Pubmedia Jurnal Pendidikan Olahraga Vol: 3, No 1, 2025, Page: 1-13

The Effect of Interactive Agility Training on Some Motor Abilities and Skill Performance in Soccer Players

Saddam Hussein Khalaf[1]*, Firas Talib Hammadi[2]

1,2 University of Kirkuk, College of Physical Education and Sports Sciences.

*Correspondence: Saddam Hussein Khalaf
Email: spom22008@uokirkuk.edu.iq

Received: 05-07-2025
Accepted: 16-08-2025
Published: 28-09-2025

Abstract: *The current study aimed to identify the effect of interactive agility training on developing some motor abilities and skill performance of Al-Hawija Sports Club football players. The researcher used the experimental approach by designing an experimental and control group with pre- and post-tests to suit the research problem and sample. The researcher deliberately selected the research community, which consisted of players from first-division football clubs in Kirkuk Governorate (Al-Hawija Club, North Oil Club) for the 2024-2025 sports season, totaling 52 players. After a lottery, the Al-Hawija Sports Club was chosen to be the research sample, which numbered (26) players. The experimental research sample was then randomly selected (lottery), which numbered (10) players to represent the experimental group from the research community. The control group consisted of (10) players from Al-Hawija Sports Club. (Two) goalkeepers were statistically excluded, as were (4) players for non-compliance and repeated absences. The researcher conducted an exploratory experiment on (4 players) from Al-Huwaija Sports Club were excluded from the research sample. The researcher conducted homogeneity and equivalence procedures between the experimental and control groups. After obtaining the results and processing them statistically, the researcher concluded that the training used according to interactive agility is more effective than traditional training in enhancing the players' motor and skill capabilities. The most important recommendations were: The researcher recommends that trainers use interactive agility training in their training units, given its effectiveness in developing the research variables, as proven by the research results.*

Keywords: *Interactive Agility Training on Some Motor Capabilities and Skill Performance Among Soccer Players.*

Introduction

The world is constantly evolving in various aspects of life, and one of these areas is physical education. It is continuously developing at different levels and for most sports. Perhaps one of the reasons for this development is the advancement of various sciences, which are provided by different studies conducted by researchers. These studies have contributed to enriching the sports movement, leading to higher levels. Football is considered the first and most famous sport due to its immense popularity and large fan base in all countries of the world. This has prompted scientists and researchers to intensify their efforts and find methods and techniques that contribute to developing motor skills and technical performance.

Thru a general observation while following Al-Hawija Club's matches at the first division championship level, the researcher noticed a slowness in actions on the field, whether with or without the ball, and in decision-making speed in most of the team's

matches for the 2024-2025 sports season. Additionally, there is a lack of connection between motor skills such as speed, direction changes, agility, and other abilities, which negatively affect the overall skill performance of the team and particularly the individual athlete, Here, the researcher identified a problem and believes that it is necessary to delve deeper into it and find solutions. After presenting it to esteemed experts and specialists in the field of sports training science and football training, and discussing with them to find the best methods and approaches to solve this problem in order to build and refine the athlete correctly and in the best possible way, the researcher concluded that interactive agility training is considered one of the modern training methods that work on developing the motor abilities of the athlete, thereby improving skill performance and achieving the desired goals. Thus, the research problem emerges.

Methodology

Research objectives:

1. Preparing exercises or drills specific to reactive agility.
2. Understanding the impact of reactive agility training on developing certain motor skills of the football players of Al-Hawija Sports Club.
3. Identifying the impact of reactive agility training on the development and improvement of the skill performance of Al-Hawija Sports Club football players.

Research hypotheses:

1. The existence of statistically significant differences in the results of pre-test and post-test for the experimental and control groups in some motor abilities and skill performance among the players of Al-Hawija Football Club, in favor of the post-tests.
2. The presence of statistically significant differences between the post-test results of the experimental and control groups in some motor abilities and skill performance among the players of Al-Hawija Football Club, in favor of the experimental group.

