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The Effect of Compound Training Exercises on Some Components of Coordination Ability, Precision in Handling, and Scoring for Female Football Players in Baghdad Indoor Football Clubs

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Abstract

Achieving a high level of performance in indoor football necessitates a high degree of proficiency in the game's specific requirements, along with the mastery of offensive skills and coordination abilities that contribute to adaptive motor performance in various in-game scenarios. The research problem lies in insufficient training curricula to meet the growing demand for specialized physical, technical, and coordination capabilities essential for optimal performance. The research aims to formulate comprehensive exercises aimed at enhancing specific components of coordination abilities, as well as the precision of ball handling and shooting skills for female indoor football players. The researchers employed the experimental method, with the design of two equivalent groups, experimental and control, as the methodology for conducting their research. The research population was purposively determined and consisted of women's indoor football clubs in Baghdad, including the following clubs: Al-Quwa Al-Jawiya, Al-Zawraa, Al-Tijara, and Biladi. The total number of players in these clubs was 94. The research sample was selected randomly using a lottery method, focusing on players from Al-Zawraa's indoor football club, which consisted of 24 players, making up 25.53% of the Baghdad football clubs' population. Goalkeepers were excluded from the sample due to the differences in their training routines, resulting in a final research sample of 20 players. This sample was divided into two groups, an experimental group and a control group, each comprising 10 players. The researchers concluded that compound exercises positively influenced the development of certain components of coordination ability and the accuracy of handling and shooting skills for the experimental group. This improvement was more significant in the experimental group compared to the control group among the sample of indoor football players. Furthermore, adopting compound exercises that focus on enhancing the precision of skill performance in handling from different angles and shooting accuracy from a distance of 12 meters proved effective for indoor football players, and this achieves one of the sustainable development goals of the United Nations in Iraq which is (Good Health). The researchers recommend the importance of focusing on the skill performance of indoor football players by incorporating compound exercises that align with both coordination and physical aspects, similar to skill performance. They also emphasize the need to apply the compound exercises used by the researchers to enhance components of coordination abilities in other indoor football skills.

Keywords

Compound exercises, some components of coordination ability, indoor football.

Introduction:

Achieving a high level in indoor football requires mastering offensive skills and coordination abilities that contribute to adaptive motor performance, transitioning from defense to

offense, including elements such as speed, dribbling, precise ball handling, intercepting the ball for counterattacks, and quickly returning to defense. This necessitates coordination abilities and motor skills that align with various in-game

situations. The importance of this research lies in the utilization of compound motor-skill exercises. One of the significant distinguishing features of these exercises is that they simultaneously train strength, speed, and coordination while establishing a crucial connection between these elements. Consequently, they enhance an athlete's ability to achieve optimal and accomplished performance in both training and competitive environments.

Since indoor football is one of the rapidly spreading sports, thanks to its wide popularity, and is among the most widely played team sports worldwide, it is crucial to build a pool of high-level players, both male and female, in line with modern gameplay requirements. This was emphasized in a study by Diana Haider, stating, "therefore, coaches are required to prepare non-traditional, repetitive training sessions using various methods accompanied by equipment and tools to instill a spirit of competition and enjoyment in the training process" (1).

Building players according to structured training programs based on sound scientific principles is essential from all physical, skill, and coordination perspectives. As both Mais and Liqaa have pointed out, it is crucial to achieve a higher level in applying the tactical duties set by the coach for players during the game (2). This can be achieved through the use of compound physical and motor-skill exercises that serve the skill aspect. One of the key features of these compound exercises is that they simultaneously train strength, speed, and coordination while establishing a crucial connection between them. These exercises offer diversity and, at the same time, enhance an athlete's ability to achieve optimal and accomplished skill performance in both training and competition.

Coordination ability, with all its components, constitutes the sum of the required motor coordination. Additionally, mastering proper technique is one of the crucial conditions for achieving optimal performance. Considering it as a significant physical and motor component, it

holds great importance in applying players' skills since it is interconnected with numerous physical and motor components and characteristics. It significantly contributes to the rapid learning and mastery of both individual and complex skills. Those who excel in coordination ability can change their movement direction with precision, fluidity, and correct timing, whether on the ground or in the air. Moreover, they possess the ability to apply another movement with a different tactic. This precision in handling is essential for indoor football players. The research problem, as identified through the academic and field experience of the researchers and their field observations of local training sessions and matches, as well as consultations with experts and specialists in indoor football coaching, revolves around the lack of control and mastery over both the body and the ball. This problem is exacerbated by the neglect of coordination abilities required for motor skills, leading to inefficiencies in terms of effort, time, and resources. These coordination abilities are considered fundamental prerequisites for attaining high-level motor skills. Consequently, the researchers decided to conduct this scientific study aimed at developing certain components of coordination abilities, specifically positional awareness, adaptation to changing situations, and rhythmic coordination. They do so through compound exercises that work to enhance the precision of ball handling and shooting. These skills are foundational for indoor football players at both training and competitive stages.

