stagnation, lacking any excitement or enthusiasm. Furthermore, the high density of students in a class reduces their chances of each student getting their right to use the ball more than once. All these reasons combined affect, even if in a simple way, the football activity. Educational preparatory games do not receive sufficient care from those responsible for implementing programs related to physical education lessons and football schools. This was confirmed by the pilot study conducted by the researcher in those schools with the aim of identifying the extent to which teachers or those in charge implement programs for educational preparatory games based on fun learning within the physical education lesson. The results of this study revealed the non-use of fun learning strategies and a lack of interest in them within the lesson plan, despite their importance for this age group, except for a short period in the concluding part.

The researcher also conducted personal interviews with some physical education teachers in Diyala Governorate, Iraq, numbering (4) teachers and (10) instructors distributed across (7) schools. It became clear that there are several deficiencies represented in the fact that traditional teaching based on the effort of the teacher or instructor is still prevalent in the educational process until now, in addition to the lack of interest in aspects that achieve the student's self-fulfillment in a way that satisfies their desires and meets their ambitions.

From here, the idea of this research emerged: that the use of fun learning in the physical education lesson may have an effective impact on improving the level of physical and skill performance by introducing the elements of excitement and fun, and preventing the learner from feeling bored during the physical education lesson. Therefore, the researcher attempted, through this study, to identify the effectiveness of the fun learning strategy in developing some basic football skills among fifth-grade primary students. The skills include (kicking the ball, running with the ball, dribbling, heading the ball, and the throw-in) for fifth-grade primary students.

Method

The experimental intervention of the proposed educational program was administered using a repeated-measures (ABG) design. Participants underwent a pre-test (A) to establish baseline physical and skill levels, followed by a mid-test (B) during the program timeline to monitor progression, and concluded with a post-test (G) upon the completion of all fun learning units.

Participants

The population was selected using the purposive method from fifth-grade primary school students in the Diyala Education Directorate, aged (11-12) years, totaling (30) junior players.

Procedure

The research sample was chosen randomly from fifth-grade primary school students whose ages range from (11-12) years at "Gilgamesh" Primary School in the Diyala Education Directorate for the academic year 2025/2026, numbering (30) students. (5) students were excluded for the following reasons:

O (3) students were injured or ill.

O (2) students did not attend regularly, making the final sample size (25) students.

(10) students were selected as a pilot sample from outside the core research sample to determine scientific coefficients and conduct pilot experiments, leaving the core research sample at (15) students with an average age of (11) years.

Table 1. Statistical description of the research sample in skill and motor tests for junior football players aged (11-12) years(N = 15)

Variables	Unit of Measurement	Min Value	Max Value	Arithmetic Mean	Standard Deviation	Skewness Coefficient	Kurtosis Coefficient
Kicking the ball for maximum distance (stationary ball)	(Meter)	22	33	28.87	3.021	-0.643	0.381
50-meter dribbling sprint	(Second)	11.07	13.13	12.14	0.792	0.074	-1.474
Ball control in a designated area	(Degree)	40	70	56.67	9.759	0.256	-1.131
Heading the ball for maximum distance	(Meter)	7.3	10	8.74	0.680	-0.135	0.347
Standing broad jump (m) - Measurement of leg muscle power	(Meter)	1.35	1.75	1.62	0.116	-1.052	0.794
Sprinting 50 meters (seconds) to measure transition speed	Second	8.53	10.13	9.20	0.505	0.674	-0.366
Trunk flexion (cm) for spinal flexibility	cm	50	63	54.33	4.761	0.59	-1.033
Running between hurdles (seconds) to measure agility	Second	13.97	18.01	15.53	1.119	0.715	0.293

It is clear from Table (1) the minimum and maximum values, arithmetic mean, and standard deviation in the skill and motor tests. All skewness coefficients range between (0.59 to -1.052), indicating that the measurements used are close to normality as the skewness coefficient values range between ± 3 and are close to zero. Most of the kurtosis coefficients are between (0.293 to -1.474), which means the fluctuation of the normal curve is considered acceptable and cantered, confirming the normality of the research group members in the initial variables before the experiment.

Instrument

Physical tests and skill tests were used, as well as the experimental program based on the fun learning strategy.

