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The Effect of Speed–Strength Training on Improving Dribbling Speed in Football (Soccer)

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Abstract: This study aimed to examine the effect of speed–strength training on improving dribbling speed among under-19 football players, as dribbling is considered one of the fundamental skills that directly contributes to enhancing individual performance during matches. To achieve this objective, an experimental research design was adopted through the development of a proposed training program based on strength exercises and plyometric training, given their effective role in developing muscular power, explosive acceleration, and motor control associated with skill performance.

The study sample consisted of football players who were divided into two groups: an experimental group that followed the proposed training program and a control group that continued with the conventional training method. Pre- and post-tests of dribbling speed were conducted using tests appropriate to the characteristics of the age group and the specificity of the sport. The results revealed statistically significant differences between the pre- and post-measurements in favor of the experimental group, as well as its superiority over the control group in the post-test, indicating the effectiveness of speed–strength training in improving dribbling speed.

The study concluded that integrating speed–strength training into training programs designed for football players, particularly those under 19 years of age, contributes significantly to the development of skill performance and enhances players' physical and technical efficiency. This supports the importance of incorporating this type of training across different stages of athletic preparation.

Keywords: Speed–strength, dribbling skill, soccer.

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1. INTRODUCTION

The foundational development of football players has become a central focus in achieving the highest levels of athletic performance, enabling players to attain accomplishments not only at the local level, but also at the Arab, international, and global levels (*Afifi, 2009, p. 15*).

Football is considered a highly physically demanding sport with substantial performance requirements. During a full match, players may be required to perform approximately 1,350 high-intensity activities, including jumps, short sprints, and rapid changes of direction involving acceleration and deceleration. These strength- and speed-related activities are essential for success, as they contribute to ball retention or recovery and the creation of goal-scoring opportunities during play. It has also been shown that the ability to produce high levels of running speed, change-of-direction speed, and jumping performance distinguishes more successful youth players from less successful ones. Consequently, player development pathways emphasize the importance of developing strength and speed qualities from an early age (*Oliver, 2023, p. 624*).

During a football match, players repeatedly perform high-intensity movements in which muscular strength is of critical importance (Stølen et al., 2005). Such actions include explosive movements, acceleration, running, kicking, tackling, turning, changing direction, and jumping, which may occur more than 500 times during a match (Stølen et al., 2005). In particular, decisive phases of the match require players to perform at very high intensity levels (Bangsbo et al., 2006; Rampinini et al., 2009). Speed, explosive power, and the ability to repeatedly perform intermittent high-intensity actions are fundamental to success in football (Cometti et al., 2005; Rampinini et al., 2009). Over the past decade, the number of sprints per match in the English Premier League has increased by 85% and 35%, respectively (Barnes et al., 2014). Elite players perform a greater number of high-intensity sprint actions during matches and cover longer distances at very high speeds (Mohr et al., 2003). Furthermore, professional football players have progressively become faster over the past fifteen years (*Swinnen, 2016, p. 1*).

In an analysis by Bernard Turpin of the physical demands in a French First Division match, sprint actions increased from 72 to 109, while actions involving

deceleration and change of direction increased from 40 to 70, leading to the conclusion that an explosive movement occurs approximately every 43 seconds (*Bernard, 2002, p. 135*).

The ability to accelerate and sprint significantly increases the likelihood of reaching the ball first, dribbling past an opponent, creating scoring opportunities, or preventing them. Football is a fast-paced game, and speed and explosive strength have become increasingly important in match situations (*Swinnen, 2016, p. 1*).

The ability to change the direction of the ball is considered one of the most important skills in player evaluation. Team success largely depends on players' ability to dribble and maintain ball possession. Dribbling appears to be more crucial than passing, first touch, and defending. Football requires a wide range of important dribbling skills, as reported in the International Journal of Human Movement and Sports Sciences, such as the ability to vary ball speed through acceleration, deceleration, stopping, and changing direction. Dribbling speed is a decisive factor in match outcomes. Players must use the inside and outside of the feet, the sole, and the arch to change or stop the ball. Ball control is an essential skill for football players, as the ability to execute effective and well-timed dribbling actions with changes of direction is necessary for outstanding performance (*Sridadi et al., 2021, p. 825*).