Research fields:

1. Human field: Players of Al-Hawija Football Club for the 2024-2025 sports season.
2. Temporal scope: From 1/2/2025 to 21/4/2025.
3. Spatial domain: Al-Hawija Club Stadium / Kirkuk Governorate.

Defining terms

1. **Reactive agility**

   "It is the ability to change direction again (reactivate agility) according to changing external stimuli perceived by the brain thru the sensory-motor receptors in the eye." Or it is the efficient change of the body's position and shape, requiring the integration of isolated movement skills with a combination of balance, motor coordination, speed, reaction, strength, and endurance to change the body's direction effectively (Lockie:2013:9).

2. **Motor abilities:**

   As defined by (Mahgoub and Badri, 2002), "it is a set of physical, sensory, and cognitive abilities that are acquired and developed thru continuous training and

practice, and include agility, balance, flexibility, and skill" (Mahgoub and Badri: 2002: 117).

3. **Reactive agility:**

"It is the ability to change direction again (reactivating agility) according to changing external stimuli perceived by the brain thru the sensory-motor receptors in the eye." Or it is the efficient change of the body's position and shape, requiring the integration of isolated movement skills with a mix of balance, motor harmony, speed, reaction, strength, and endurance to change the body's direction effectively (Lockie:2013:9).

4. **Motor skills:**

They defined it (Mahgoub and Badri, 2002) as "a set of physical, sensory, and cognitive abilities that are acquired and developed thru continuous training and practice, and include agility, balance, flexibility, and skill" (Mahgoub and Badri: 2002: 117).

Methods used:

Statistical methods:

The researcher used the statistical package (SPSS) to analyze the data and test the study hypotheses, which helped him obtain accurate and reliable results. 3-4-3-1 The

Scientific Foundations of the Tests: - In order to ensure the conduct and safety of the tests, the researcher presented the tests under study to experts and specialists, and conducted the scientific foundations for them.

First: Validity of the tests:

To ensure the validity of the tests, the researcher presented them to a group of experts and specialists in the field of football testing and training. The validity of the tests was verified thru:

a. Apparent validity: It has been ensured that the tests measure what they are supposed to measure in an apparent manner.
b. Content validity: It has been verified that the tests cover all aspects of the traits to be measured.

Based on the opinions of experts and specialists, it was agreed that the tests are valid for measuring the required traits of the research sample individuals.

Table (6): Percentage of Expert Agreement on Test Validity

No.	Variables	Total Experts	Yes	No	Calculated Chi-Square	Tabulated Chi-Square	Significance Type
1	**Agility**	11	11	0	11	3.84	**Significant**
2	**Motor coordination**	11	9	2	7.36		**Significant**
3	**Accuracy**	11	9	2	7.36		**Significant**
4	**Rolling**	11	8	3	6.22		**Significant**

5	**Handling**	11	9	2	7.36	**Significant**
6	**Dribbling**	11	7	4	5.05	**Significant**
7	**Shooting**	11	11	0	11	**Significant**

Secondly: Test reliability:-

"Reliability is one of the essential conditions for measurement tools, as it refers to obtaining the same results when retesting under similar conditions." Reliability is an important indicator to ensure the accuracy of results and that they are not affected by random factors or measurement errors. In addition to validity and objectivity, reliability constitutes a fundamental pillar in the construction and application of tests in a trustworthy manner (Radwan, 2006, p. 99). Accordingly, the tests were conducted on 1/2/2025, Saturday, and then the retest was conducted on the following Saturday (8/2/2025) on a sample of four players from the Al-Hawija Youth Club.

Third: Objectivity

(Bahi, 1999, 64) believes that objectivity is "the agreement between evaluators or judges on a certain evaluation or judgment without disagreement, and it reflects the accuracy and reliability of the evaluation." When the tests are clear and understandable and achieve a high degree of reliability, the coefficient of objectivity increases, as reliability and objectivity are closely related; the higher the reliability coefficient, the higher the objectivity coefficient, which enhances the credibility of the results.