Physical Activity Quiz

First: Physical tests

Based on the previous reference survey, the motor abilities related to the age stage (11-12) were identified as (Strength, Speed, Agility, Flexibility, Accuracy, Coordination, Balance). Subsequently, an expert opinion survey form was prepared containing all the motor abilities football that were identified from the reference survey for abilities and arranged in ascending order; they were presented to a group of experts in the field of physical education. "A set of standardized, internationally referenced tests was utilized to determine the physical and motor levels of the research sample. These included: the Standing Long Jump Test, adopted from the European Fitness Test Battery (Eurofit), to measure the muscular power and explosive strength of the legs in meters (m); the 50-Meter Dash Test, based on the American Alliance for Health, Physical Education, Recreation and Dance (AAHPERD) battery, to assess transitional speed in seconds (s); the globally recognized Sit and Reach Test to measure spinal and hamstring flexibility in centimeters (cm); and the Barrow Zig-Zag Run Test to evaluate agility and the efficiency of changing body direction in seconds (s). This methodological approach ensures the objectivity of the utilized resources and their conformity to international calibration standards." as explained in Appendix (1).

Scientific Parameters for Skill and Motor Ability Tests:

The researcher used discriminatory validity to determine the scientific parameters of the tests.

Discriminatory Validity

The validity of the skill and motor ability tests was calculated through discriminatory validity between a distinguished group and a non-distinguished group. To verify this, the calculated "t" test and the discriminatory validity coefficient were used, as shown in table (2).

Table 2. Arithmetic mean, standard deviation, calculated "t" value, and discriminatory validity coefficient between the distinguished and non-distinguished groups in skill and motor tests for junior football players aged (11-12) years.

Test		Distinguished Group (n=5)		Non-Distinguished Group (n=5)		Calculated "t" Value	Discriminatory Validity Coefficient
		Mean (x̄)	SD (±σ)	Mean (x̄)	SD (±σ)		
Skill Tests	Kicking the ball for distance (fixed ball) (m)	31.20	1.30	27.40	1.52	**4.25	0.832
	50-meter dribbling sprint (sec)	12.51	0.55	11.62	0.42	*2.87	0.712
	Ball control in a designated area (deg)	66.00	5.48	50.20	0.45	**6.43	0.915
	Heading the ball for distance (m)	9.48	0.33	8.12	0.73	**3.79	0.801
Motor Ability Tests	Standing long jump (m) - Measurement of leg muscle power	1.73	0.03	1.51	0.12	**4.02	0.818
	(50-Meter Dash Test) to measure translational speed	9.47	0.37	8.90	0.26	*2.81	0.704
	(Sit and Reach Test) for spinal flexibility	58.40	3.21	51.00	2.24	**4.23	0.831
	(Barrow Zig-Zag Run Test) to measure the agility component	16.30	1.16	14.52	0.50	*3.18	0.747

* Significant "t" at level 0.05 = 2.306, at level 0.01 = 3.355

It is evident from Table (2) that there are statistically significant differences in the calculated "t" value between the distinguished and non-distinguished groups in the skill and motor tests. Discriminatory validity coefficient values ranged between (0.712 - 0.915), which are high values, confirming the validity of the tests and the ability to distinguish between different levels of junior football players before applying the main study

Reliability

Reliability for the skill and motor tests was verified through test-retest application with a time interval of (7 days) from the first application. The calculated "t" value and reliability coefficient between the two applications were determined, as shown in Table (3).

Table 3. Arithmetic mean, standard deviation, calculated "t" value, and reliability coefficient between application and re-application in skill and motor tests for junior football players aged (11-12) years (n=10)

Test		First Application		Second Application		Calculated "t" Value	Reliability Coefficient "r"
		Mean (x̄)	SD (±σ)	Mean (x̄)	SD (±σ)		
Skill Tests	Kicking the ball for distance (fixed ball) (m)	29.30	2.406	29.50	2.211	1.96	**0.983
	50-meter dribbling sprint (sec)	12.07	0.660	12.07	0.645	0.63	**0.999
	Ball control in a designated area (deg)	58.10	9.098	60.00	10.541	1.50	**0.927
	Heading the ball for distance (m)	8.80	0.894	8.83	0.884	1.96	**0.999
Motor Ability Tests	Standing long jump (m) to measure the muscular strength of the legs	1.62	0.142	1.63	0.125	1.50	**0.995
	(50-Meter Dash Test) to measure translational speed	9.18	0.428	9.17	0.435	1.79	**0.999
	(Sit and Reach Test) for spinal flexibility	54.70	4.692	55.00	4.397	1.41	**0.991
	(Barrow Zig-Zag Run Test) to measure the agility component	15.41	1.258	15.36	1.281	1.11	**0.995

* Significant "t" at level 0.05 = 2.262, significant "r" at level 0.05 = 0.632

It is evident from Table (3) that there are no statistically significant differences in the calculated "t" value between the application and re-application of the skill and motor tests, while there is a significant statistical significance in most reliability coefficient values, which ranged

between (0.927 - 0.999). These are high values that confirm the reliability of the tests for junior football players before the main study application.