The level of skill performance proficiency, which often consists of interrelated elements reflecting manifestations of speed–strength, is associated with performing high-intensity muscular contractions at a rapid frequency and repeated execution at the same level. This indicates a high level of speed–strength capacity. The level of speed–strength largely depends on motor coordination, which is fundamentally linked to the functional capacity of the central nervous system. This occurs through improved intramuscular coordination of the muscles involved in performance and precise regulation of their activation timing, while maintaining optimal tension levels in the antagonist muscles. Therefore, it is essential that the development of speed–strength corresponds to its manifestations in competition by selecting exercises that match the direction and movement pathway of skill performance (*Ahmed Jaber Mohamed, 2018, p. 61*).



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Speed–strength training fundamentally depends on the development of the neuromuscular system, with a focus on activating fast motor units (fast-twitch muscle fibers). Physiological adaptation can only be achieved by exposing these systems to the same conditions and patterns required by the movement itself. Physiologically, this type of activity is closely related to the functioning of the central nervous system, which plays a vital role through repeated processes of excitation and inhibition of nerve cells, in addition to the precise and continuous regulation of motor unit activity.

Only through these processes can the highest levels of speed–strength be achieved. The ability to produce this type of strength also depends on muscular work, which reflects the execution of instructions from the central nervous system. Muscles generate the energy required for rapid contractions and must be prepared for this by improving their capacity for fast contraction and increased speed. This process largely depends on coordination among motor units, neural reflexes, and the elastic components within the muscle. Therefore, the muscle's ability to contract at maximum speed, along with flexibility and the ability to relax, plays an important role in achieving rapid muscular contractions, thereby enhancing skill performance (*Ait Lounis, 2011, p. 7*).

Speed–strength is the most frequently utilized physical attribute in football and is manifested in actions such as jumping high and shooting at goal. It also enables players to perform explosive sprint starts, allowing them to attain the required speed in the fewest possible steps, which is of great importance in football. Mufti Ibrahim (1998) considers speed–strength to be the cornerstone of football players' physical performance, as physical, technical, and tactical performance requires very high speeds. Rapid acceleration, jumping, passing, shooting, and attacking the ball all require the use of muscular strength at extremely high speed rates (*Younes, 2017, pp. 45–46*).

Linking muscular strength with execution at very high speed is critically important for distinguished performance in football, given the prevalence of fast and powerful actions in most football skills and tactics, as well as the urgent need to execute sprints, jumps, passes, and shots at high speeds (*Ibrahim, 2014, p. 21*).

Based on the researcher's field observations of club and league team players during competitive matches, a clear deficiency was noted in the speed of executing certain movements and in skill performance levels, as the movements performed by some players lack the strength and speed necessary to overcome opponents. Furthermore, a review of some previous local studies reveals that speed–strength has often been treated as a dependent variable resulting from a specific training method. Therefore, this study aims to address speed–strength training through various methods and approaches to achieve optimal football performance. Accordingly, the following research question is proposed:

Does speed–strength training affect the improvement of dribbling speed in football?

2. General Hypothesis

Speed–strength training has a positive effect on improving dribbling speed among under-19 football players.

3. Partial Hypotheses

- There are statistically significant differences between the pre-test and post-test measurements of the experimental group in dribbling speed, in favor of the experimental group.
- There are statistically significant differences between the post-test measurements of the experimental group and those of the control group in dribbling speed, in favor of the experimental group.

4. Research Objectives

- To identify the effect of speed–strength training on improving dribbling speed.
- To design speed–strength training contents based on modern scientific principles.

5. Definition of Key Terms in the Study



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Speed–Strength

- **Conceptually:**
Speed–strength is the ability to repeatedly overcome resistance using high movement speed, where both strength and speed are below their maximal levels (*Saadi & Majadi, 2022, p. 852*).
- **Operationally:**
Speed–strength refers to the performance of a muscular contraction or a series of muscular contractions at the highest possible speed.

Dribbling Skill

- **Conceptually:**
Dribbling is the act of bringing the ball under the player's control and dominance, keeping it away from the opponent's reach. It must be performed by both defenders and attackers with a high degree of mastery and ball control (*Messaliti Lakhdar, 2014, p. 43*).

It is also defined as the art of evading and deceiving the opponent while being able to change direction at speed while maintaining possession of the ball, using feints performed with the trunk or feet. Dribbling is considered a key weapon for the player and a fundamental factor in executing both individual and collective attacking tactics (*Hassan, 2015, p. 187*).

- **Operationally:**
Dribbling is the process by which a player (whether defender or attacker) controls and protects the ball from the opponent while moving with it quickly and accurately.

