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The effectiveness of rondo-style playing exercises during a training program in developing scanning and long passing accuracy among football players under 19 years old.

فعالية تمرينات اللعب بطريقة الروندو خلال برنامج تدريبي في تطوير المسح البصري ودقة التمرير الطوبل لدى لاعبى كرة القدم صنف أقل من 19 سنة.

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Abstract: This study aims to investigate the effectiveness of Rondo training drills within a training program for developing visual scanning and long pass accuracy among under-19 football players. Employing an experimental design, the study involved 36 players selected purposively. Pre- and post-tests were conducted to measure visual scanning and long pass accuracy. Results demonstrated the superiority of the experimental group compared to the control group in terms of improvement, attributed to the effectiveness of Rondo drills implemented during the training program

.- Keywords: rondo; visual scan; long pass; football.

الملخص: تهدف هذه الدراسة إلى التعرف على مدى فعالية تمرينات اللعب بطريقة الروندو rondo خلال برنامج تدريبي في تطوير المسح البصري ودقة التمرير الطويل لدى لاعبي كرة القدم صنف أقل من 19 سنة، تم الإعتماد على المنهج التجريبي وتمثلت العينة في 36 لاعب تم اختيارها بالطريقة العمدية، وكأداة لجمع البيانات تم إجراء القياسات القبلية والبعدية للعينة في إختبار المسح البصري ودقة التمرير الطويل، و أظهرت النتائج أفضلية المجموعة التجريبية على المجموعة الضابطة في حجم التطور الحاصل الذي يُعزى لفعالية تمارين الروندو المتبعة خلال البرنامج التدريبي. الكلمات المفتاحية: الروندو؛ المسح البصري؛ التمرير الطويل؛ كرة القدم.

#### Introduction and problematic of the study:

In modern football, the best performance on the field cannot be fully achieved if it is not based on a correct systematic planning and programming of the training process and its content of exercises, as scientifically planned training exercises in terms of content, technical and tactical objective and taking into account the physical aspect of volume, intensity and rest are one of the best means to reach the player or team to the integrated preparation of everything he needs in competitions, and to achieve a good level in the execution of duties the coach must plan and organise his training programmes and create various and different exercises in line with the physical, tactical and especially skillful and mental abilities of his players in a unified framework according to the technical requirements he faces, to reach them to the highest level of performance, especially during matches, as Mufti Ibrahim believes that it is difficult today to reach a high performance level in the sports field in general and football in particular without methodical planning based on solid scientific foundations and programmes in the field of football (Mufti Ibrahim, 2012, p. 16).

Small-game exercises are regarded as one of the training methods and techniques that coaches rely on, due to their importance and effective contribution to developing physical qualities, mastering basic skills and tactical aspects, and improving various mental responses, in addition to being performed in conditions similar to the reality of competition, under determinants and rules set by the coach, such as space, number of players, conditions, method of performance and its time within the requirements of the game (Filipe et al, p77, 2014).

Rondo games are considered one of the best exercises performed in specific spaces. In this game, a group of players has possession of the ball, which is numerically superior to another group of players. The primary goal is to maintain

or restore possession of the ball. While it might seem like a simple exercise, it has a significant technical and mental impact on players (Mracus Dibernardo, 2014, p3). This game can be implemented with many formations, each with specific objectives, whether technical or tactical, that the coach wants to employ. These formations include "3 vs 1, 5 vs 2, 6 vs 3, 4 vs 2, 8 vs 2," each with certain goals depending on the skill level of the players or the areas to be developed (Kieran Smith, 2016, p13).

Skill development is essential to determine the level of performance and improve the quality of play. Rondo exercises help create a picture of what the coach wants to see in games by selecting certain types that serve the primary objective of the training session.

Players must have high mental and sensory processes, along with visual capabilities at the highest level, in order to efficiently, accurately interact, respond to the thrills of matches, and perform different skill tasks. This involves the rapid and frequent analysis and scanning of various information surrounding them through active player head movement. This movement temporarily directs the face (and hence the eyes) away from the place of the ball, with the goal of gathering information about teammates or competitors. This prepares players to deal with skill and planning situations with efficiency and intelligence (Jordet, G et al, 2020, p40)."