Second: Skill Tests: The researcher conducted a reference survey of Arabic and foreign scientific literature (Appendix 2):

Basic skills relevant to the age stage (11-12) were identified, represented in: (Running with the ball, kicking the ball, controlling the ball, heading the ball, "dribbling" with the ball, throw-in, goalkeeper skills). An expert opinion survey form was prepared containing all the basic skills in football that were identified from the reference survey for skills and arranged in ascending order; they were presented to a group of experts in the field of physical education. In light of the experts' opinions, the most important basic skills in football that achieved the highest agreement were identified. Table (7) shows the percentage of expert agreement on the basic skills in football that were selected based on the reference survey and expert opinions. The basic skills were identified as (kicking the ball – running with the ball – controlling the ball – heading the ball). An expert opinion survey form was prepared containing more than one test for each of the basic skills in football under study and presented to the experts.

Scientific Parameters for Skill and Motor Ability Tests:

Discriminatory Validity

The validity of the skill and motor ability tests was calculated through discriminatory validity between a distinguished group and a non-distinguished group. To verify this, the calculated "t" test and the discriminatory validity coefficient were used, as shown in Table (4).

Table 4. Arithmetic mean, standard deviation, calculated "t" value, and discriminatory validity coefficient between the distinguished and non-distinguished groups in skill and motor tests for junior football players aged (11-12) years

Test		Distinguished Group (n=5)		Non-Distinguished Group (n=5)		Calculated "t" Value	Discriminatory Validity Coefficient
		Mean (x̄)	SD (±σ)	Mean (x̄)	SD (±σ)		
Skill Tests	Kicking the ball for distance (fixed ball) (m)	31.20	1.30	27.40	1.52	**4.25	0.832
	50-meter dribbling sprint (sec)	12.51	0.55	11.62	0.42	*2.87	0.712
	Ball control in a designated area (deg)	66.00	5.48	50.20	0.45	**6.43	0.915
	Heading the ball for distance (m)	9.48	0.33	8.12	0.73	**3.79	0.801
Motor Ability Tests	Standing long jump (m) Measuring the muscular strength of the legs	1.73	0.03	1.51	0.12	**4.02	0.818
	(50-Meter Dash Test) to measure translational speed	9.47	0.37	8.90	0.26	*2.81	0.704
	(Sit and Reach Test) for spinal flexibility	58.40	3.21	51.00	2.24	**4.23	0.831
	(Barrow Zig-Zag Run Test) to measure the agility component	16.30	1.16	14.52	0.50	*3.18	0.747

Significant "t" at level 0.05 = 2.306, at level 0.01 = 3.355

It is evident from Table (4) that there are statistically significant differences in the calculated "t" value between the distinguished and non-distinguished groups in the skill and motor tests. Discriminatory validity coefficient values ranged between (0.712 - 0.915), which are high values, confirming the validity of the tests and the ability to distinguish between different levels of junior football players before applying the main study.

Reliability

Reliability for the skill and motor tests was verified through test-retest application with a time interval of (7 days) from the first application. The calculated "t" value and reliability coefficient between the two applications were determined, as shown in Table (8).

Third: The Proposed Fun Learning Program for Junior Football Players Aged (11-12) Years (Appendix 3)

Preparatory games seek to achieve many educational goals as they are characterized by diverse and varying situations when used. Through practicing them, the junior player acquires motor, cognitive, and

skill abilities in a manner consistent with their stages of growth and the individual differences between them.