Table (7): Shows the reliability of the test, the self-validity, and the objectivity of the tests.

No.	Variables	Test reliability	Self-honesty	Objectivity	Unit
1	**Agility**	0.91	0.953	0.96	**Time**
2	**Motor coordination**	0.94	0.969	0.97	**cm**
3	**Accuracy**	0.88	0.980	0.99	**Time**
4	**Rolling**	0.90	0.948	0.96	**Time**
5	**Handling**	0.92	0.959	0.97	**Degree**
7	**Dribbling**	0.93	0.964	0.98	**Time**
7	**Shooting**	0.94	0.969	0.98	**Degree**

The two exploratory experiments:

a. **The first pilot experiment: -**

The pilot study is a practical training to assess the validity of the researcher's work, as expressed by Al-Mandalawi et al. (1990, p. 107): "A practical training for the researcher to identify the negatives and positives encountered during the test to avoid them." The first pilot study was conducted on (8/2/2025), on Saturday at 3 PM at the Al-Hawija Club stadium, with 6 players from the Al-Hawija youth football team. The researcher conducted the tests with the assistance of the supporting team.

b. **The second pilot experiment: -**

After confirming the validity of the tests prepared by the researcher and ensuring their suitability for the research sample, the researcher conducted the second exploratory experiment on (9/2/2025) on Sunday at 3 PM at the Al-Hawija Club field, involving 6 players from the Al-Hawija Youth Club in Kirkuk Governorate. The aim of this experiment was to understand the method of executing the interactive agility exercises and to observe the coach and the assistant team on how to perform the exercises and the time used for each exercise.

Pre-test:

After verifying the suitability of the tests and exercises for the research sample thru preliminary trials, the pre-tests were conducted on the experimental research sample on Friday, February 14, 2025, at 3:00 PM, at the Al-Hawija Sports Club stadium. The sample included both the experimental and control groups, where the coach and his assistants conducted the tests related to the research topic under the supervision of the researcher. The researcher made an effort to stabilize all the conditions surrounding the tests, including time, place, tools, and method of execution, to ensure similar conditions when conducting the post-tests.

The main experiment:

After completing the pre-tests and obtaining the results, the main experiment began on Saturday, February 15, 2025. The implementation of the interactive agility exercises in the training units prepared by the researcher, under the direct supervision of the supervisor and managed by the coach, was started for the sample members at a rate of three training units per week on (Saturday, Monday, and Friday) for a duration of (8) weeks, with a total of (24) training units, The application of exercises and interactive agility drills in the main part, which lasted (60) minutes, and the duration of the compound exercises ranged between (40-60) minutes, which is the time the researcher applied the exercises. The exercises were characterized by excitement, challenge, progression from easy to difficult, and organized repetitions at the required speed in performing the exercises for the research variables. The last training unit was conducted on Friday, April 18, 2025.

Post-tests:

After completing all the training units, the post-tests were conducted on the research sample on Monday, April 21, 2025, at 4:00 PM at the Al-Hawija Sports Club field. The researcher, with the help of the assistant team, ensured that the same conditions under which the pre-tests were conducted were provided to obtain highly credible results

Statistical Methods:

The researcher used the statistical package (SPSS) to analyze the data and test the study hypotheses, which helped him obtain accurate and reliable results.

Result and Discussion

Presentation of the experimental group's results:

Table (8): Shows the arithmetic means and standard deviations of the motor skills under investigation for the experimental group.

