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THE EFFECTIVENESS OF APPLYING SURROUND VISION EXERCISES AND VISUAL TRACKING IN IMPROVING MENTAL ROTATION AND DEVELOPING THE SKILL PERFORMANCE OF FUTSAL PLAYERS

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ABSTRACT

The objective of the study was to create visual exercises for peripheral vision and visual tracking, designed by the researcher, with the purpose of enhancing the mental rotation and skill performance of futsal players. Additionally, the study aimed to determine the extent of improvement observed in the research group. The researcher posited multiple hypotheses, one of which was that there would be statistically significant differences between the pre-test and post-test results across all research variables. As the researcher employed the experimental method for the two equivalent experimental and control groups with pre- and post-tests due to the research problem's experimental nature, the total number of the research sample (27) players. The duration of the application of the main research experiment was eleven weeks, and by using two educational units per week, a total of twenty-two educational units were utilised during the application of the main research experiment. After the main experiment was applied, post-tests were conducted for the variables of the research under study and for the experimental and control groups. The exercises were done in the practical part of the main section of the educational unit for 30 minutes. The researcher used SPSS to analyse the pre- and post-test results and found that skill exercises based on surround vision and visual tracking improve mental rotation and skill performance in the players studied. This study proved the importance of skill exercises based on surround vision and visual tracking in developing mental rotation and futsal skill performance, therefore coaches and futsal specialists should take its findings to heart.

Keywords: Effectiveness, Vision Exercises, Visual, Mental Rotation, Futsal.

INTRODUCTION

Futsal is one of the games that once received and continues to receive a great deal of attention, significance, and popularity because it is characterized by having the most entertaining or entertaining skills, as well as by its play it (Launder & Piltz, 2013). In addition, it has a law with clear, uncomplicated paragraphs that are simple to apply, as it leads to the development of the majority of the body's organs, raises the physical level and skills of the participants, and improves their psychological well-being (Yallop, 2011). A private game that specifies its requirements and development strategies. Thus, we conclude that motor learning facilitates constructing, acquiring, and affixing fundamental defensive and offensive skills (Baena-

González et al., 2020). As the game evolved and the number of competition levels increased, it became necessary to develop the methods of teaching and training to provide players with a wealth of information and instil the proper performance techniques to improve their physical and technical abilities (Dogramaci, Watsford & Murphy, 2015). This resulted in the expansion of research and study areas and the discovery of the most effective educational method, the field of motor learning. Numerous studies have focused on the fields of learning to provide the best information for futsal players. Surrounding vision is one of the aspects that futsal players require, as it allows for the application of offensive and defensive plans, as well as the visual tracking that accompanies it during game situations, allowing players to take the best positions and apply the best methods as quickly as possible to achieve success (Moore et al., 2014). The players' progress in mental rotation, which allows for more comprehensive visualization of three-dimensional images, is facilitated by a series of carefully chosen exercises grounded in precise scientific research. This, in turn, enhances their ability to accurately perceive the location of the opposing team, the ball, and their teammates, ultimately leading to successful gameplay and triumph.

Search Problem:

Futsal is a sport that requires a high level of skill and coordination, as players must navigate a dynamic and constantly changing playing field (Travassos et al., 2011). Both offensive and defensive roles demand mental agility and quick decision-making to execute plays with precision and speed, ultimately contributing to the overall success of the game (Launder & Piltz, 2013). And because the game's stimuli rely heavily on sight, it necessitates highly developed visual abilities in the process of viewing various stimuli, perceiving them, and then following them visually; this highlights the crucial significance of visual vision in the sport of futsal (Carolina-Paludo et al., 2020). Including peripheral vision and eye-tracking; as the player in this game interacts with the ball, the opponent, and his teammates, he must engage in visual scanning to acquire the accurate visual information that will determine his success and superiority (de Oliveira et al., 2023). Any deficiency or weakness in visual abilities results in poor skill performance (de Lira et al., 2017). Through the researcher's experience and observation of the performance of the majority of Baghdad futsal club players, he observed a reliance on almost traditional methods and exercises in preparing players and a lack of attention to visual vision exercises. This prompted the researcher to study these abilities intensively by preparing visual vision exercises (surround and visual tracking) that contribute to tumbling. Herein lies the problem of the study in the lack of practice of most players' futsal exercises for surrounding vision and visual tracking in the development of mental rotation and the level of skill performance in educational or training units, resulting in a deficiency in the development of the game in terms of skill and mentality. The researcher wanted to go into this issue to get to the bottom of why sports coaches aren't paying more attention to their athletes' visual sports vision, given its obvious significance.