Intervention Section: The proposed "Joyful Learning Program" consisted of targeted movement activities and playful drills designed to enhance fundamental football skills and motor abilities over a period of (12) weeks, with (2) sessions per week. During the implementation of the competitive and small-sided games, the researcher utilized the Ability-Based Grouping (ABG) method. Players were divided into homogeneous groups according to their skill and motor levels to ensure equal opportunities, maximize engagement, and maintain a high level of fun and enjoyment for all participants, thereby facilitating optimal skill acquisition and motor development

Data analysis

The researcher applied and processed the study data using the IBM SPSS Statistics 20 program using the following statistical treatments: Arithmetic Mean, Standard Deviation, Percentage, Skewness Coefficient, Kurtosis Coefficient, Pearson Correlation Coefficient "r", Analysis of Variance for Repeated Measures, Least Significant Difference (LSD) Test (Bonferroni), Effect Size.

Results

Which states that there are statistically significant differences between the pre, mid, and post-measurements of the basic skills for junior football players (under study) in favor of the post-measurements.

Table 5. Analysis of variance between measurements (Pre – Mid – Post) in skill tests for junior football players aged (11-12) years (N = 15)

Tests			Sum of Squares	Degrees of Freedom (df)	Mean Squares	Calculated "F" Value	Significance Level	Effect Size "Eta^2"
Skills tests	Kicking the ball for distance (m)	Influence within measurements	89.38	2	44.69	**94.16	0.00	0.871
		Error within measurements	13.29	28	0.47			
		Influence between measurements	40981.42	1	40981.4	**1649.10	0.00	0.992
		Error between measurements	347.91	14	24.85			
	50-meter dribbling sprint (sec)	Influence within measurements	0.65	2	0.33	**7.94	0.00	0.362
		Error within measurements	1.15	28	0.04			
		Influence between measurements	6572.7	1	6572.7	**4140.18	0.00	0.997
		Error between measurements	22.23	14	1.59			
	Ball control in area (deg)	Influence within measurements	3293.3	2	1646.7	**47.37	0.00	0.772
		Error within measurements	973.33	28	34.76			
		Influence between measurements	196020	1	196020	**975.45	0.00	0.986
		Error between measurements	2813.3	14	200.95			
	Heading for distance (m)	Influence within measurements	24.08	2	12.04	**71.68	0.00	0.837
		Error within measurements	4.70	28	0.17			
		Influence between measurements	4059.4	1	4059.4	**2919.93	0.00	0.995
		Error between measurements	19.46	14	1.39			

* Significant at 0.05 level ** Significant at 0.01 level

It is evident from Table (5) that there are statistically significant differences between the measurements (Pre – Mid – Post) in all skill tests. Effect size values ranged between (0.362 and 0.997), which are high values of 0.8, which indicates the high impact of the proposed preparatory games program for junior football players.

Table 6. Least Significant Difference (Bonferroni) between measurement means (Pre – Mid – Post) in skill tests for junior football players aged (11-12) years (N = 15)

Tests		Measurement	Arithmetic Mean	Differences in averages			
				Intermediate measurement		Dimensional measurement	
				Value	Significance	Value	Significance
Skill Tests	Kicking for distance (m)	Pre	28.87	0.67	0.06	*3.267	0.00
		Intermediate	29.53			*2.600	0.00
		Post	32.13				
	50m Dribbling sprint (sec)	Pre	12.20	0.06	1.00	*0.279	0.00
		Intermediate	12.14			*0.222	0.01
		Post	11.92				
	Ball control (degree)	Pre	56.67	*7.333	0.00	*20.667	0.00
		Intermediate	64.00			*13.333	0.00
		Post	77.33				
	Heading for distance (m)	Pre	8.74	*0.527	0.00	*1.747	0.00
		Intermediate	9.27			*1.220	0.00
		Post	10.49				

* Significant at 0.05 level

It is evident from Table (6) that there are statistically significant differences between the measurements (Pre – Mid – Post) in the motor and skill tests. Differences between pre and mid measurements favored the mid-test, while differences between mid and post, and pre and post, favored the post-test in all tests.

Table 7. Improvement rates between measurement means (Pre – Mid – Post) in skill tests for junior football players aged (11-12) years (N = 15)

Tests		Measurement	Arithmetic Mean	Improvement Percentage	
				Intermediate measurement	Dimensional measurement
Skill Tests	Kicking for distance (m)	Pre	28.87	2.31	11.32
		Intermediate	29.53		8.80
		Post	32.13		
	50m Dribbling sprint (sec)	Pre	12.20	0.46-	2.28-
		Intermediate	12.14		1.83-
		Post	11.92		
	Ball control (degree)	Pre	56.67	12.94	36.47
		Intermediate	64.00		20.83
		Post	77.33		
	Heading for distance (m)	Pre	8.74	6.03	19.98
		Intermediate	9.27		13.17
		Pre	10.49		

It is evident from Table (7) the improvement rates between measurements (Pre – Mid – Post) in skill tests. The improvement rate between pre and mid ranged between (0.46% to 12.94%) favoring the mid-test. Between pre and post, rates ranged between (2.28% to 36.47%) favoring the post-test. Between mid and post, rates ranged between (1.83% to 20.83%) favoring the post-test in all skill and motor tests for junior football players.