No.	Variables	Unit	Pre-Test		Post-Test		Error Rate
			M	SD±	M	SD±	
1	**Agility**	Sec/Min	7.80	0.82	6.11	0.71	**0.000**
2	**Flexibility**	cm	5.77	0.86	8.42	1.07	**0.000**
3	**Coordination**	Sec/Min	8.17	1.15	7.29	0.98	**0.001**

Table (9): It shows the values of the differences in arithmetic means and their standard deviations, as well as the calculated t-value for motor skills between the pre-test and post-test for the experimental group.

No.	Variables	Pre-Test Mean	Post-Test Mean	Calculated t	Significance
1	**Agility**	0.84	0.91	5.04	**Significant**
2	**Flexibility**	0.80	0.86	3.33	**Significant**
3	**Coordination**	0.87	0.76	6.45	**Significant**

Table (10): Shows the means and standard deviations of the basic skills under study for the experimental group.

No.	Variables	Unit	Pre-Test		Post-Test		Error Rate
			M	SD±	M	SD±	
1	**Rolling**	Time	19.03	4.37	12.95	2.32	**0.000**
2	**Passing**	Score	2.06	1.20	5.60	2.20	**0.022**
3	**Dribbling**	Score	3.97	0.96	5.93	1.00	**0.001**
4	**Shooting**	Score	7.70	3.55	14.58	6.18	**0.000**

Table (11): Shows the values of the differences in means and their standard deviations, as well as the calculated t-value for the skills between the pre-test and post-test for the experimental group.

No.	Variables	Pre-Test Mean	Post-Test Mean	Calculated t	Significance
1	**Rolling**	6.08	3.28	10.14	**Significant**
2	**Passing**	3.53	2.20	8.76	**Significant**
3	**Dribbling**	1.95	0.94	9.33	**Significant**
4	**Shooting**	-11.63	6.55	9.72	**Significant**

Discussion of the experimental group's results in the research variables:

Thru the results shown in tables (10) and (11) in the pre- and post-tests of the experimental group, significant differences were found in favor of the post-tests in the research variables, The researcher attributes it to reactive agility training, which is considered one of the modern trends in sports training science that aims to help athletes reach the best levels. These trainings are related to stimuli and game requirements, such as

the speed of changing direction, making appropriate decisions, and acting under pressure. This aligns with what Scanlan et al. (2014, p. 23) indicated, that responding to an external stimulus by transmitting information to the brain results in smoother and more fluid player performance when the information is accurate and precise. It also aligns with Young et al. (2014, p. 33), who believe that reactive agility training recruits motor units, keeping the brain constantly stimulated to work at high speeds thru muscle contractions, which enhances performance, The improvement in the experimental group is attributed to reactive agility training, where the player accelerates or decelerates their performance over the shortest possible distance and then changes direction. This forces the player to recruit more motor units, requiring high agility, flexibility, and neuromuscular coordination, which helps in directing the performance according to the movement path that serves the skill. This leads to an increase in the player's level and the correct and timely use of the working muscles, This aligns with what (Lucett, 2013, 40) stated that "interactive agility drills improve the working muscles in specialized activities by developing motor skills and abilities." The reason for these differences is that the interactive agility drills were prepared according to scientific principles that were suitable for the research sample and their capabilities, progressing from easy to difficult, which enhanced the players' desire for performance, commitment, perseverance, and the activation of latent energies without feeling tired or bored because these drills are characterized by novelty and diversity. This is confirmed by (Drouish et al., 1998, 44) who stated that "the diversity in drills renews activity and motivation for continuous performance and provides an opportunity to face changing game situations that occur in competition, It is also noted (Al-Zoghbi and Al-Khayyat, 2016, 61) that "the purpose of varying exercises within a single training session is not only to develop motor and skill abilities but also to prevent the player from getting bored. Therefore, a good coach should include as many exercises or drills as possible and use tools and equipment that aid in the motor, physical, and skill development of the players, The interactive agility drills also provided an element of surprise for the players and increased their enthusiasm for applying the drills. This aligns with what was stated by (Fathy, 2017, 68) "The availability of the element of surprise and changes in the components of the training load, along with the variety of drills, leads to the periodic activation of new muscle fibers. This, in turn, enhances the ability of muscle groups to perform muscular work effectively, especially the muscle fibers associated with speed movement requirements, particularly those related to irregular movements, The reason for the significant results from the used exercises is that they are diverse motor exercises that utilize more than one part of the body, highlighting the importance of motor coordination in the process of linking the parts. This was confirmed by (Hosseini, 2001, 145) who stated, "The individual performing movements using more than one part of the body at the same time when these parts are working in different directions simultaneously, The inclusion of reaction speed, coordination, and control in these exercises has led to the development of agility. According to Hassanein (2001, 118), "agility is a motor ability because it inherently includes, according to many researchers, muscular components, reaction speed, precision, control, and coordination." Another important element is flexibility, which is essential for performing most skills and