Research Objectives

Preparing and designing exercises for visual vision (surround and visual tracking) and introducing them into educational units by the researcher that suit the capabilities of the study sample.

Identify the effect of these exercises for visual entourage and visual vision in the development of mental rotation and skill performance of futsal players.

Research Hypotheses

There are statistically significant differences between the results of the pre-and post-tests of the two research groups in the variables of mental rotation of futsal players.

There are statistically significant differences between the results of the pre-and post-tests of the two research groups in the skill performance of futsal players.

There are statistically significant differences between the results of the post-tests of the two research groups in mental rotation and skill performance and in favour of the experimental group.

Research Areas

Human Area: The human field was represented by 27 players of the Baghdad Municipality Club and the electrical industries of futsal for the first division.

Time Area: Extended from 4/4/2022 to 16/6 /2022.

Spatial Area: The spatial area was represented at the Iraqi Football Tennis Federation Hall in Baghdad.

METHODOLOGY

Research Methodology

The researcher used the experimental approach to suit the nature of the problem to be solved and to achieve the objectives and hypotheses of the research and the researcher's use of the design of the two equivalent groups (control and experimental with two tests pre and post). The two groups are in all conditions except the experimental variable, which impacts the experimental group (Brailovskaia et al., 2020).

Research population and sample

The research community was determined deliberately from the players of Baghdad province for the Premier League futsal, which numbered (9) junior clubs (Al-Talaba - Al-Zawra'a - Al-Shorta - Al-Quwa Al-Jawiya - Al-Sinaa - Al-Karkh - Al-Sinaa - Baghdad Municipality - Al-Sinaat Al-Kahrabaiya) as (the selection of the research sample is closely related to the objectives set by the researcher for his research and the procedures used by him will determine the nature of the community he chooses).

The total research community reached (108) players, and the research groups were selected deliberately as the experimental group was included in the club (Baghdad Municipality). In contrast, the control group was represented by the club (Al-Sinaat Al-Kahrabaiya). The research sample numbered (27) players.

Sample Homogeneity

The researcher utilized the torsion coefficient to assess the homogeneity of the research sample in relation to the variables of height, weight, and training age of the players. The torsion coefficient was employed to indicate the degree of dispersion of the sample in a normal distribution, yielding a value of (0.835, -0.614). These values fall within the range of (±3) on the normal distribution curve, signifying a high degree of homogeneity in the research sample, as presented in the accompanying table (1).

Table 1: Shows the homogeneity of the sample.

Variables	Unit of measurement	M	SD	Median	Torsion coefficient
Length	CM	170.5	5.38	169	0.835
Weight	Kg	59.96	4.11	60.5	-0.392-
Training Age	Month	69.69	11.26	72	-0.614-

Means of collecting information

To conduct a successful experiment, researchers must employ various tools and methods to gather data, address research questions, and achieve research objectives. Research tools refer to the instruments and techniques that enable researchers to collect and analyze data effectively (Roa, Schiavon & Parkinson, 2020).

Therefore, he used the following research methods:

Arab and foreign sources.

Observation and experimentation.

Internet.

Test Results Registration Form.

Tests & Measurement.

Research Tests

Mental circulation ability test (Jackson et al., 2001).

Skill Performance Test (Sadiq, 2016).

Exploratory Experience

On the 7th and 8th of March 2022, an exploratory experiment was conducted by a researcher at the hall of the Iraqi Football Tennis Federation. The experiment aimed to test skill performance and mental rotation and was conducted on a sample of five players from the Al-Talaba club. On Saturday and Sunday, March 12-13, 2022, the researcher conducted an exploratory experiment for the exercises of surround vision and visual tracking and applied it to a sample of the research community. The purpose of this experiment was to determine what tools the researcher required for the experiment and to comprehend the auxiliary work of the method of work.

Pre-Tests:

The researcher conducted the pre-tests on Saturday, 02/04/20 22, at exactly (3) pm and at the hall of the Iraqi Football Tennis Federation to test skill performance and mental rotation.