Figure 1. Arithmetic mean for measurements (Pre – Mid – Post) in skill tests for junior football players aged (11-12) years

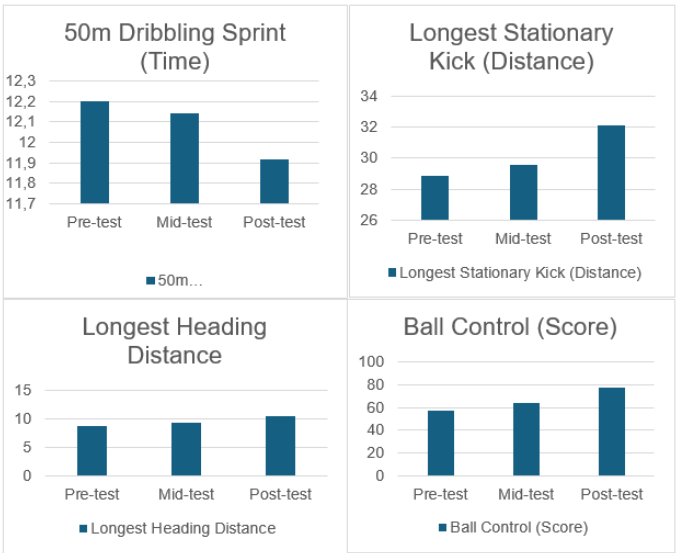

Table 8. Arithmetic Mean and Standard Deviation for (Pre – Mid – Post) measurements in motor ability tests for junior football players aged (11-12) years (N = 15)

Tests		Pre-Measurement		Intermediate-Measurement		Post-Measurement	
		Mean (x̄)	SD (±σ)	Mean (x̄)	SD (±σ)	Mean (x̄)	SD (±σ)
Skill Tests	Standing long jump (m) Measuring the muscular strength of the legs	1.62	0.12	1.68	0.11	1.76	0.09
	(50-Meter Dash Test) to measure translational speed	9.20	0.50	9.05	0.49	8.85	0.45
	(Sit and Reach Test) for spinal flexibility	54.33	4.76	56.13	4.88	59.67	5.22
	(Barrow Zig-Zag Run Test) To measure the agility component	15.53	1.12	15.43	1.02	15.26	1.05

It is evident from Table (8) the arithmetic mean and standard deviation for the measurements (Pre – Mid – Post) in the motor ability tests, where the post-measurement showed the highest value compared to the pre and mid-measurements in some motor abilities for junior football players.

Table 9. Analysis of variance between measurements (Pre – Mid – Post) in motor ability tests for junior football players aged (11-12) years (N = 15)

Tests			Sum of Squares	Degrees of Freedom (df)	Mean Squares	Calculated "F" Value	Significance Level	Effect Size "Eta²"
Skills tests	Standing Long Jump (m)	Influence within measurements	0.15	1.3	0.11	**17.22	0.00	0.552
		Error within measurements	0.12	18.1	0.01			
		Influence between measurements	128.52	1	128.52	**5376.52	0.00	0.997
		Error between measurements	0.33	14	0.02			
	50-meter Sprint (sec)	Influence within measurements	0.95	2	0.48	**53.44	0.00	0.792
		Error within measurements	0.25	28	0.01			
		Influence between measurements	3671.7	1	3671.7	**5401.25	0.00	0.997
		Error between measurements	9.52	14	0.68			
	Trunk Flexion from Standing (cm)	Influence within measurements	220.84	1.2	188.52	**68.47	0.00	0.830
		Error within measurements	45.16	16.4	2.75			
		Influence between measurements	144726.8	1	144726.8	**2052.35	0.00	0.993
		Error between measurements	987.24	14	70.52			
	Running between Hurdles (sec)	Influence within measurements	0.53	2	0.26	**33.54	0.00	0.706
		Error within measurements	0.22	28	0.01			
		Influence between measurements	10680.5	1	10680.5	**3160.83	0.00	0.996
		Error between measurements	47.31	14	3.38			

* Significant at 0.05 level ** Significant at 0.01 level

It is evident from Table (9) that there are statistically significant differences between the measurements (Pre – Mid – Post) in all motor ability tests. Effect size values ranged between (0.552 - 0.997), which are high values greater than 0.8, illustrating the high impact of the proposed program on some motor abilities for junior football players.