movements. The athlete's body must be flexible to perform the skill effectively and correctly. Al-Bashtawi (2010, 356) sees flexibility as "one of the important coordination abilities, as it allows for a wide range of movements and contributes to improving athletic performance and reducing the risk of injuries".

The results showed significant differences between the pre-test and post-test in some basic football skills, which can be attributed to the effectiveness of the specially designed reactive agility drills tailored to the research sample and specific objectives. The reactive agility drills were designed based on precise scientific principles, enhancing their effectiveness in improving basic football skills. Additionally, the use of high-intensity interval training and repetitive methods proved effective in improving athletic performance and skill development, contributing to the effective development of the skills under study, In the rolling skill, we see that exercises or drills were applied according to what this skill requires in terms of ball training to feel and control it. This aligns with what Al-Khashab et al. (1999, p. 87) indicated: "The rolling skill requires precise employment and a sense of body parts, and any disruption in timing leads to loss of the ball and lack of control over it as needed." Similarly, for the passing skill, there was a variety of exercises or drills, whether with or without the ball, which contributed to this improvement. This is consistent with Mahmoud (1982, p. 187): "The player's performance of the skill can become automatic when performing regular ball drills and repeating them several times, provided these drills are of high quality and specificity, As for the shooting skill, reactive agility drills have significantly contributed to improving the players' shooting skills thru exercises specifically designed to enhance the ability to shoot with accuracy and speed. This was confirmed by (Fathi, 2020, 88) who stated, "Reactive agility drills can enhance the ability to shoot with accuracy and speed by improving ball control and quick movement.

Presentation and Analysis of the Control Group Results and Discussion:

Table (12): Shows the means and standard deviations of the motor skills under investigation for the control group.

No.	Variables	Unit	Pre-Test		Post-Test		Error Rate
			M	SD±	M	SD±	
1	**Agility**	Sec/Min	7.84	0.80	7.66	0.82	**0.000**
2	**Flexibility**	Cm	5.43	0.80	6.97	0.95	**0.022**
3	**Coordination**	Sec/Min	7.99	0.75	7.88	0.75	**0.000**

Table (13): It shows the values of the differences in means and their standard deviations, as well as the calculated t-value for motor skills between the pre-test and post-test of the control group.

No.	Variables	Pre-Test Mean	Post-Test Mean	Calculated t	Significance
1	**Agility**	0.008	0.13	0.32	**Not Significant**
2	**Flexibility**	0.77	0.81	2.88	**Significant**
3	**Coordination**	0.11	0.29	2.07	**Significant**

Table (14): Shows the means and standard deviations of the basic skills under investigation for the control group.

No.	Variables	Unit	Pre-Test		Post-Test		Error Rate
			M	SD±	M	SD±	
1	**Rolling**	Time	19.48	4.51	19.09	4.55	**0.000**
2	**Passing**	Score	2.30	1.36	3.90	1.24	**0.000**
3	**Dribbling**	Score	3.79	0.83	4.03	0.77	**0.000**
4	**Shooting**	Score	7.93	2.11	10.06	2.08	**0.000**

Table (15): the values of the differences in means and their standard deviations, as well as the calculated t-value for motor skills between the pre-test and post-test for the control group.