Main Experience:

The researcher conducted the main experiment upon completing the pre-tests and began implementing them on Monday, 04/04/20, 22, on the players of the Baghdad Municipality Club. The main experiment lasted (11) weeks, and one educational unit was repeated twice a week

on Monday and Thursday. After the preparatory section, the exercises are explained on the stations in the educational side of the main section and the performance and how to perform in this aspect are presented. After that, the players are moved to the practical side of the main section; the players are distributed to the stations of the educational unit or to the exercise stations that contain the exercises of surround vision and visual tracking. The applied side of the main section of one educational unit is divided into three stations; the experimental group is divided into these three stations equally, and work is done on all stations at one time and with a specific time ranging from (10) to (15) minutes of work on each station. After that, the transition is made to the second station, and the player and the second station move to the third station, and so on, so that all members of the experimental group work on all stations at the same time and there is no discrimination or difference in performance or repetitions between all stations, errors are corrected by the club's manager To give them corrective feedback (simultaneously) during the performance and the time of the educational unit (75) minutes and the preparatory section for a time of (15) minutes and the main section with a time of (45) minutes and the final section with a time of (15) minutes. The total time of the sections of the educational units (22) (1650) minutes. The main experiment was completed on Thursday, 16/06/2022.

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Post-Tests

The researcher conducted the post-tests after completing the educational curriculum and its units of (22) on 19/06/2022 at exactly (3) in the afternoon, taking into account all the circumstances, conditions and procedures of the pre-tests.

Statistical Means

The researcher used the statistical bag (SPSS) to process the data of all the statistical laws.

RESULTS

Presentation, analysis and discussion of results:

Presenting, analyzing and discussing the results of the pre-and post-tests of the experimental group.

For the purpose of knowing the differences between the pre-and post-tests in the tests under study for the experimental group, the researcher used the (T-test) test for the corresponding samples, as shown in Table (2).

Table 2: Shows the values of the arithmetic mean, standard deviation and test values (T) for the results of the pre-and post-tests of the research variables of the experimental group.

Variables	Unit of Measurement	Pre-Test		Post-Test		df	T	Sig
Mental Rotation	Degree	21.69	5.807	27.23	4.56	5.538	8.08	0.000
Skill Performance	Second	58.14	5.766	47.15	4.33	10.98 -	6.8-	0.000

Observing Table (2), we find that the arithmetic mean of the mental rotation test in the pre-test is (21.69), with a standard deviation of (5.807), and for the post-test, the arithmetic mean was (27.23), with a standard deviation of (4.567). The value of (T) calculated is (8.08), and the value of the degree of significance is (sig) 0.000). It is less than the conventional significance level (0.05), indicating that the differences are significant and favour the post-test. The results of the skill performance test show that the pre-test's arithmetic mean was 58.14 with a standard deviation of 5.766, while the post-test arithmetic mean was 47.15 with a standard deviation of 4.333. The T-value calculated was -6.8, and the sig value was 0.000, less than the 0.05 threshold for statistical significance.

Discussion of the results of the pre-and post-tests of the experimental group:

Tables 2 show statistically significant differences between the experimental group's pre-and post-test scores on all measures of mental rotation and skill performance. Furthermore, the experimental group's performance improved by varying degrees, with some measures showing a 5.54 percentage point increase in proficiency while others showed a 10.99 percentage point increase. The efficacy of the mental rotation exercises utilized in this study is attributed to their precise design and implementation, tailored to the specific abilities of the experimental group. Furthermore, these exercises were simulated to closely resemble the conditions experienced by the learners during the actual competition, incorporating visual exercises that accurately reflect the reality of gameplay, including the player's position on the field. This concept seeks to use visual vision exercises in developing skill performance similar to playing and seeing everything that occurs within the stadium at each station of the educational unit. Nagorsky and Wiemeyer (2020) agree, stating during the match, it is clear that visual training is no less important than physical, skill, and tactical training, as we have correct movements associated with changing situations technically and tactically to achieve the best vision of the field and

analyze situations. The researcher attributes the improvement in the performance of the experimental group in part to the method he used when performing the sample of his research exercises; he deliberately followed the development of mental rotation when implementing the applied side of the main section of the educational unit, reasoning that "the compatibility between the eyes and legs is the most important factor for the performance of the player, and that during the Performa. Thus, a degree of compatibility between the nervous and muscular systems is necessary for all of the abilities a player possesses, whether they pertain to normal movements or skills related to the sports field (Tohme & Odeh, 2022 The process of visual vision and visual tracking is essential, and a lack of vision will cause participants to make erroneous decisions. The experiences of researchers in this field indicate that there is a strong relationship between the level of visual vision and visual tracking, as well as between the possibility of technical performance and plans and that a large proportion of players with a broad and comprehensive field of vision have a high technical position and field intelligence (Redwood-Brown et al., 2019). Studies indicate that participants of football, futsal, basketball, handball, and other games who possess a high level of visual vision and visual tracking are influenced by the nature of the game (Aksum et al., 2020). The researcher believes that exercises of surrounding vision and visual tracking are of great importance in futsal halls in the education and training of the performance of various movements and skills, through which it works to improve visual abilities through repetition to train the eye, so the introduction of visual vision exercises in the training unit, independently or implicitly, is one of the most important vital factors that aid in the development of visual and motor skills. Uluda et al. (2021) note that vision exercises should be performed in conjunction with training sports skills rather than by themselves to develop a player's vision and skills.