Long passing is an important part of football game strategy. It helps the team move the ball quickly and efficiently from defense to attack. Performing it requires certain abilities, such as correct timing, proper strength, and accuracy in direction. In addition to eye-hand-foot coordination to ensure that the ball is directed correctly and efficiently, the accuracy of the long pass is related to the player's ability to capture as much of the information around him by repeatedly seeing and visually scanning different angles and analyzing them at the same

time, locating and translating the teammate's position or area, and correctly directing the ball to the space. Visual scanning is an essential element in serving the level and accuracy of the performance of passing skills of all kinds, especially the long ones. According to Karim Saber, more accurate visual information increases the success rate and superiority of the player's skill, and any defect in the visual scanning process leads to a decrease in his skill level (Karim Jassim Mohammed Saber, 2024, p. 421).

Rondo training allows the development of the procedures and tasks mentioned above due to its conditions, rules, and how the exercises are performed, which impose a high mental and sensory presence that allows to capture of as much information as necessary to allow the achievement and high-level performance of the different skills required for the encountered situation.

Based on my personal experiences as a player and coach, as well as my observations of youth teams participating in national championships, and the insufficient emphasis on scientifically grounded training methods and coherent training philosophy, along with a lack of clarity regarding the role of the coach and the operational structure of clubs and academies, it appears that young players may benefit from an increased focus on building solid physical and tactical bases in addition to honing their essential technical abilities. They also face challenges with shortcomings in mental and cognitive skills required to analyze and respond thoroughly to the stimuli around them with quick and effective motor responses to reach optimal performance levels. This prompted the idea of conducting research projects aimed at addressing the issues mentioned. The proposal involves implementing a "Training Program for Rondo Playing Exercises" to assess its influence on enhancing scanning and long passing accuracy in football players under 19 years old by subtracting this overarching question: Does playing exercises in the Rondo style during a training

program impact the development of visual scanning and long passing accuracy among football players under 19 years old?

**General hypothesis:** Playing exercises in the Rondo style during a training program impact the development of visual scanning and long passing accuracy among football players under 19 years old.

#### Sub-hypotheses:

- 1- There are statistically significant differences between pre-test and post-test measures for the experimental group in developing visual scanning and long passing accuracy in favor of post-test measures.
- 2- There are statistically significant differences between pre-test and post-test measures for the control group in developing visual scanning and long passing accuracy in favor of post-test measures.
- 3- There are statistically significant differences between post-test measures for the experimental and control groups in developing visual scanning and long passing accuracy in favor of the experimental group.

### objectives and importance of the study:

An attempt to reveal the benefits of the rondo method and the extent of its contribution to raising the level of skill and mental performance of the young soccer player, while providing a qualitative addition, clear and obvious to researchers in order to get acquainted with all that is new in the field of sports training and The objectives of this study were to:

- Understand the philosophy of rondo as a specific training style for playing exercises and to highlight its importance and effectiveness in improving and developing visual scanning and long passing accuracy of football players under 19 years old and propose new suggestions within the context of modern training methods and programs to advance the training process in football across various Algerian clubs.

**Followed Methodologies**: To align with the nature of the research and effectively achieve its objectives, the researcher opted for an experimental approach. This involved employing a control group and an experimental group within an experimental design that utilized pre- and post-intervention measurements.

The sample and its selection methods: The study's sample consisted of 36 footall players under 19 years old from the first regional teams in batna, and they were chosen in a purposive way, the participants were divided equally into two groups:

- Experimental group: 18 players from Amel Merouana.
- Control group: 18 players from Mouloudia of Batna.
- 10 players from amel barika were selected to be used in conducting the exploratory experiment