Table 10. Least Significant Difference (Bonferroni) between measurement means (Pre – Mid – Post) in motor ability tests for junior football players aged (11-12) years (N = 15)

Tests		Measurement	Arithmetic Mean	Differences in averages			
				Intermediate measurement		Dimensional measurement	
				Value	Significance	Value	Significance
Skill Tests	Standing long jump (m) to measure the muscular strength of the legs	Pre	1.62	0.06	0.18	*0.140	0.00
		Intermediate	1.68			*0.080	0.00
		Post	1.76				
	50-Meter Dash Test) to measure translational speed	Pre	9.20	*0.154	0.00	*0.355	0.00
		Intermediate	9.05			*0.201	0.00
		Post	8.85				
	(Sit and Reach Test) for spinal flexibility	Pre	54.33	*1.800	0.00	*5.333	0.00
		Intermediate	56.13			*3.533	0.00
		Post	59.67				
		Pre	15.53	*0.097	0.04	*0.263	0.00

(Barrow Zig-Zag Run Test) to measure the element of agility	Intermediate	15.43		*0.165	0.00
	Post	15.26			

* Significant at 0.05 level

It is evident from Table (10) that there are statistically significant differences between the measurements (Pre – Mid – Post) in the motor tests. The differences between the pre and mid-measurements favored the mid-measurement, while the differences between the pre and post-measurements, and between the mid and post-measurements, favored the post-measurement in all motor tests for junior football players.

Table 11. Improvement rates between measurement means (Pre – Mid – Post) in motor ability tests for junior football players aged (11-12) years (N = 15)

	Tests	Measurement	Arithmetic Mean	Improvement Percentage	
				Intermediate measurement	Dimensional measurement
Skill Tests	Standing long jump (m) to measure leg muscle strength	Pre	1.62	3.70	8.62
		Intermediate	1.68		4.75
		Post	1.76		
	(50-Meter Dash Test) to measure transition speed	Pre	9.20	1.67-	3.86-
		Intermediate	9.05		2.23-
		Post	8.85		
	(Sit and Reach Test) for spinal flexibility	Pre	54.33	3.31	9.82
		Intermediate	56.13		6.29
		Post	59.67		
	(Barrow Zig-Zag Run Test) to measure the element of agility	Pre	15.53	0.63-	1.69-
		Intermediate	15.43		1.07-
		Pre	15.26		

It is evident from Table (11) the improvement rates between measurements (Pre – Mid – Post) in the motor tests. The improvement rate between pre and mid-measurements ranged between (0.63% to 3.70%) favouring the mid-measurement. Between pre and post-measurements, the rates ranged between (1.69% to 9.82%) favouring the post-measurement, and between mid and post-measurements, the rates ranged between (1.07% to 6.29%) favouring the post-measurement in all motor tests for junior football players.

Figure 2. Arithmetic mean for measurements (Pre – Mid – Post) in motor ability tests for junior football players aged (11-12) years

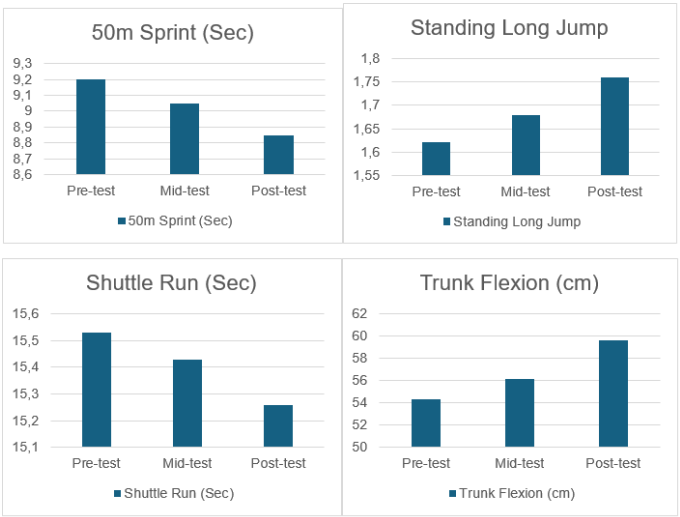

Table 12. Arithmetic Mean, Standard Deviation, Improvement Rate, and Calculated "t" value between Pre and Post measurements in motor ability tests for junior football players aged (11-12) years (N = 15)