The research aims to develop compound exercises for the improvement of certain components of coordination ability and the precision of handling and shooting skills for indoor football players. It also seeks to investigate the impact of compound exercises on some components of coordination ability, as well as the precision of handling and shooting skills in indoor football players. As for the research hypotheses, there are statistically significant differences between the experimental and control groups in some components of coordination ability and the precision of handling

and shooting skills in indoor football players. Additionally, statistically significant differences exist between the experimental and control groups in some components of coordination ability and the precision of handling and shooting skills in indoor football players in the follow-up tests. The importance of this research lies in the attempt to enhance some components of coordination ability (position estimation, adaptation to changing situations, rhythmic ability) by utilizing a diverse range of compound exercises. These exercises simultaneously train strength, speed, and motor coordination while also developing the components of coordination ability. Furthermore, they aim to improve the precision of handling and shooting skills for indoor football players.

The Method and Procedures:

The researchers employed an experimental methodology with the design of two equivalent groups, an experimental group and a control group, to conduct their research. This design was chosen to suit the nature of the research problem. The research population was purposively selected and consisted of women's indoor football clubs in Baghdad, specifically the clubs (Al-Quwa Al-Jawiya, Al-Zawraa, Al-Tijara, Biladi). These clubs had a total of 94 registered players who

were part of the Iraqi Indoor Football Federation for the sports season (2021-2020). As for the research sample, it was randomly selected using a lottery method from among the players of Al-Zawraa's indoor football club, comprising 24 players. This sample represented 25.53% of the research population, which consisted of Baghdad's football clubs. Goalkeepers were excluded from the sample (4 in total) due to differences in their training routines, resulting in a final research sample of 20 players. This sample was divided into two groups, an experimental group and a control group, each consisting of 10 players. Before implementing the exercises within the training curriculum for the sample, the researchers ensured homogeneity in growth variables (height, weight, chronological and training age) and equivalence between the experimental and control groups in some components of coordination ability and the two researched skills. As for the tests used in the research, the researchers employed the following assessments:

- First:** Agility Test (Shuttle Run) (12)
- Second:** Straight and Zigzag Dribbling Test (13)
- Third:** Passing Accuracy Test (13)
- Fourth:** Shooting Accuracy Test (13)
- Fifth:** Numbered Circles Test (14)

Table (1)

It displays the sample characteristics based on height, body mass, chronological age, and training age.

Variables	Measurement Unit	Arithmetic Mean	Standard Deviation	Skewness	Significance
Height	cm.	158.200	4.709	0.793	Homogeneous
Body Mass	Kg.	57.100	5.547	0.548	Homogeneous
Chronological Age	Year	24.500	1.841	0.370	Homogeneous
Training Age	Year	5.200	1.135	-0.478	Homogeneous

Table (2)

shows the equivalence of the two research groups in some components of the coordination ability

Test Name	Measurement Unit	Components of Coordination Abilities	Experimental Group		Control Group		Calculated t-value	(sig)	Significance of Differences
			Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation			
Shuttle Run	Sec.	Adaptation to	22.23	2.77	22.68	2.98	1.606	0.804	Random

		Changing Situations							
Ball Rolling	Sec	Rhythmic Ability	25.75	5.66	25.49	6.88	1.199	0.957	Random
Numbered Circles	Sec.	Position Assessment	9.65	2.74	9.63	2.39	1.067	0.590	Random
Passing Accuracy	Score		10	2.08	10	2.02	0.422	0.675	Random
Shooting Accuracy	Score		4	0.27	4	0.29	1.512	0.138	Random

Statistically significant at the significance level ≥ 0.05 .

Since all skewness coefficients were confined between (± 1) , this is a good indicator. The skewness coefficient showed that all sample individuals are homogeneous under the curve of values confined between $(-3, +3)$. From Table (2) above, the randomness of the differences in the t-test results between the experimental and control groups was confirmed, as the calculated t-values achieved an error level greater than the significance level (0.05), indicating the randomness of the differences and the equivalence of the two research groups in all research variables.