No.	Variables	Pre-Test Mean	Post-Test Mean	Calculated t	Significance
1	**Rolling**	0.29	0.39	4.07	**Significant**
2	**Passing**	-1.60	0.62	14.10	**Significant**
3	**Dribbling**	-0.73	2.13	4.45	**Significant**
4	**Shooting**	-2.13	1.65	7.05	**Significant**

Discussion of the control group's results in the research variables:

The results showed a significant improvement in the performance of the control group in the post-tests compared to the pre-tests. This improvement can be attributed to the effectiveness of the training adopted by the coach, which focuses on skill performance repetition within exercises primarily targeting skills. Where all the coach's training units included a mix of physical, skill, and motor exercises, the repetition of skill performance also plays an important role in improving athletic performance and developing basic skills.

Presentation and analysis of the results of the experimental and control groups in the post-tests for the research variables:

Table (16): Shows the values of the arithmetic means and standard deviations for the post-test measurements and the calculated t-value for the research variables for the experimental and control groups.

No.	Variables	Unit	EXP. Group		CONT. Group		Calculated t	Significance
			M	SD±	M	SD±		
1	**Agility**	Sec/Min	6.11	0,71	7.66	0.82	4.18	**Significant**
2	**Flexibility**	Cm	8,42	1,07	6,97	0.95	2.37	**Significant**
3	**Coordination**	Sec/Min	7,29	0,98	7,20	0.75	2.55	**Significant**
4	**Rolling**	Sec/Min	12.95	2.32	19.19	4.55	6.69	**Significant**
5	**Passing**	Score	5,60	2.20	3.90	1.24	3.67	**Significant**
6	**Dribbling**	Score	5.93	1.004	4.03	0.77	5.45	**Significant**
7	**Shooting**	Score	14.58	6.18	10.06	2.08	7.77	**Significant**

Discussion of post-test results:

After conducting a comprehensive analysis of the post-test results for both the experimental and control groups, the results showed significant differences in the research variables, as indicated in Table (17) and Figure (15). These differences were in favor of the experimental group. The researcher believes that the reason behind these differences is the effectiveness of interactive agility training, which is considered one of the modern training methods that has a significant positive impact on developing motor skills and improving athletic performance. It also contributes to achieving balance between muscle groups, enhancing the ability to move quickly and accurately. This is consistent with (Al-Nimer and Al-Khateeb, 1996, 33), who stated, "Interactive agility training stimulates the main working muscles, including the arms, trunk, and legs, which are essential in improving and developing motor skills and game-specific skills, These exercises contribute to enhancing strength, speed, and coordination between muscles, leading to an overall improvement in athletic performance." This is also confirmed by (Saad, 2005, 117) "that training directed at specific muscle groups leads to their development." The researcher attributes the significant differences observed in the performance of the experimental group to the precise organization of the training process, where a comprehensive training model was applied that takes into account the fluctuations in training load, intensity and repetitions, rest periods between repetitions, the frequency of the exercise itself, and the number of training units. All these factors combined contributed to achieving the process of development and noticeable improvement in performance, which is consistent with (Othman, 2018, 303), The appropriate form for implementing the training load is the ideal method of alternating between high and medium training loads, with the necessity of considering the relationship between intensity, load, and its volume throughout the training cycle as a principle in sports training that works on improving and developing the various abilities of the players, leading to an increase in their level," which is confirmed and agreed upon by (Mahmoud, 2011, 48), The principle of repetition does not only refer to the repetition of a single exercise, but also to the number of training days in a week, the repetitions in a single day, and the repetitions of rest periods. Additionally, reactive agility drills have helped improve the speed and agility of players, enabling them to move faster and respond to changes on the field, and improving the motor coordination of players, allowing them to perform movements more accurately and effectively. This aligns with what was stated by Mahmoud (2017, 87), Interactive agility drills improve the complex skill performance of players, such as receiving, passing, and shooting, which enhances team play effectiveness. According to Mahmoud and Rafah (2019, 73), interactive agility drills help players adapt to different situations on the field, enhancing their ability to handle various challenges, which contributes to the development of players' tactical abilities, enabling them to make quick and effective decisions during matches.