6. Previous Studies

First Study

The study by Ketchouk Sidi Mohamed, entitled “*The Effect of a Weight-Training Program on the Development of Muscular Power, Some Physiological Variables, and Skill Performance in Youth Football Players,*” aimed to design a specialized training program based on modern weight-training methods and to identify its effect on developing muscular power, certain physiological variables, and improving skill performance. The study also highlighted the importance of integrating weight-training exercises during the preparation period.

The researcher used an experimental approach with a two-group design (experimental and control) and pre- and post-testing. The program was applied to a purposive sample of 36 players under 17 years of age, divided into two equivalent groups: the experimental group consisted of 18 players from WA Mostaganem, while the control group consisted of 18 players from ES Mostaganem, all competing in the Algerian national championship.

Data collection relied on Arabic and foreign references, interviews, questionnaires, and physical, physiological, and skill tests. Statistical analysis was conducted using the arithmetic mean, standard deviation, Pearson correlation coefficient, and the t-test. The results showed significant improvements in muscular power, certain physiological variables, and skill performance in both groups, with a clear superiority of the experimental group that followed the specialized weight-training program, confirming the effectiveness of weight training in developing the physical and skill capacities of youth football players.

Second Study

The study by Zayer Hamid, entitled *“The Effectiveness of a Proposed Plyometric Training Program in Developing Speed–Strength, Explosive Power, and Certain Basic Skills among Under-19 Football Players,”* aimed to investigate the impact of a proposed plyometric training program on the development of explosive power, speed–strength, and some basic football skills among under-19 players. The study also sought to highlight the importance of using plyometric training during the specific physical preparation phase and to examine the extent to which football coaches employ this training method and its impact on explosive power and speed–strength at this age level.

The researcher adopted an experimental method, with a sample of 20 players selected intentionally and divided into experimental and control groups, all competing in the Eastern League of the Bouira Football Association. Data were collected through personal interviews, questionnaires, and physical and skill tests. These included vertical jump, standing long jump, medicine ball throw (5 kg), sit-ups from the supine position, and single-leg hopping over 30 meters to measure explosive power and speed–strength, as well as shooting power, slalom dribbling with the ball, and shooting accuracy tests.

Statistical analysis involved the arithmetic mean, standard deviation, Pearson correlation coefficient, Student’s t-test, and improvement percentage. The results revealed statistically significant differences between the pre- and post-tests in favor of the experimental group, indicating that plyometric training had a positive



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effect on developing explosive power, speed–strength, and improving certain basic motor skills among under-19 football players.

7. Pilot Study

A pilot study is a small-scale trial conducted to assess the feasibility and validity of the main experiment. It involves defining the target population, determining the test items or types of tests, and selecting a small sample from the population on which the trial is conducted (*Wajih Mahjoub, 1993, p. 235*).

In order to identify potential difficulties that might arise during the application of the tests and to verify the suitability of the research sample, the researcher conducted the first pilot study on September 7, 2022, on a sample of four players. The second pilot study was conducted on September 14, 2022, using the same sample as the first pilot study. After establishing the scientific bases of the tests, the researcher carried out the main training experiment on the research sample on September 30, 2023.

8. Research Methodology

The research method refers to a set of rules established for the purpose of reaching the truth and represents the approach followed by the researcher in studying a problem in order to explore and understand it (*Salah Al-Din, 2003, p. 92*). Scientific research methodologies vary according to the nature of the research, and the selection of an appropriate method depends on the nature of the research problem. Given the nature of the topic and in order to achieve a comprehensive and accurate understanding of the research problem, the experimental method was deemed the most appropriate, as it aligns with the objectives of the study and significantly contributes to accurately examining the relationships between variables.

9. Population and Sample of the Study

The research sample was selected using a purposive sampling method and consisted of under-19 football players, totaling 24 participants. Four players were assigned to the pilot study, while the remaining 20 players were divided into two groups: an experimental group and a control group.

10. Operational Control of Research Variables

Independent Variable

The independent variable is the factor that the researcher assumes to be the cause, or one of the causes, of a specific outcome, and its study aims to determine its effect on another variable (*Malik & Mazrou', 2023, p. 209*). It is the variable that the researcher deliberately manipulates and observes in order to verify its relationship with and impact on the dependent variable (*Karou Al-Azzaoui, 2008, p. 112*). In the present study, the independent variable is speed–strength training.