To identify some components of coordination ability and offensive skills that should be present in the players, the researchers reviewed numerous Arabic and foreign sources related to these components and the specific skills of indoor football. Additionally, the researchers met with experts and specialists in indoor football and sports training. Based on this research and consultation, a questionnaire was prepared to

assess coordination ability and its tests, as well as handling and shooting skills. The specific tests were selected using the questionnaire. After collecting and analyzing the survey responses, the researchers proceeded with their study. The researchers identified some components of coordination ability, namely adaptability to changing situations, rhythmic ability, and position assessment. The suitable tests for these components were, respectively, shuttle run, ball rolling, and numbered circles. As for offensive skills (handling and shooting), the chosen tests were handling from various angles to measure precision in handling and shooting accuracy from a distance of 12 meters to assess shooting precision. These tests were selected due to their significance in indoor football. The researchers relied on tests that received an approval rate of 80% from the experts, indicating their suitability for assessing the identified components.

Results:

Table (3)

It shows the mean values and standard deviations for the experimental and control groups in the pre-test and post-test assessments of the studied variables.

Test Names	Variables	Measurement Unit	Experimental group				Control group			
			Pre-test		Post-test		Pre-test		Post-test	
			Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation	Arithmetic Mean	Standard Deviation
Shuttle Run	Adaptation to	Sec.	22.68	2.98	18.16	1.11	22.23	2.77	20.74	3.12

	Changing Situations									
Ball Rolling	Rhythmic Ability	Sec.	25.49	6.88	16.95	5.33	25.75	5.66	22.16	4.88
Numbered Circles	Position Assessment	Sec.	9.63	2.39	6.11	2.22	9.65	2.74	8.18	2.09
Handling Accuracy	Handling from Various Angles	Score	10	2.02	16	3.95	10	2.08	12	3.09
Shooting Accuracy	Shooting Accuracy from a Distance of 12 Meters	Score	4	0.29	9	1.98	4	0.27	6	1.72

Table (4)

It shows the mean differences, standard deviations, t-values, and the level of significance for the pre-test and post-test results of some components of coordination ability, handling accuracy, and shooting accuracy for the experimental group.

Variables	Test Names	Measurement Unit	D	DD	Calculated t-value	(Sig)	Significance of Differences
Adaptation to Changing Situations	Shuttle Run	Sec.	4.52	1.88	3.92	0.012	Significant
Rhythmic Ability	Ball Rolling	Sec.	8.54	1.55	6.881	0.003	Significant
Position Assessment	Numbered Circles	Sec.	7.94	0.17	8.653	0.022	Significant
Handling from Different Angles to Various Distances	Handling Accuracy	Score	6	1.07	5.80	0.003	Significant
Shooting Accuracy from a Distance of 12 Meters	Shooting Accuracy	Score	5	0.96	3.84	0.011	Significant

* significant at an error level of ≥ 0.05

Table (5)

illustrates the mean differences, standard deviations, t-values, and the level of significance for the pre-test and post-test results of some components of coordination ability, handling accuracy, and shooting accuracy for the control group.

Variables	Test Names	Measurement Unit	D	DD	Calculated t-value	(Sig)	Significance of Differences
Adaptation to Changing Situations	Shuttle Run	Sec.	1.49	0.35	2.52	0.042	Significant

Rhythmic Ability	Ball Rolling	Sec.	3.59	0.88	4.06	0.033	Significant
Position Assessment	Numbered Circles	Sec.	0.67	0.25	2.084	0.060	Random
Handling from Different Angles to Various Distances	Handling Accuracy	Score	2	0.28	3.78	0.016	Significant
Shooting Accuracy from a Distance of 12 Meters	Shooting Accuracy	Score	2	0.45	2.99	0.042	Significant

* Significant at an error level of ≥ 0.05

Table (6)

illustrates the mean differences, standard deviations, calculated t-values, and the level of significance between the post-test results of the control group and the experimental group in the post-test assessments.