Presentation, analysis, and discussion of the results of the pre-and post-tests of the control group:

For the purpose of knowing the differences between the pre-and post-tests in the tests under study for the experimental group, the researcher used the (T-test) test for the corresponding eyes, as shown in Table (3).

Table 3: Shows the values of the arithmetic mean, standard deviation, and test values (T) for the results of the pre-and post-tests of the search variables of the control group.

Variables	Unit of Measurement	Pre-Test		Post-Test		df	T	Sig
Mental Rotation	Degree	22.69	4.130	23.38	3.428	0.692	2.63	0.022
Skill Performance	Second	55.78	5.472	52.71	4.758	3.068-	4.89-	0.000

Table (3) shows that there was a statistically significant difference between pre-and post-test scores on the mental rotation test, with the pre-test having an arithmetic mean of (22.69) and a standard deviation of (4.130) and the post-test having a mean of (23.38) and a standard deviation of (83.42). The calculated T-value was 2.63, and the calculated degree of difference was 0.022, both smaller than the conventional significance level of 0.05. The study reveals that the pre-test's arithmetic mean for the skill performance test is 55.78, with a standard deviation of 5.472. Similarly, the posttest's arithmetic mean is 52.71, with a standard deviation of 4.758. The calculated T-value is -4.89, and the resulting score (sig) is 0.000, less than the standard

significance level of 0.05. This finding suggests that the observed differences are significant and favour the post-test.

Discussion of the results of the pre-and post-tests of the control group

Based on our analysis of Table 3, it can be concluded that all research variables exhibited statistically significant differences throughout the 11-week study period. Notably, while the control group demonstrated some degree of development in these variables, the experimental group exhibited greater development rates. Nascimento et al. (2021) assert that visual training is important in futsal, particularly in developing diverse movements and skills. The repeated training of the eyes through visual training can enhance visual ability, rendering it a crucial factor in enhancing visual and motor skills. Consequently, coaches must differentiate and evaluate the visual abilities of players beforehand when devising a visual training program. Visual training is incorporated into the training regimen either independently or implicitly. Particularly when operating under conditions of elevated psychological and training intensity (Latella & Haff, 2020). Visual abilities are similar to physical skills that can be learned, trained, practised and developed as a result of training; in a way, Grosprêtre and Gabriel (2021) assert, numerous athletes endeavour to enhance their performance by honing their visual acuity. The capacity to effectively process visual information is crucial for attaining optimal athletic performance, as it enables athletes to engage in effective reasoning and analysis of game situations during competition. The proficient execution and evaluation of abilities are similarly observed in the aptitude assessment, whereby the primary focus is on the overall performance of the skills encompassed in the examination. Learners have undergone numerous iterations of these skills in various formats, enabling them to demonstrate their proficiency. They are attaining a noteworthy improvement in performance and rate of progress between the pre-test and post-test. The capacity to assess a situation through consensus (i.e., eye-leg coordination) is a technique employed in the execution of the scoring skill under consideration. Numerous iterations of this skill were performed in adherence to the principle of compatibility. (Eye-leg). Composite movements refer to skills that involve multiple, dual, or triple components that are seamlessly integrated without any separation. These skills are executed as a cohesive unit, with each component operating independently without interfering with the others while potentially enhancing the overall movement (Trecroci et al., 2015).

Presenting, analyzing, and discussing the results of the post-tests of the two research groups.

The researcher used the law (T) on the results of the post-test of the experimental and control research groups for all research variables to determine which of the two groups is the most influential. Table (4) shows this.

Table 4: Shows the values of the arithmetic mean, standard deviation, and test values (T) of the results post-test of the research variables for the experimental and control groups.