Dependent Variable

The dependent variable is the phenomenon that appears, disappears, or changes whenever the researcher introduces or modifies the independent variable (*Karou Al-Azzawi, 2008, p. 112*). It is the variable affected by the independent variable. In this study, the dependent variable is dribbling speed.

Extraneous Variables

Extraneous variables refer to the equivalence between the experimental group and the control group with respect to variables that may affect performance level (*Hassan Allaoui & Kamel Rateb, p. 223*).

Accordingly, the researcher implemented a set of procedures to control the research variables, including:

- Controlling morphological characteristics such as height and weight.
- Ensuring that participants were of the same age.
- Controlling training age.
- The researcher personally supervised the training sessions.
- The researcher personally supervised the pilot study procedures.
- Calculating differences between pre-test measurements of the experimental and control groups.

11. Control of Study Variables

The researcher ensured the homogeneity of the study sample with respect to the variables of age, height, and weight. Homogeneity was assessed by applying Levene's Test among the sample participants for anthropometric characteristics, as presented in the following table:



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Table (01): Results of Levene’s Test for Homogeneity in Height, Weight, and Age Variables for the Control and Experimental Samples.

<i>Variables</i>	<i>Levene’s Test</i>	<i>Sig (Levene’s Test)</i>	<i>Significance Level</i>
<i>Height</i>	<i>0.071</i>	<i>0.792</i>	<i>0.05</i>
<i>Weight</i>	<i>0.056</i>	<i>0.815</i>	
<i>Age</i>	<i>0.375</i>	<i>0.548</i>	

From Table (01), it is evident that the sample participants were homogeneous with respect to the variables of height, weight, and age, as the significance values (Sig) of Levene's Test were 0.792, 0.815, and 0.548, respectively, all greater than the significance level of 0.05. Therefore, these data indicate experimental control over the anthropometric and age variables.

Sample Equivalence:

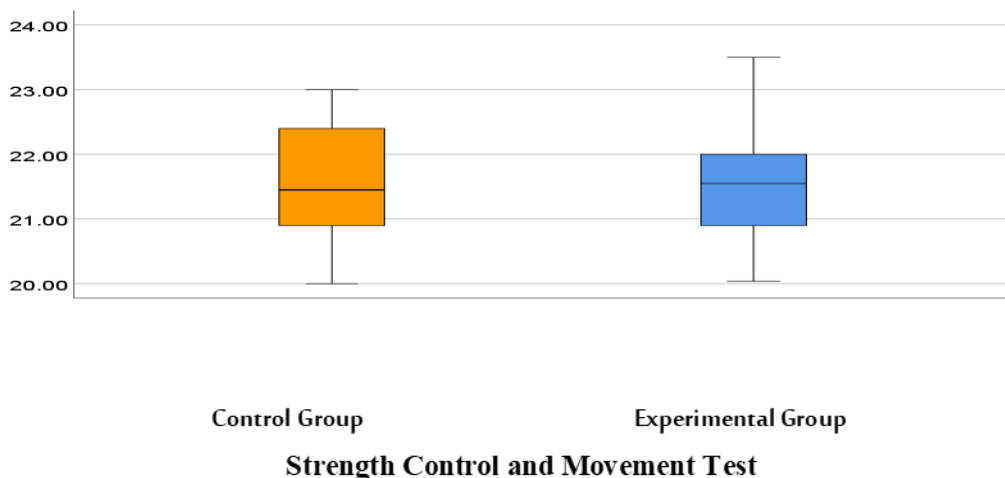
Before implementing the experiment, it is essential to ensure homogeneity between the two groups (control and experimental) and to confirm that there are no significant differences in the variables under study.

- Dribbling Speed:

Table (02): Results of Levene’s Test for Homogeneity in the Skill Variables under Study.

<i>Tests</i>	<i>Dribbling Speed</i>	<i>Significance Level</i>
<i>Levene's Test</i>	<i>0.204</i>	<i>0.05</i>
<i>Levene's Test</i>	<i>0.657</i>	

Figure (01): Boxplot Illustrating the Homogeneity of Dribbling Speed Data under Study.



From Figure (01), it is evident that the dribbling speed data under study are closely clustered. Furthermore, Table (02) shows the homogeneity of the sample participants with respect to the dribbling speed variable, as the significance value (Sig) of Levene's Test was 0.57, which is greater than the significance level of 0.05. Therefore, these data indicate experimental control over the dribbling speed variable under study.