Table N°1: the homogeneity of the research groups in terms of variables and morphological characteristics

| Variables    | Sample       | Mean   | Std Deviation | F Value | Sig Value | Sig Level |
|--------------|--------------|--------|---------------|---------|-----------|-----------|
| Weight       | Experimental | 62,22  | 45,9          | 0.220   | 0,635     | 0,05      |
|              | Control      | 65,67  | 7,10          | 0,230   |           | 0,05      |
| Height       | Experimental | 174,22 | 4,55          | 2,897   | 0,098     | 0,05      |
|              | Control      | 174,61 | 5,87          |         |           | 0,05      |
| (BMI)        | Experimental | 20,52  | 1,91          | 1,461   | 0,235     | 0,05      |
| (BIVII)      | Control      | 21,46  | 1,49          |         |           | 0,05      |
| Training Age | Experimental | 6,61   | 0,50          | 1,816   | 0,187     | 0,05      |
|              | Control      | 6,72   | 0,46          |         |           | 0,05      |

#### Source: Compiled by Researchers (2024)

From Table (2), we observe that the calculated F values for the variables (Weight, Height, Body Mass Index, Training Age) are 0.230, 2.897, 1.461, 1.816 respectively. Also, the Sig values for the variables (Weight, Height, Body Mass Index, Training Age) are 0.635, 0.098, 0.187, 0.235 respectively, all of which are greater than the significance level of 0.05. Therefore, we can conclude that the test is not significant and the two groups are homogeneous in variance.

- Homogeneity of Research Groups: To ensure the correct methodological approach and proper control of the research tools, the researcher conducted homogeneity testing between the experimental and control groups in the measurements related to the scanning and long passing accuracy test using an independent samples t-test, as shown in Table (2).

Table N°2: shows the homogeneity of the control and experimental research groups in the scanning and long passing accuracy test (SLPA test).

| Variables | Sample       | Mean  | Std Deviation | Df | T test | Sig   | Sig Level |
|-----------|--------------|-------|---------------|----|--------|-------|-----------|
| SLPA Test | Control      | 58,74 | 2,34          | 34 | 0.725  | 0.457 | 0.05      |
|           | Experimental | 59,31 | 2,25          | 34 | -0,735 | 0,467 | 0,05      |

#### Source: Compiled by Researchers (2024)

From Table (2), we notice that the Sig- value of (0.467) is greater than the significance level of 0.05 at 34 degrees of freedom. Therefore, we can conclude that there are no statistically significant differences, and the two groups are equivalent in the pre-measurement.

- **Normal Distribution of Data:** The researcher calculated the normal distribution of the pre and post-measurement values for both the control and experimental groups to ensure the appropriate statistical test (parametric or non-parametric). Table (3) illustrates this:

Table N°3: shows the Shapiro-Wilk test results for assessing the normal distribution of data for the scanning and long passing accuracy test.

| Test      | Group        | Measurement | Shapiro-Wilk |
|-----------|--------------|-------------|--------------|
|           | Control      | Before      | 0,178        |
| SLPA Test | Control      | After       | 0,063        |
| SLPA Test | Evacuimental | Before      | 0,055        |
|           | Experimental | After       | 0,729        |

Source: Compiled by Researchers (2024)

From the results in Table (3), we observe that all sig values for the Shapiro-Wilk test for the scanning and long passing accuracy test are greater than the significance level of 0.05. Therefore, we conclude that the data follows a normal distribution for all pre-test and post-test measurements. Consequently, we will rely on the Student's t-test to calculate the significance of differences

- **Study Tools:** Reference survey (Arabic and foreign sources, previous and similar studies, the internet).
- Field tests and data recording forms for players and test measurements (under research) pre-test and post-test.
- Special field tools for the test: a stopwatch, balls, cones of different sizes and columns, data recording cards, and vests in different colors...