Variables	Unit of Measurement	Experimental		Control		df	T	Sig
Mental Rotation	Degree	27.23	4.567	23.38	3.428	3.846	2.57	0.024
Skill Performance	Second	47.15	4.333	52.71	4.758	5,556-	3,33-	0.006

Observing Table (4), we find that the arithmetic mean of the mental rotation test for the experimental group is 27.23 with a standard deviation of 4.567, whereas the arithmetic mean of the same test for the control group is 23.38 with a standard deviation of 3.428 and the calculated value of (T) is (2.57) The value of the score Sig (0.024), which is less than the standard

significance level (0.05), indicates that there are significant differences in favour of the experimental group between the performance of the two groups on the post-test of this variable. The study conducted a skill performance test and determined the arithmetic mean and standard deviation for the experimental and control groups. The experimental group had a mean of 47.15 and a standard deviation of 4.333, while the control group had a mean of 52.71 and a standard deviation of 4.758. The calculated value of T was -3.33, and the degree of significance (Sig) was 0.006, which is smaller than the standard significance level of 0.05. This indicates that a significant difference was observed between the two groups in this variable, with the experimental group performing better.

Discussion of the results of the post-tests of the two research groups:

Upon examination of Table (4), it was determined that the experimental group outperformed the control group in all variables studied during the post-tests. This finding supports the efficacy of the exercises developed and designed by the researcher, which were administered to the experimental group. Specifically, the experimental group demonstrated superior performance in most mental rotation tasks and skills addressed in the study. These results suggest that exercises focused on prediction and visual tracking effectively enhance mental rotation and skill performance, resulting in superior performance compared to the control group in all mental rotation and skill performance outcomes. The researcher has attributed the observed differences in the study to the meticulous preparation of the training curriculum employed, which incorporated a series of specialized exercises aimed at enhancing visual vision and tracking abilities. These exercises were designed to simulate the performance requirements of futsal and have demonstrated efficacy in fostering the variables that were investigated. The pinnacle of the phenomenon was manifested in the proficiency exhibited by the participants of the empirical study in executing the given task. The researcher applied the exercises, which yielded a level of performance that was comparable to that of the competition during matches, with regard to the precision of skill execution. The training regimen comprised fundamental futsal skills exercises, which were presented through visual stimuli. This approach aligns with Erickson's (2020) assertion that visual training is a widely employed technique in sports performance, given its impact on athletes' ability and efficacy in executing specialized sports practices.

Through the results that we reached from the analysis of variances and the presentation of statistics all of them confirmed the existence of statistically significant differences between groups in favour of the group that benefited from mental rotation exercises in telemetry, which means that there is an effectiveness of the surrounding vision exercises and visual tracking in developing the mental rotation ability of the player. This can be explained by the effectiveness of training programmes and their usefulness in developing the cognitive mental abilities of athletes, as numerous field experiences and studies in various fields have revealed the positive impact of exercises and exercises in enhancing cognitive and mental skills, including the ability to mental rotation in athletes, and this is supported by the study of Williams, Davids, and Williams (1999) Concerning the effect of visual vision training on cognitive performance. The researcher has attributed the lack of significant difference in the development of mental rotation and skill performance between the experimental and control groups to the methodology employed in the exercises. Specifically, the exercises focused on linking the performance of

multiple skills and repeating such exercises to enhance the players' performance level. As a result, the control group demonstrated a higher rate of development compared to the experimental group with similar abilities, as evidenced by the pre-and post-test results.