#	Tests	Pre-Measurement		Post-Measurement		Difference Between Means		Calculated "t" Value	Improvement %
		Mean (x̄)	SD (±σ)	Mean (x̄)	SD (±σ)	Mean (x̄)	SD (±σ)		
1	Standing long jump (m) to measure the muscular strength of the legs	1.62	0.12	1.76	0.09	0.14	0.10	**5.31	8.62
2	50-meter sprint (sec) to measure translational speed	9.20	0.50	8.85	0.45	0.36	0.16	**8.77	3.86
3	Trunk flexion (cm) for spinal flexibility	54.33	4.76	59.67	5.22	5.33	2.38	**8.68	9.82
4	50-meter sprint (sec) to measure translational speed	15.53	1.12	15.26	1.05	0.26	0.14	**7.42	1.69

* Significant "t" at level 0.05 = 2.228, at level 0.01 = 3.169

Table 13. Eta squared value and the magnitude of the impact of the preparatory games program on some basic skills and motor abilities for junior football players aged (11-12) years(N = 15)

#	Tests	The Effect in		
		Eta Squared (η2)	Effect Size Value	Effect Magnitude
1	Standing long jump (m) to measure the muscular strength of the legs	0.668	1.332	High
2	50-meter sprint (sec) to measure translational speed	0.846	0.702	Medium
3	Trunk flexion (cm) for spinal flexibility	0.843	1.051	High
4	50-meter sprint (sec) to measure translational speed	0.797	0.210	Weak

* Effect Size: 0.2 = Weak, 0.5 = Medium, 0.8 = High
* Eta Squared: less than 0.09 = Weak, greater than 0.14 = High

Discussion

It is clear from Tables (5), (6), (7) and Figure (1) regarding the analysis of variance for the research sample, that there are statistically significant differences between the three measurements in all skill tests. The results showed that the mid-measurement significantly outperformed the pre-measurement, while the post-measurement significantly outperformed both the pre and mid-measurements in all skill tests under study. The improvement rate between the pre and mid-measurements ranged between (0.46% to 12.94%), while the improvement rate between the pre and post-measurements ranged between (2.28% to 36.47%), and the improvement rate between the mid and post-measurements ranged between (1.83% to 20.83%).

The level of the junior players improved in the test of kicking the ball for the farthest distance (stationary) by 11.32%, in the 50-meter sprint with the ball by 1.83%, in the ball control in a specified area test by 36.47%, and in the heading the ball for the farthest distance test by 19.18%.

As statistically significant differences between measurements (Pre, Mid, and Post) for the experimental group were evident in favour of the post-measurement at the 0.05 significance level, the researcher attributes this improvement in results to the use of the proposed program based on the "Fun Learning" strategy. This strategy is considered the primary means and a major positive influence on elevating the level of skill performance for grassroots and junior players. It is one of the most important factors influencing the performance level of basic skills in football for junior players. It also became clear that using educational preparatory games to teach basic skills contributes significantly and effectively to learning and mastering those skills in a more exciting and interesting way, yielding better results as the learner performs in situations similar to those encountered in matches.

These results agree with the findings of the study by Rania Ibrahim Khamis Abdel-Gawad (2008), which concluded that an educational program using preparatory educational games led to an improvement in the level of performance for some basic football skills. The researcher believes that educational preparatory games are an organized activity following a set of play rules; this type of program is considered one of the most interactive, widespread, and interesting in the educational process because it provides elements of fun and excitement. This increases positive interaction and participation in the learning process and provides a competitive element among participants, which in turn increases learning outcomes.

Many previous studies related to the current one, such as the study by Abou El-Nour (2004), concluded that using preparatory games positively and clearly affects the development of motor abilities specific to learning sports activities and various basic skills. Furthermore, the guided use of preparatory games has a significant impact on developing and improving skill performance. These results also align with the study by Tu'aymah (2005), which concluded that using proposed programs for preparatory games has an impact on improving motor abilities and basic skills.