12. Data Collection Tools and Means:

To address the research problem, it was necessary to adopt an appropriate methodology for collecting and examining data.

Source Material:

The source material consisted of various references, including books, memos, and scientific journals, whose content directly pertains to the research topic.

Equipment Used:

The practical tools and equipment employed for the tests included: footballs, medicine balls, hurdles, boxes, cones, rings, discs, resistance ropes, weights, bars, bench press chairs, and mats.



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Research Instruments:

Various instruments were used to collect data, including interviews, tests, and questionnaires, ensuring comprehensive information was gathered on the study variables.

13. Scientific Foundations of the Tests:

Test Reliability:

Test reliability refers to the consistency of a test, meaning that if it is administered to the same individuals again, it yields the same or similar results. Reliability indicates the consistency of test results upon repetition and reflects the stability of the outcomes (*Marouan, 1999, p. 70*).

In this study, the test-retest method was applied to a sample of four players, and Pearson's correlation coefficient was used to analyze the study variables. The results showed that the p-value (Sig. Pearson) was less than the significance level (0.05) for all variables, confirming that the tests possess a high degree of reliability, as illustrated in the following table:

Table (03): Presents the results of the Pearson test used to calculate the reliability coefficient of the tests under study.

<i>Tests</i>	<i>Dribbling Speed</i>
<i>Sig (pearson Test)</i>	<i>0.003</i>
<i>Significance Level</i>	<i>0.05</i>
<i>(pearson Test)</i>	<i>0.997</i>
<i>Self-validity</i>	<i>0.998</i>

Test Validity:

We identified three types of validity:

1. Content Validity:

This type of validity is based on a careful examination of the test content, which refers to the extent to which the test items adequately represent the

situations to be measured. Accordingly, the tests were presented to a panel of referees consisting of university professors and specialists. The tests were approved by **six (06) referees out of eight (08)**.

2. Self-Validity:

Self-validity is calculated as the square root of the reliability coefficient.

Table (03) illustrates this.

3. Objectivity:

A test is considered objective when it yields the same score despite differences among judges

(Awad Saber & Ali Khafaja, 2003, p. 164).

14. Zigzag Running Test with the Ball Between Cones

(Lazem Kammash, 2000, p. 115)

Purpose of the Test:

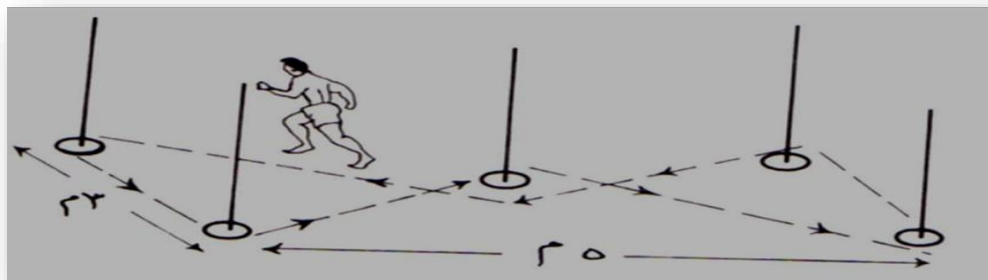
To measure ball control, handling, agility, and dribbling speed.

Test Specifications:

The cones are arranged in a cross shape, with a distance of **5 meters** from the central cone and **3 meters** between the cones. A starting and finishing line is drawn on both sides of the center. The player stands to the right of the central cone. Upon the signal, the player starts dribbling the ball around the first cone, returns to dribble around the central cone, then dribbles around the second cone, completing all cones before returning to the starting point.

-The performance time of the test is measured in seconds, from the start until the player reaches the finish line with the ball.

Figure (02): Illustrates the zigzag running test with the ball between obstacles.





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Training Content:

After reviewing books, references, previous studies, and theses that addressed the foundations and principles of training in general, and the methods and modalities of training speed–strength in particular, and following consultation with specialists in the fields of sports training and football to verify the suitability of speed–strength exercises, the training program was developed in its final form.

After completing the application of all skill and physical tests, speed–strength training was implemented with the experimental group from 02/10/2022 to 02/02/2023. The researcher observed several key points and concluded the following:

The training content was selected through an analysis of scientific sources and consultation with specialists.

Training intensity was set between 90% and 100% of the athlete's maximum capacity, due to the nature of speed–strength exercises, which are performed at maximal speed.