Variables	Test Names	Measurement Unit	D	DD	Calculated t-value	(Sig)	Significance of Differences
Adaptation to Changing Situations	Shuttle Run	Sec.	3.18	1.41	7.44	0012	Significant
Rhythmic Ability	Ball Rolling	Sec.	11.79	0.55	8.487	0.003	Significant
Position Assessment	Numbered Circles	Sec.	3.52	0.27	4.684	0.010	Significant
Handling from Different Angles to Various Distances	Handling Accuracy	Score	4	1.71	6.642	0.016	Significant
Shooting Accuracy from a Distance of 12 Meters	Shooting Accuracy	Score	3	0.26	4.544	0022	Significant

* Significant at an error level of ≥ 0.05

Results Discussion:

The results presented in Table (4) revealed a significant difference between the pre-test and post-test assessments for the experimental group in some components of coordination ability and the accuracy of handling and shooting skills in indoor football. The post-test assessments showed significantly improved performance compared to the pre-test, as evidenced by the calculated t-values, which achieved a level of error lower than the significance level (0.05). The researchers attribute the significance of the differences to the diverse compound exercises that were developed

following scientifically sound principles. These exercises were tailored to individual differences in terms of intensity, volume, and rest, and they were applied systematically and progressively, with skill repetition under conditions similar to those of competition. Coaches recommend training three days a week, which allows for optimal recovery through varied and well-structured exercises. In addition to introducing lateral movements with and without the ball, the exercises have contributed to the development of muscular strength in the muscle groups involved, working at a higher intensity than what the sample

individuals were accustomed to. This has assisted in enhancing the variable motor performance characteristic of this game, which bridges the gap between physical and motor exercises aimed at improving the components of coordination ability and the accuracy of handling and shooting skills in indoor football players. This is precisely what the researchers have emphasized through the exercises they have prepared. They have taken care to incorporate diversity, variation, and an element of excitement into the training. They have also considered the number of repetitions and ensured that exercise performance closely resembles what occurs in competitive situations. This approach aligns with a study by Ahmed Ali Abdul Hussein in 2017, which stated that "using engaging exercises in training is a crucial factor in improving the technical, physical, and psychological levels of players" (3). The diversity in exercises, incorporated through training units, has played a significant role in enhancing skill adaptation, promoting competition, and challenging players to improve their goal-scoring abilities and the accuracy of their performance in handling and shooting skills in football.

As for the control group, the results in Table (5) indicated a significant difference between the pre-test and post-test in some components of motor performance (adaptation to changing situations, shuttle run) and the accuracy of ball handling and shooting in indoor football, in favour of the post-test. The calculated t-values achieved a level of error lower than the significance level (0.05). The researchers attribute the significance of the differences in the tests (shuttle run, ball rolling, ball handling accuracy, and shooting accuracy) between the pre-test and post-test in favor of the post-test to the effectiveness of the exercises conducted by the control group. These exercises were designed to enhance these skills, as they are related to the sport of indoor football. These components of motor performance and accuracy are linked to general and specific physical preparation, as well as muscle strength, and skill performance. Both of these abilities are

characterized by their correlation with physical and motor skills and offensive skills. They become evident during muscle work in the context of skill performance in ball handling and shooting, as they are fundamental elements of players' performance, resulting from repeated performance, which leads to their adaptation. This aligns with the findings of the study conducted by Asmaa and Dania, which stated that "regular and well-structured training, along with the use of controlled intensity levels in training and appropriate rest intervals between repetitions, leads to performance improvement" (4).

However, in the component of (Situation Awareness), there was no significant difference between the pre-test and post-test for the control group. The calculated (t) values exceeded the significance level (0.05). This suggests that the control group did not show improvement in this component, and the training approach used by the coach did not provide exercises that would enhance motor coordination between the arms and legs, leading to random differences in the numbered circles test, which assesses self-esteem in the control group. The exercises within the coach's curriculum were not sufficient to achieve the desired level of improvement in the researched ability. Comparing this with the experimental group, which showed significant improvement in motor coordination, the reason for this difference can be attributed to the researchers' use of scientific principles, diversity, and repetition in their training exercises. This aligns with a study conducted by Lamia and Widad, which emphasized that "utilizing exercises in a scientific and regulated manner, along with diverse repetitions of exercises, will lead to the development of motor coordination levels, which are fundamental for enhancing individuals' activity and health" (5). Furthermore, El-Sayed Abdel-Maqsoud also "indicates that when performing highly coordinated movements, the nervous system follows the call to activate motor units alongside changes in frequency. This

leads to extremely precise monitoring of muscle contractions by the central nervous system" (6).

In addition, a study by Umaim Mahdi highlights that the effectiveness of football relies on an athlete's ability to sustain strength performance multiple times without experiencing fatigue. Therefore, training in this field involves providing multiple repetitions to delay the onset of fatigue (7).