Moreover, the adequacy of the value of (T) in producing a noteworthy distinction between the outcomes of the pre-and post-tests was verified by Weinberg and Gould (2023); effective development of athletic level can be achieved through meticulous planning, careful exercise selection, and gradual increase in exercise difficulty. This methodology enables the attainment of rudimentary proficiencies and the command of corporeal characteristics. The present study posits several factors contributing to the observed phenomenon. Specifically, the findings of Quaiser-Pohl, Geiser, and Lehmann (2006) suggest a positive correlation between scores on the mental rotation test and the rates of development of technical performance skills among players. The findings of the present investigation align with the prior research conducted by Scharfen and Memmert (2019) and Fawver et al. (2020), which demonstrated a positive correlation between mental rotation and skill performance. Regarding the enhancement of futsal skill performance, the researcher may attribute it to the level of engagement and responsiveness exhibited by the participants of the research sample towards the visual exercises and visual tracking techniques employed during the study. This observation underscores the significance of such exercises in meeting the demands of the futsal game. Given the interdependent and intricate nature of futsal skills, influenced by competitors and environmental factors, players must possess situational awareness and perceptual acuity to optimise their performance. Consequently, targeted exercises focusing on peripheral vision and visual tracking are necessary to enhance futsal players' skill levels. According to Rodrigues (2020), peripheral vision is a sensory system that exhibits awareness of the surrounding environment and its stimuli. This system is specialised in motor control, which enables players to control their movements unconsciously and precisely. The existence of this mechanism in motor and skill performance suggests that players can access it without conscious deliberation, owing to the surrounding vision that detects the location of the movement and the elements required for its execution. This ability is a result of the experiences that the player has been exposed to in similar situations. According to Rojas Ferrer et al. (2020), the player can move freely across the field while simultaneously tracking the trajectory of the ball, as well as the movements of both opposing and fellow players. This is achieved using peripheral vision, which enables the player to accurately perceive the speed and direction of these various stimuli, even when they are outside the range of central focus and located in different areas of the visual field. The eye is the primary sensory organ responsible for the perception of visual stimuli. It enables individuals to discern the appearance and spatial relationships of objects in their surroundings, as well as facilitate the cognitive processes of attention and attentional shifting. The exercises employed in this study for enhancing precision and visual tracking were comprehensive, encompassing all aspects of the field of vision and its angles, attentional processes and their transformations, and the ability to follow events from multiple perspectives. According to Vater, Williams, and Hossner (2020), the eyes should train on the smallest details. It is not merely a device to receive light and detect objects in the ocean; rather, it serves a greater purpose and requires inventive training. The rationale behind this assertion is rooted in the inherent characteristics of the locomotive ability execution, particularly in collective

sports such as futsal. In contrast to static performance, which is constrained by a specific threshold, mobile skill performance operates in an environment replete with numerous overlapping stimuli. Consequently, players must exert greater control over the engine while tracking and pursuing their desired objectives. This underscores the critical role of surrounding vision and visual tracking, as any deficiency in information acquisition can result in a corresponding decline in motor performance (Wani, 2022). Sajjadi, Ewais, and De Troyer (2022) assert that exercises can enhance players' cognitive abilities, including critical thinking, meticulous observation, swift motor response, and analysis of diverse in-game scenarios. These competencies are crucial prerequisites for successful team performance during matches. The player's proficiency in cognitive processes such as analysis and decision-making during gameplay is contingent upon their ability to perform with both speed and precision. This system can accommodate all types of inputs. The development of visual perceptual perceptuality is associated with the capacity to perceive pitch and situations. (Bezliudnyi et al., 2019). According to Farley et al. (2020), players participating in a collective game require visual acuity to accurately identify the location of play, the trajectory of the ball, the positions of their teammates and opponents, and the ability to estimate the distances between these variables precisely.

CONCLUSIONS

Through the presentation, analysis and discussion of the results, the following conclusions were reached:

All players in the study sample are in dire need of a high amount of perimeter vision, visual tracking, and the possibility of seeing all players and places on the field expected to pose the greatest danger to the opponent's goal.

It has been proven that the skill exercises based on the surrounding vision and visual tracking prepared by the researcher have a positive and effective impact on the development of mental rotation and skill performance of the players that dealt with the current study and showed that it is suitable for the study sample.

It was found that the effectiveness of the use and application of prevision exercises and visual tracking in the skilled method contributed to the positive development in the ability to mental rotation and skill performance among the members of the research sample.

It was found that the effectiveness of the exercises used surrounding vision and visual tracking under conditions like play situations contributed to the development of their ability to rotate as well as their skill performance.

Surround vision training and visual tracking are just as important as physical, skill and tactical training in futsal.

It was found that the study and knowledge of the ability to mental rotation and skill performance gives a clear picture of the extent of individual differences between players. Therefore, educational and training programs considering these differences are more effective in dissolving them.

. Training using surround vision and visual tracking exercises has a key role in developing the level of performance of the visual abilities of futsal players.

RECOMMENDATIONS

According to his findings, the researcher suggests that:

The results of this study must be considered by all futsal instructors and specialists due to their importance in demonstrating the role of skill exercises based on surrounding vision and visual tracking in the development of mental rotation and skill performance in futsal.

The need for regular eye examinations and visual exercises is an integral component of daily life.

The need for an optometrist to evaluate the functions and visual abilities of participants, particularly futsal players, and utilise modern sports tools and equipment that enhance players' visual abilities.

Training units should include providing appropriate visual exercises, with consideration given to the futsal player's area of expertise.

Attention should be paid to exercises involving peripheral vision and visual tracking due to their impact on the development of mental rotation and skill performance.

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