The development of maximal speed–strength is linked to several important principles that play a fundamental role in performance capabilities. This requires performing movements with appropriate resistance according to body weight for a duration of 8–12 seconds, at maximal intensity, as this capacity is associated with the amount of work performed over a short period of time

(ouadallah Ali Al-Atwi & Waspahan, 2009, p. 79).

Speed–strength training was conducted over a period of three months (mesocycles).

The program consisted of four (4) mesocycles, each including three (3) microcycles, with two training units per microcycle.

Weight training, plyometric training, and ballistic training were used in speed–strength development, taking into account the principles of sports training and the players’ level.

The combined training method and contrast training method (heavy–light loads) were applied to achieve the highest level of athletic performance.

Consideration was given to age-specific characteristics and players’ performance levels.

The prescribed work-period durations were not exceeded.

Both the control and experimental groups underwent a general preparation phase, during which certain strength-training techniques were taught and general strength, flexibility, and maximal strength were improved.

15. Statistical Methods:

Homogeneity tests (Levene’s Test).

Correlation tests (Pearson Test).

Normality tests (Shapiro–Wilk Test).

Tests for differences between medians of two related samples (non-parametric) (Wilcoxon Test).

Tests for differences between medians of two independent samples (non-parametric) (Mann–Whitney Test).

All statistical analyses were conducted using SPSS version 27.

16. Presentation and Analysis of Results:

Presentation and Analysis of Pre- and Post-Test Results for the Dribbling Speed Variable:

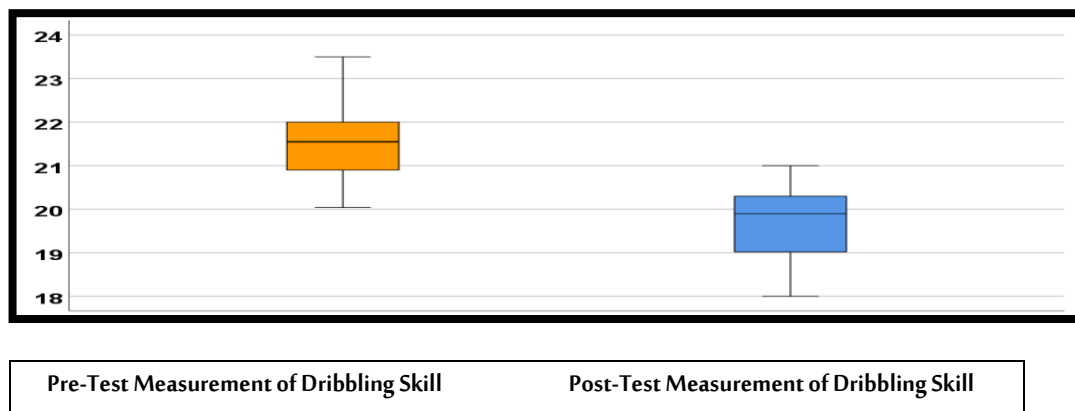


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Table (04): *Presents the statistical results and the significance value (Sig. Wilcoxon) of the pre- and post-measurements for the ball control and movement variable in the experimental group.*

Test	Measurement	MeanStandard	DeviationSignificance	Sig.	Leve	Effect Size
Dribbling Speed (seconds)	Pre-test	21.474	1.045	0.005	0.05	0.88-
	Post-test	19.663	1.014			

Figure (03): *Illustrates a box plot of the descriptive statistical results for the pre- and post-test measurements of the dribbling speed test in the experimental group.*



Based on Box Plot Figure (03) and Table (04), which presents the pre- and post-test results for the ball control and movement variable in the experimental group, it is clear that the group achieved a mean of 21.474 ± 1.045 seconds in the pre-test and 19.663 ± 1.014 seconds in the post-test. The significance value (Sig. Wilcoxon) was 0.005, which is less than the significance level (0.05). This indicates that there are statistically significant differences between the pre- and post-test measurements for the experimental group in the ball control and movement variable, in favor of the post-test.