Additionally, using a competitive style between teams and groups led to demonstrating the ability and efficiency for achievement and ambition, which is realized through struggle, exerting effort, and continuous work from all group members. These results also agree with the study by Embabi (2010), which

concluded that a preparatory games program led to the development of some motor components and basic skills in physical education lessons for middle school students.

The researcher adds that the proposed program using the "Fun Learning" strategy works to increase motivation toward learning and practice, which positively affects the performance level of skills. The nature of football depends on the elements of competition and challenge, which are considered natural human movements practiced in daily life and during leisure time. This has positively affected skill mastery and, consequently, the motor ability most closely associated with it (Speed).

MacLean and Daniel (2011) also pointed out that using educational games in the field of physical education has many features, including effective assistance in teaching and learning some motor skills for sports activities and increasing student motivation toward learning them, regardless of their difficulty. This is in addition to removing the element of dread and fear of these skills and providing students with subsequent feedback processes that improve the processes of teaching and learning, leading to optimal performance. Therefore, it is considered one of the most effective educational aids.

It is clear from Tables (9), (10), (11) and Figure (2) regarding the analysis of variance for the research sample, that there are statistically significant differences between the three measurements (Pre, Mid, and Post) in all motor tests. The results showed that the mid-measurement significantly outperformed the pre-measurement, while the post-measurement significantly outperformed both the pre and mid-measurements in all motor tests under study.

The improvement rates between the pre and mid-measurements ranged between (0.63% to 3.70%), while the improvement rate between the pre and post-measurements ranged between (1.69% to 9.82%), and the improvement rate between the mid and post-measurements ranged between (1.07% to 6.29%). The level of the junior players improved in the standing broad jump test by 8.62%, in the 50-meter sprint test by 3.86%, in the forward trunk flexion from a standing position test by 9.82%, and in the running between hurdles test by 1.69%. As statistically significant differences between measurements (Pre, Mid, and Post) for the experimental group were evident in favor of the post-measurement at the 0.05 significance level.

The researcher attributes these results to the positive impact of the proposed fun learning program that was implemented, and what its educational units of preparatory games included, which contributed to improving some basic skills and motor abilities for the junior football players in the research sample. This is consistent with what was indicated by Omar (2008), in that preparatory games are considered a fundamental element as they work on developing physical fitness elements alongside the application of basic skills while practicing those games.

These results also align with the results of the study by Omar (2008), which concluded that his preparatory games program had a positive impact on improving skills specific to football for primary stage students. This is further supported by the study of Najib (2004), as the results of this study concluded that preparatory games—with the games, movements, and activities they contain—are lovable and diverse in their forms and movements, and they work to develop motor abilities and skills in various sports activities.

Conclusions

In light of the research objectives and hypotheses, and within the limits of the methodology used, the research sample, the procedures followed, and the statistical processing, the researcher reached the following conclusions:

1. Statistically significant differences exist between the means of the pre, mid, and post-measurements for the experimental group, favoring the post-measurement after implementing the proposed fun learning program in all basic football skill tests (running with the ball, kicking the ball, ball control, heading the ball).

2. Statistically significant differences exist between the means of the pre, mid, and post-measurements for the experimental group, favoring the post-measurement after implementing the proposed fun learning program in all motor ability tests (Strength, Speed, Agility, Flexibility).

3. The proposed fun learning program has a positive impact on teaching basic football skills represented in (running with the ball, kicking the ball, ball control, heading the ball).

4. The program also has a positive impact on developing motor abilities represented in (Strength, Speed, Agility, Flexibility).

Recommendations

Based on the results of the study and the linked conclusions, the researcher recommends the following:

1. Applying the proposed fun learning program to teach basic skills and motor abilities to junior football players due to its proven effectiveness.

2. Utilizing the fun learning program in teaching and training programs for basic skills and motor abilities in football.

3. Providing schools and clubs with the proposed preparatory games program.

4. Holding educational and awareness sessions for physical education teachers and football coaches about the importance of fun learning, especially for the grassroots and junior stages.

5. Paying attention to the characteristics and needs of junior players at this stage to develop suitable curricula that help them achieve balanced, comprehensive growth.

6. The fun learning program should be applied in other games.

Acknowledgements

The authors feel privileged to thanks Gilgamesh" Primary School in the Diyala Education Directorate for their cooperation to complete the official request for conducting the research.

Financing

The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in the manuscript.

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