### Scanning and Long Passing Accuracy test (SLPA Test) protocol:

**Purpose:** designed to evaluate quick scanning ability and long-pass accuracy.

### **Equipment and Field Organization:**

- 3 players as receivers / Each receiver = different color
- 1 player passing & receiving (tester) with 1 coach passing 10 soccer balls

#### Instructions:

- 10 soccer balls and drill begins when player checks in to receive the ball

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- As the ball is traveling from coach's pass, coach calls out a color
- Player scans and receives on the turn then pings long pass to correct color
- Coach waits until player checks in & immediately passes
- Repeat process until all 10 repetitions have been completed

#### **How Test is Timed:**

- Timer is started as soon as coach makes first pass
- Timer is ended as soon as receiver receives 10th ball

#### How Test is Scored:

- 1 second added if receiver cannot control pass (bad pass)
- 1 second deducted if player completes all 10 passes successfully
- Complete score = Entire time +- Deductions/Additions

40 Yards 40 Yards 40 Yards

\*\*Tester\*

\*\*Conch

Figure N° 1: SLPA Test design.

Source: The USsoccer federation / <a href="https://www.ussoccer.com/teams/u-20-mens-national-team">https://www.ussoccer.com/teams/u-20-mens-national-team</a>

- **Test reliability:** The researcher ensured the reliability of the tool used, represented by the skill tests, by calculating the reliability through applying the test to a sample of 10 players outside the primary sample but from the same original community on 27/02/2023. The test was then re-administered with an approximate one-week interval on 05/03/2023 under the same conditions and terms of implementation.

- **Test validity:** To measure the validity of the test, the researcher ensured face validity by presenting it to a group of experts and specialists, who agreed on the content validity of the tests. Then, self-validity was confirmed by calculating the square root of the reliability coefficient.

Table N°4: shows the validity and reliability coefficients for the SLPA Test.

| The tests | Stability<br>coefficient | Validity<br>coefficient | Level of significance | The correlation    |
|-----------|--------------------------|-------------------------|-----------------------|--------------------|
| SLPA Test | 0,85                     | 0,92                    | 0,05                  | Strong correlation |

#### Source: Compiled by Researchers (2024)

Test reliability and validity coefficients close to or equal to 1 indicate good stability in results and high self-validity at a significance level of 0.05.

- Field Procedures:
- **Preliminary Test:** The pre-test was conducted for the experimental and control groups after determining all the conditions in terms of place, time, tools used, and the assistant work team, as the researcher conducted the skill tests on the experimental research sample on 06/03/2023
- Training Program: Based on theoretical frameworks, previous similar studies, and consultations with experts in the field of sports training, and relying on specialized scientific sources for preparing training programs, as well as various studies and research related to the research topic, and practical applications of rondos exercises in major European schools (especially Spanish and Portuguese), a special training program and curriculum for rondos exercises were prepared, considering the following:
- Respecting the progression factor in executing rondos exercises and flexibility in modifying, deleting, or adding according to application conditions.
- Respecting the principles of training load during the provision of rondos exercise sessions by considering the volume and intensity of work in terms of

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duration, space, number of players, composition of exercises, repetitions, and sets, as well as the type and nature of rest intervals.

- Determining the duration of the proposed training program, the number of units per week, and the time for each, in addition to dividing rondos exercises within the program according to their importance and in line with the objectives to be developed and their relationship with the study variables. The program was implemented continuously for 8 weeks within the competition phase, starting from 07/03/2023 until 26/04/2023, with an average of two Meso-cycles. Each medium cycle consisted of 4 Micro-cycles, with 3 training sessions per week, each lasting 90 minutes per unit, considering fluctuation and progression in load formation with similar and optimal intensity for match performance. Rondos exercises were conducted in the main part of the training unit with a duration ranging from 30 to 45 minutes.
- **Post-Test:** Was conducted on both research groups after completing the entire training program on 27/4/2023 under the same conditions, data, and location as the pre-test assessment.
- **Statistical Procedures:** The statistical package for social sciences SPSS .29 was utilized to conduct the following statistical procedures:
  - Mean and standard deviation, Pearson correlation coefficient.
  - Levene's test for homogeneity of variance.
  - Shapiro-Wilk test for normal distribution of data.
  - Student's t-test to calculate the significance of differences.