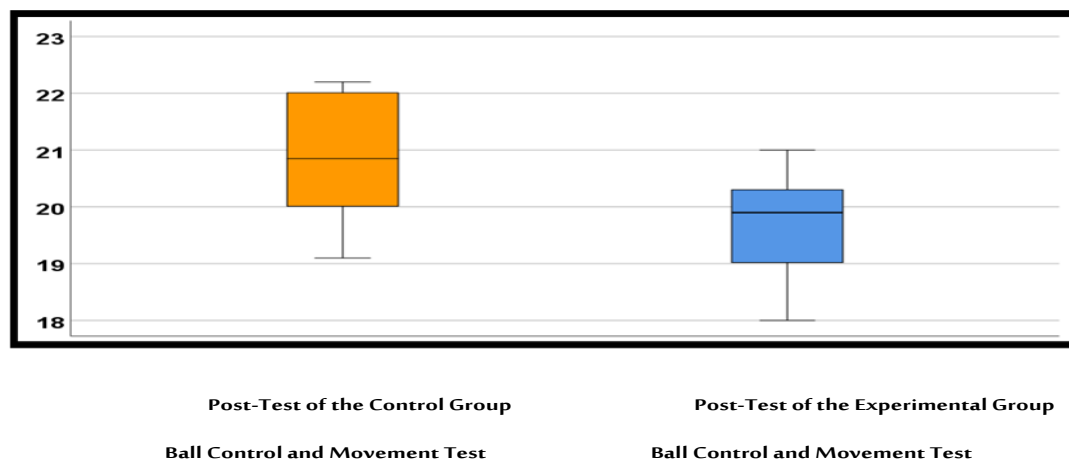
Presentation and Analysis of Post-Test Results for the Control and Experimental Groups in the Dribbling Speed Variable:

Table (05): Presents the statistical results and the significance value (Sig. Mann–Whitney) of the post-test measurements for the experimental and control groups in the ball control and movement variable.

Test	Measurement	MeanStandard	DeviationSignificance	Sig.	Leve	Effect Size
Ball Control and Movement (seconds)	Pre-test	20.813	1.076	0.005	0.05	0.36
	Post-test	19.663	1.014			

Based on Box Plot No. (04) and the results presented in Table No. (05), which represent the post-test results of the experimental and control groups for the ball control and movement variable, it is evident that the control group achieved a mean value of (20.813 ± 1.076) in the post-test of the ball control and movement test, whereas the experimental group achieved a mean value of (19.663 ± 1.014) in the post-test. The probability value (Sig. Mann–Whitney) was (0.005), which is lower than the significance level (0.05). This confirms the existence of statistically significant differences between the post-test results of the experimental group and those of the control group in the ball control and movement variable, in favor of the experimental group.

Figure No. (04): illustrates a box plot of the descriptive statistical results in the post-test for the experimental and control groups in the ball control and movement test.





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Interpretation of Results:

Based on the statistical processing of the raw results of the experimental sample in the post-test compared with the post-test of the control sample, statistically significant differences were observed in the ball control and movement test. This was evident in both Table No. (05) and Figure No. (04). The researcher attributes these differences to the effect of applying a training program focused on speed–strength development, which contributes to improving the function of fast-twitch muscle fibers, enhancing the speed of repeated neural signals to the muscles, and improving strength and coordination.

Amir Supriadi (2015) emphasized that football players must master the basic dribbling techniques and possess good physical fitness, which includes essential physical components for playing football such as strength, speed, flexibility, balance, coordination, agility, endurance, explosive power, accuracy, and reaction time (*Mohamed Zaki Youssef et al., 2022, p. 126*). The ability to dribble in football cannot be separated from the support of good physical fitness. Among the factors that can influence dribbling ability are speed, agility, leg strength, and eye–foot coordination (Yabes Roni et al., 2021, p. 4220).

These findings are consistent with the study of Katchouk Sidi Mohamed (2010), which concluded that the proposed training program using weight exercises had a positive effect on improving dribbling performance among football players. They also align with the study of Zair Hamid (2018), which found that a proposed training program based on plyometric training methods had a positive impact on improving ball control and movement in football players.

Conclusion

This study addressed a vital topic within modern physical and technical preparation systems, namely the effect of speed–strength training on improving dribbling speed in football among under-19 players. The research stemmed from a practical field problem, namely the observed weakness in the speed of technical performance among players and their limited ability to evade opponents with



strength and speed. To address this issue, a training program was designed based on strength exercises, plyometric training, and ballistic training at high intensities (90–100%), and was implemented using an experimental approach on a homogeneous sample.

Main Findings:

The statistical analysis and comparison between the control and experimental groups revealed the following results:

A significant improvement was observed in the experimental group in the post-tests, as the results demonstrated statistically significant differences between the pre- and post-measurements in the ball control and movement test in favor of the post-test.

The experimental group outperformed the control group in the post-test, confirming the effectiveness of the proposed training program in improving dribbling speed.