The results in Table (6) indicate significant differences between the post-tests of the control and experimental groups in all tests (components of motor compatibility and the accuracy of handling and shooting in indoor soccer for female players), in favour of the experimental group. The calculated t-values achieved a level of error lower than the significance level (0.05%). The researchers attribute this improvement in the components of motor compatibility and the accuracy of skill performance in handling and shooting to the compound exercises that had a significant and positive impact on the experimental group, more so than the traditional curriculum implemented by the control group. The aim of the exercises applied to the experimental group was to acquire various motor compatibility abilities in a scientific and regulated manner, which yielded more positive results for the experimental group. The quality of compound exercises, characterized by multi-purpose and multi-directional performance, played a significant role. The researchers emphasized that these compound exercises were designed to interconnect motor and skill-related abilities, aiming to bring the researched abilities to a level of balance and stability in the required performance. They also aimed to enhance the precision of handling and shooting skills for the research sample, as these skills are crucial in indoor soccer, enabling the team to score a higher number of goals. As indicated by the study conducted by Intisar Awaid and others, "the player requires a high degree of balance to perform the required skills and succeed in their

execution" (8). Additionally, a study by Rand and Suhad emphasized that good physical performance leads to achieving the best results, and since then, scoring skills have played a crucial role in achieving goals during matches that qualify the team for winning (9).

Jamal Abu Bishara (2010) further emphasized that "the role of compatibility abilities in achieving results in competition grows as the sport or activity excels in higher performance and achievement requirements, particularly in terms of neuromuscular compatibility. Compatibility abilities are not isolated but are interconnected with other physical, technical, and tactical abilities" (10).

The researchers believe that integrating both skill and physical aspects within a unified framework through compound exercises, including auxiliary tools, excitement, competition spirit, and simulating real performance, creates significant benefits for the players, leading to improved skill performance. Qahtan Fadel confirms that "physical training is one of the effective factors in improving performance levels, and motor skills are not achieved without physical capabilities. The better these capabilities are for the type of activity practiced, the higher the performance level" (11). This is precisely what the researchers emphasized in the training modules for the sample of indoor football players.

Conclusions and Recommendations

First / Conclusions:

In light of the statistical analysis results and within the scope of the research, the researchers have reached the following conclusions:

- 1- Compound exercises have had a positive impact on the development of some components of motor compatibility and the accuracy of handling and scoring skills for the experimental research sample, and this impact is more significant compared to the control group among indoor football players.

- 2- There was an improvement in some components of motor compatibility, including adaptation to changing conditions, shuttle running, rhythmical ability, and situation assessment, for the experimental group among indoor football players.
- 3- Compound exercises have effectively enhanced the precision of skill performance in ball handling from different angles and scoring accuracy from a distance of 12 meters among indoor football players.
- 4- The use of progressive and diversified compatibility exercises in training has motivated and energized the research sample towards training.
- 5- Traditional exercises have had a positive impact on the development of some components of motor compatibility among the control group of players.

Second / Recommendations:

1. It is essential to focus on the skill performance of indoor football players by utilizing compound training exercises that combine motor compatibility, physical fitness, and movement patterns similar to skill performance.
2. There is a need to apply compound exercises, similar to those used by the researchers, to enhance components of motor compatibility in other indoor football skills.
3. Focusing on the components of motor compatibility, physical fitness, and skill-related abilities through specialized exercises and training methods, incorporating various tools to increase excitement and motivation among indoor football players is recommended.

Author's declaration:

Conflicts of interest: None

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

Ethical-Clearance: this manuscript approved by local ethical committee of physical education and sport sciences college for women on (July /2023)

Author's contributions:

All contributions of this study were done by the researchers (M.H. and W.K.) who get the main idea and work on writing and concluding also with number of experts, Habeeb Shakir Jabur (Physical education and Sport Sciences College/ Muthana University) in Statistics, Maurizio Bertollo in revision, Inaam Ghalib in translating, Oliver Stoll in proofreading

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Appendix (1)

An Example of a Training Unit

Intensity Used: 70-75%

Duration of Exercises: 40-50 minutes

Objective: Development of Skill Aspects and Components of Coordinative Ability

Section of the Unit	Exercises	Intensity Used	Exercise Duration	Repetitions	Rest Between Repetitions	Rest Between Exercises	Total Exercise Time
The main section	Rolling the ball for a distance of 5 meters, then passing the ball through three consecutive targets spaced 2 meters apart, followed by maneuvering between five markers for a distance of five meters, then sprinting for 5 meters, and finally shooting at the goal.	70%	2 min.	3	2 min.	2 min.	10 min.
	Start dribbling the ball for a distance of 5 meters, then pass the ball under three consecutive obstacles spaced 2 meters apart, jumping over each obstacle, rolling	70%	2 min.	3	2 min.		10 min.