#### Exposure, analyses and result exam:

- Presentation and analysis of SLPA Test results for the experimental group: Table N°5: shows the results of Student's paired-sample t-test for significance of differences between pre and post-test measurement for the experimental group (statistical significance level = 0,05).

| Statistical study | Unit   | Pre-test   |      | Post-test      |      | Df | T test | Sig    |
|-------------------|--------|------------|------|----------------|------|----|--------|--------|
| Test              |        | <b>x</b> - | s    | x <sup>-</sup> | s    |    |        |        |
| SLPA Test         | Second | 59,31      | 2,25 | 55,97          | 2,04 | 17 | 13,11  | <0,001 |

#### Source: Compiled by Researchers (2024)

From the results of **Table N°5** for the experimental group, it is evident that the  $\mathbf{x}^-\mathbf{\&} \mathbf{s}$  of the pre-test was  $59,31 \pm 2,25$ . which became  $55,97 \pm 2,04$  in the post-test. The calculated t-value was 13.11 with 17 degrees of freedom. Since the probability value (sig) is <0,001, which is less than the significance level of 0,05, we can conclude that there is a statistically significant difference between the pre and post-test for the experimental group.

#### - Presentation and analysis of SLPA Test results for the Control Group:

**Table N°6:** shows the results of Student's paired-sample t-test for significance of differences between pre and post-test measurement for the control group

#### (statistical significance level = 0,05).

| Statistical<br>skudy | Unit   | Pre-test   |      | Post-test  |      | Df | T test | Sig    |
|----------------------|--------|------------|------|------------|------|----|--------|--------|
| Test                 |        | <b>x</b> - | s    | <b>x</b> - | s    |    |        |        |
| SLPA Test            | Second | 58,74      | 2,34 | 58,00      | 2,27 | 17 | 7,44   | <0,001 |

#### Source: Compiled by Researchers (2024)

From the results of **Table N°6** for the control group, it is evident that the x-&s of the pre-test was  $58,74 \pm 2,34$ . which became  $58,00 \pm 2,27$  in the post-test. The calculated t-value was 7,44 with 17 degrees of freedom. Since the probability value (sig) is <0,001, which is less than the significance level of 0,05, we can

conclude that there is a statistically significant difference between the pre and post- test for the control group.

# Presentation and Analysis of Post-test Results between the Control and Experimental Groups:

**Table N°7:** shows the results of Student's independent sample t-test for significance of differences between the experimental and control groups in the post-test measurement (statistical significance level = 0,05).

| Statistical<br>skudy | Unit   | Experimental G |      | Control G |      | Df | T test | Sig   |
|----------------------|--------|----------------|------|-----------|------|----|--------|-------|
| Test                 |        | x <sup>-</sup> | s    | x-        | s    |    |        |       |
| SLPA Test            | Second | 55,97          | 2,04 | 58,00     | 2,27 | 34 | 2.820  | 0,004 |

Source: Compiled by Researchers (2024)

According to **Table N°7**, it is evident that the calculated value of (t) test was 2.820 at 34 degrees of freedom, while the estimated probability value (sig) was (0.004), which is less than the significance level (0.05). This indicates statistically significant differences between the experimental and control groups in the post-test measurement, in favor of the experimental group.

#### Discussion and interpretation of the results:

**Discussion of Hypothesis N° 1:** The results of the arithmetic mean, standard deviation, and sig value obtained in Table 5 show that there are statistically significant differences between the pre- and post-measurements of the experimental group and in favor of the post-measurement. According to the researcher, this development and significant improvement in the visual scanning variable and the accuracy of the long pass is due to the training program followed, which is linked to rondo training with specific objectives, scientifically

measured and studied, and to the ideal and systematic progression of the latter according to the level and ability of the players and their susceptibility. This is done by means of a series of exercises or forms in different spaces and areas of the pitch and under certain conditions, such as moving the ball from one space to another or changing from one rondo form to another in the longitudinal and transverse directions, with the requirement of a large distance between them to ensure the achievement of the variable of long passes and accuracy in their execution, as well as the narrow or wide space and the number of players in it, to form an involuntary mechanism in the examination and continuous visual scanning of what is happening around the player with a quick reaction and making a correct motor or tactical decision appropriate to the situation encountered.