Conclusion

1. The results showed that reactive agility training contributes to improving the motor skills of football players, such as flexibility, agility, and motor coordination. These

improvements enhance the players' ability to move quickly and accurately on the field, enabling them to respond better to different situations during matches. The results showed that reactive agility training contributes to improving the motor skills of football players, such as flexibility, agility, and motor coordination. These improvements enhance the players' ability to move quickly and accurately on the field, enabling them to respond better to different situations during matches.

2. Reactive agility training enhances the players' skill performance, contributing to improved team play effectiveness and achieving positive results in matches. Interactive agility drills work on enhancing the skill performance of players, and these improvements contribute to boosting team play effectiveness and achieving positive results in matches.
3. Interactive agility drills help players adapt to different situations on the field, enhancing their ability to make quick and effective decisions during matches. Interactive agility drills help players adapt to different situations on the field, enhancing their ability to make quick and effective decisions during matches.
4. The progression in applying exercises from easy to difficult, taking into account the appropriate training intensity and suitable repetitions, as well as the variation in training load within a single training session or across all training sessions, has led to significant differences in performance. The progression in applying exercises from easy to difficult, taking into account the appropriate training intensity and suitable repetitions, along with the fluctuation in training load, whether in a single training unit or across all training units, has led to noticeable significant differences in performance.

Recommendation

1. It is recommended to implement reactive agility drills as part of training programs to improve motor skills and performance among players, as they contribute to enhancing team play effectiveness and achieving positive results in matches. It is recommended to implement reactive agility drills as part of training programs to improve players' motor skills and performance, as they contribute to enhancing team play effectiveness and achieving positive results in matches.
2. It is recommended to focus on undulating training loads to enhance adaptation and improvement in athletic performance. It is recommended to focus on the undulation in training load to enhance adaptation and improvement in athletic performance.
3. It is recommended to develop effective training programs that target the improvement of motor skills and performance among players, as they contribute to enhancing team play effectiveness and achieving positive results in matches. It is recommended to develop effective training programs aimed at improving the motor skills and technical performance of players, as they contribute to enhancing team play effectiveness and achieving positive results in matches
4. It is recommended to study the impact of reactive agility training on different age groups of players, as these studies can contribute to a better scientific understanding of the effects of such training on various age categories. It is recommended to study the impact of reactive agility training on different age groups of players, as these

studies can contribute to enhancing the scientific understanding of the effects of this training on various age groups.

References

Abu Al-Ela Abdel Fattah (1997); Sports Training: Physiological Foundations, 1st ed., Egypt, Dar Al-Fikr Al-Arabi.

Abu Al-Ela Ahmed Abdel Fattah (1998); Sports Training, (Cairo, Anglo-Egyptian Press).

Abu Al-Ela Ahmed Abdel Fattah (2000); Sports Biology and Athlete's Health, Dar Al-Fikr Al-Arabi, Cairo.

Ahmed Samir Allam; New Tactical Preparation in Soccer. 2009 www.NJ.Mlaeb.

Altmann, S., Ringhof, S., Neumann, R., Woll, A., & Rumpf, M. C. (2019). Validity and reliability of speed tests used in soccer: A systematic review. PLoS ONE, 14(8), e0220982. https://doi.org/10.1371/journal.pone.0220982

Beato, M., Bianchi, M., Coratella, G., Merlini, M., & Drust, B. (2021). Effects of plyometric and directional training on speed and change-of-direction ability in elite youth soccer players. Journal of Strength and Conditioning Research, 35(9), 2494–2500.