	the ball between five markers for 5 meters, and finally preparing the ball and shooting at the goal.						
	Running quickly for a distance of (15) meters, then performing zigzags between the goalposts for a distance of (5 meters), followed by rolling the ball in a straight line for a distance of (5 meters), and finally, scoring on the goal.	75%	3 min.	2	2 min.		10 min.
	The player jumps over the rings (6 times) with one leg and (6 times) with both legs. After completing this, they pass the ball under three non-consecutive obstacles spaced (3 meters) apart. Then, they pass the ball to the coach standing on the (7-meter) line, and upon receiving it, they shoot at the goal.	70%	2 min.	2	3 min.	3 min.	10 min.
	The player dribbles the ball in a zigzag fashion between the markers, each one meter apart. After passing the three markers, the player runs to the marker that is (5 meters) away and then dribbles the ball to the other three markers, which are also (5 meters) apart..	75%	1 min.	2	2 min.	2 min.	6 min.

تأثير تمرينات مركبة على بعض مكونات القدرة التوافقية ودقة المناولة والتهديف للاعبات اندية بغداد بكرة القدم الصالات

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3 الجامعة الاردنية / كلية علوم الرياضة – الاردن

مستخلص البحث

يتطلب الوصول الى مستوى جيد من الاداء في لعبة كرة قدم صالات على قدر عالي من الاداء الخاص بمتطلبات اللعبة والى اتقان المهارات الهجومية وقدرة توافقية تسهم وتساعد في الاداء الحركي المتغير لمواقف اللعب, وان مشكلة البحث فتكمن من خلال القصور في المناهج التدريبية التي لا تفي بالحاجة المتزايدة الى القدرات الخاصة بالأداء سواء البدنية و مهارية و توافقية ، ويهدف البحث الى اعداد تمرينات مركبة لتطوير بعض مكونات القدرة التوافقية و دقة مهارتي المناولة والتهديف للاعبات كرة قدم الصالات للاعبات, واستعمل الباحثون المنهج التجريبي بتصميم المجموعتين المتكافئتين التجريبية والضابطة منهاجا لتنفيذ البحث , وتحدد مجتمع البحث بالطريقة العمدية وهن اندية بغداد لكرة الصالات نساء وهم اندية (القوة الجوية ، الزوراء ، التجارة ، بلادي) والبالغ عدد لاعباتهم الكلي (94) لاعبة , اما عينة البحث فتم اختيارها عشوائيا وبطريقة القرعة وهن لاعبات نادي الزوراء بكرة الصالات والبالغ عددهن (24) لاعبة وبنسبة (25.53 %) من مجتمع البحث اندية بغداد , وقد تم استبعاد حارسات المرمى بعدد 4 لاختلاف تمريناتهم , وبذلك بلغ عدد عينة البحث (20) لاعبة قسمت الى مجموعتين تجريبية وضابطة وبواقع (10) لاعبات لكل مجموعة , وقد توصل الباحثون الى عدد من الاستنتاجات منها اثرت التمرينات المركبة بشكل ايجابي في تطوير بعض مكونات القدرة التوافقية و دقة مهارتي المناولة والتهديف للمجموعة التجريبية وبشكل افضل من المجموعة الضابطة لدى عينة البحث بكرة الصالات للاعبات, واعتماد التمرينات المركبة التي تعمل على رفع درجة دقة الاداء المهاري لمهارتي المناولة من علامة الزاوية الى مسافات مختلفة , ودقة التهديف من مسافة 12 م لدى لاعبات كرة القدم صالات, وهذا ما يحقق احد اهداف التنمية المستدامة للامم المتحدة في العراق (الصحة الجيدة). ويوصي الباحثون ضرورة الاهتمام بالأداء المهاري للاعبات كرة القدم للصالات من خلال استثمار تمرينات مركبة توافقية و بدنية و حركية مشابهة للأداء المهاري , ضرورة الاهتمام بتطبيق التمرينات المركبة التي استخدمت من قبل الباحثين في تطوير مكونات القدرات التوافقية في مهارات اخرى بكرة القدم صالات

تمرينات مركبة ، بعض مكونات القدرة التوافقية ، كرة قدم صالات.

الكلمات المفتاحية