(Ali, 2011) argues that focusing on the need to quickly take in visual and sensory information and use it to perform the task appropriately is essential to players' performance outcomes. According to (McGuckian et al, 2017), it is very common in real playing conditions that players are surrounded by opponents and teammates in small spaces on the field, and discovering a more effective space requires high repetitions of head rotation before gaining possession of the ball, leading to more accurate passing responses and decisions with increased speed and fewer ball touches to avoid opponents.

Studies such as (Núñez, 2019, p. 61) and (Deuker.A et al, 2023, p. 685) state that playing in small, defined spaces closely simulates the reality of competition and therefore covers the technical requirements of passing skills in all their forms, developing the speed of decision-making of footballers, a characteristic that should be particularly evident in young players. In line with the experimental group's post-measurement results.

(Dasouqi, 2020, p. 11) and (Sugiyanto & Ilahi, 2019, p. 31) also attest to the efficacy of rondo exercises in enhancing young players skill and mental capacity by providing them with an accurate and stable estimation of the distance and time needed to execute various receiving and passing techniques and forms.

**Discussion of Hypothesis N°2:** Based on Table 6, the results showed statistically significant differences between the pre-test and post-test measurements for the control group in favor of the post-test measurements. This slight improvement can be attributed to the methodological approach of the coach's work and training program, which increased the credibility, objectivity, and understanding of the study after it had been reviewed. The coach's encouragement for maximum performance and seriousness during the training sessions, together with the simultaneous implementation of the experimental group's rondo exercise program.

Discussion of Hypothesis N°3: Through table 7, we made comparisons on the mean's results, standard deviations and sig-value and discovered significant differences between the pre- test measurements of the experimental and control groups favoring the post-test measurements of the experimental group. The researcher attributes this superiority to novelty of this type of game exercise as a modern training tool in football (Neville, 2021). Compared with other types of small-sided games, Rondo exercises have unique technical and cognitive (mental) characteristics. This is due to a number of factors, such as ensuring many touches, increasing ball feel through specific conditions such as passing with one or two touches, narrow or wide spaces, numerical superiority or inferiority, and continuous pressure from the opponent. According to (Badawi and Nasrulloh, 2023, p313), small-sided games and rondo games achieve high percentages of accuracy in passing, which is very important, with the advantage of rondo games compared to another type of small-sided games with an increase

of 15.5% compared to 13.5%. This is confirmed by Ramadan Sabie in his study, which showed that rondo training has a great role in improving the passing skill and the ability to perform it accurately due to its frequent use and repetition in training under conditions similar to the reality of the game (Ramadan Sabie, 2023, p. 353).

The researcher believes that the Rondo exercise effectively simulates players' performance and positioning on the field in an actual game, where most confrontations occur in superior or inferior formations like 3v1, 4v2, 5v3, among others. This is attributed to the specific rules and conditions set by the coach during the Rondo, including playing with one or two touches, adjusting the space constraints, and varying the number of participants, with constant visual scanning to locate the teammate, and the next motor task (Mahmoud, 2023, p117), such as direct passing, receiving in an empty space, moving the ball, and directing it in such a way that the distance is an indicator of the type, method, and accuracy of the execution.

Conclusion: Rondo training, planned on a scientific and systematic basis, teaches the development of various abilities and aspects of players during the training unit by placing them in playing positions that resemble real situations during the game with a set of exercises that develop the player's ability to understand and perceive the variables of the game and how to respond to solve issues during the game, which allows the player to acquire cognitive and sensory experiences that are integrated with time, distance, force and space and their relationship with the development of his skill performance, such as increasing the sensitivity to the ball and proper action with it in a form and shape appropriate to the game's situations.

The superiority of the experimental group over the control group in the degree of development and improvement of the level of visual scanning and accuracy of

the long pass, and this is due to the significant role of the training programme for rondo exercises, which is based on correct scientific principles in terms of intensity, volume and rest periods, in addition to its novelty and the researcher's consideration of the element of suspense and excitement in presenting its content, which effectively contributed to accelerating and increasing the pace of development of the abilities and skills of the experimental group compared to the control group.

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