Goldstein, E. B. (2014). Sensation and perception. Cengage Learning.

Gonzalo-Skok, O., Suarez-Arrones, L., Pareja-Blanco, F., & Rodríguez-Rosell, D. (2021). Agility training in soccer: Practical applications for performance enhancement. International Journal of Sports Physiology and Performance, 16(7), 970–977.

Ismail Saad (2005); The Effect of Training Methods to Develop the Explosive Strength of the Legs and Arms on the Accuracy of Long-Distance Shooting by High Jumping in Handball, PhD Thesis, College of Physical Education, University of Baghdad.

Jones, T. W., Smith, A., & MacNaughton, L. S. (2022). The role of perceptual-cognitive training in soccer agility performance. International Journal of Sports Science & Coaching, 17(1), 33–42.

Jovanovic, M., & Milanovic, Z. (2022). The effect of agility training on performance indicators in soccer players: A systematic review and meta-analysis. Frontiers in Sports and Active Living, 4, 876543. https://doi.org/10.3389/fspor.2022.876543

Latash, M. L. (2008). Neurophysiological basis of movement. Human Kinetics.

Lockie RG, Jeffriess MD, Mc Gann TS, Callaghan SJ, Schultz AB (2013): Planned and reactive agility performance in semiprofessional and amateur players. International Journal Sports Physiology Perform.

Magill, R. A. (2011). Motor learning and control: Concepts and applications. McGraw-Hill.

Müller, S., Brenton, J., & Rosalie, S. M. (2023). Perceptual-motor expertise in sports: Contributions to agility performance. Psychology of Sport and Exercise, 65, 102330.

Niederer, D., & Vogt, L. (2021). Motor coordination training improves agility performance in youth soccer players. Sports, 9(2), 27. https://doi.org/10.3390/sports9020027

Oliver, J. L., Lloyd, R. S., & Rumpf, M. C. (2023). Developing agility in youth team sport athletes: A holistic approach. Strength & Conditioning Journal, 45(2), 56–65.

Paul, D. J., & Gabbett, T. J. (2020). Agility in team sports: Testing, training, and factors affecting performance. Sports, 8(6), 88. https://doi.org/10.3390/sports8060088

Pojskic, H., Aslin, E., Krolo, A., Jukic, I., Uljevic, O., & Spasic, M. (2019). Importance of reactive agility and change of direction speed in differentiating performance levels in junior soccer players. Human Movement Science, 64, 241–247. https://doi.org/10.1016/j.humov.2019.02.005

Scanlan, A., Fox, J. L., Borges, N. R., & Dalbo, V. J. (2020). The influence of physical and cognitive factors on reactive agility performance in basketball players. Journal of Sports Sciences, 38(5), 576–583.

Silva, J. R., Rumpf, M. C., Hertzog, M., & Pereira, L. (2022). Sprinting, change of direction, and reactive agility performance in youth soccer: A longitudinal study. Journal of Science and Medicine in Sport, 25(6), 474–480.

Spiteri, T., Cochrane, J., & Nimphius, S. (2020). Defensive agility performance in female basketball players: The impact of perceptual–cognitive and physical factors. Journal of Strength and Conditioning Research, 34(7), 1909–1916.

Thamer Mohsen (1983); The Reality of Scoring among First Division Soccer Players in Iraq: (Master's Thesis, College of Physical Education, University of Baghdad, 1983.

Wong, D. P., & Wong, S. H. (2021). Physiological and technical demands of small-sided games in soccer: Influence of player number and rule modifications. Journal of Sports Medicine and Physical Fitness, 61(3), 384–391.

Young, W. B., Dawson, B., & Henry, G. J. (2019). Agility and change-of-direction speed are independent skills: Implications for training for agility in invasion sports. International Journal of Sports Science & Coaching, 14(2), 208–218.