This improvement is attributed to the physiological and neural adaptations resulting from speed–strength training, which contributed to enhancing the function of fast-twitch muscle fibers and improving neuromuscular coordination necessary for precise and rapid technical performance.

Suggestions and Recommendations: Based on the obtained results and in line with the objectives of the study, the following recommendations are proposed:

-The necessity of integrating speed–strength training programs (using combined and plyometric training methods) into the annual training plans for youth players (under 19 years), due to their direct impact on developing fundamental skills such as dribbling.

-Emphasizing, when designing physical exercises, that they should closely resemble the movement paths of technical performance during competition, in order to ensure the transfer of training effects from the physical to the technical domain.



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-Employing a variety of training aids (weights, hurdles, boxes) and high training intensities (up to 100%) to ensure optimal stimulation of fast motor units responsible for explosive movements.

-Encouraging future researchers to conduct similar studies examining the effect of speed–strength training on other skills (such as shooting or long passing), or to apply the proposed program to different age categories and specific playing positions.

References

1. Marouan, A. I. (1999). *Scientific foundations and statistical methods of testing and measurement in physical education and sport*. Jordan: Dar Al-Fikr for Printing and Publishing.
2. Afifi, I. S. M. (2009). *Football for juniors: Modern approaches to skill, technical, and tactical preparation (500 practical and applied training exercises)*. Cairo: Markaz Al-Kitab.
3. Hassan, A. S. (2015). The effect of repetitive training on improving the technical performance of football players through enhancing speed–strength ability. *Journal of the Sports System*, 187.
4. Ait Lounis, M. (2011). *The effect of muscular strengthening using plyometric training on the dynamics of speed–strength development among football players under 19 years old* (Doctoral dissertation). University of Algiers 3, Algiers, Algeria.
5. Khudair, S., & Muftah, M. (2022). The relationship between muscular power (speed–strength and explosive strength) of the lower limbs and transitional speed among football players. *Journal of the Educational System*, 852.
6. Al-Azzaoui, R. Y. K. (2008). *Scientific research methodology*. Amman: Dar Dijlah.
7. Sharshoukh, S. A. D. (2003). *Legal research methodology for university students*. Algeria: Dar Al-Ulum.
8. Malik, A., & Mazrou, S. (2023). The effect of a proposed training program using small-sided games on improving speed–strength and shooting accuracy skills among football players under 21 years. *Journal of the Sports System*, 209.
9. Saber, F. A., & Khafaga, M. A. (2003). *Foundations and principles of scientific research*. Alexandria: Al-Ishaa Art Library and Printing Press.
10. Allaoui, M. H., & Rateb, O. K. (n.d.). *Scientific research in physical education and sport psychology*. Cairo: Dar Al-Fikr Al-Arabi.

11. Younes, M. M. (2017). *High-intensity combined training in football*. Alexandria: Dar Al-Wafaa for Printing and Publishing.
12. Msaliti, L. (2014). *Employing a proposed integrated physical preparation training program to develop strength and speed and their effect on improving basic football skills* (Doctoral dissertation). University of Algiers, Algiers, Algeria.
13. Moufti, I. (2014). *Muscular strength patterns and football skills using Mufti's longitudinal method*. Cairo: Markaz Al-Kitab for Publishing.
14. Mahjoub, W. (1993). *Scientific research methods and approaches*. Baghdad: Dar Al-Hikma for Printing and Publishing.
15. Al-Atoui, W. A. A., Al-Zuhairi, M., & Subhan. (2009). *Racket sports games*. University of Mosul: Dar Ibn Al-Athir for Printing and Publishing.
16. Kamash, Y. L. (2000). *Physical fitness for football players*. Jordan: Dar Al-Fikr Al-Arabi.
17. Bernard, T. (2002). *Préparation et entraînement du footballeur*. Paris: Editions Amphora.
18. Oliver, J. L. (2023). Resistance Training Responsiveness of High-Level Male Youth Soccer Players: A Systematic Review and Meta-Analysis. *Sports Medicine*, 624.
19. Sridadi, T., Septiasari, E. A., Parijan, Yuliarto, H., & Ilham. (2021). Effect of Technical Training Using a Ball on the Dribbling Speed for Football Players Aged 10–12 Years. *International Journal of Human Movement and Sports Sciences*, 825.
20. swinnen, b. (2016). *strength training for soccer*. london and new york: Routledge (Taylor & Francis Group).