

The effect of exercises for some sense-kinesthetic perceptions in the developing of the forehand and backhand ground strike with tennis ball

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Abstract: The aim of the research is to: build a program of exercises for sensory-kinesthetic perceptions (perceiving a sense of distance, perceiving a sense of time, perceiving a sense of force, perceiving a sense of movement, perceiving a sense of emptiness) for players under the age of 14 with tennis ball, building tests for the front and back ground strike with tennis ball suitable for players At ages under 14 years old, to identify the effect of exercises for sensory-kinesthetic perceptions in developing basic skills (forward groundstroke, backhand groundstroke) for players under the age of 14 years with tennis ball, to identify the differences in the forehand and backhand groundstroke in tennis ball between the experimental and control groups. As for the research hypotheses: there are statistically significant differences in the development of basic skills (front ground strike, back ground strike) in tennis ball between the pre and post test and in favor of the post test in the experimental group, there are statistically significant differences in the development of basic skills (front ground strike, strike back floor) in tennis ball between the experimental group and the control group, in favor of the experimental group in the post-test. The researchers adopted the experimental approach by designing the experimental and control groups, and with a pre- and post-measurement to measure the variables. The research sample was selected from Karbala tennis players under the age of 14 years, who numbered (15) players. The research sample was distributed into two groups, control and experimental, in a random manner. The most important conclusions: The accuracy of the forehand groundstroke developed among tennis players under the age of 14 years in the experimental group. The most important recommendations: the use of sensory-kinetic exercises used in the research for tennis players under 14 years of age, adding sensory-kinesthetic exercises to the training programs for players under 14 years of age with tennis ball.

INTRODUCTION

Introduction to research and its importance

The game of tennis is one of the sports spread in many countries of the world, and there is an upward effect on increasing the number of its practitioners. This is due to the fact that it is an enjoyable sport for all ages, each according to his abilities and skill. At all times, tennis is also a competitive game that requires a great deal of physical fitness and basic skills, as well as psychological factors that are not important, including kinesthetic- sense perceptions that the player needs to control his movements and perform his skills.

Kinesthetic- Sense perceptions are among the important factors in the process of teaching and developing basic sports skills in general and tennis ball in particular due to the nature of skillful performance, because the greater the sense of movement or skill, the better it can be performed, which leads to a significant increase in performance. The applied concept of motor abilities in the process of receiving and coordinating motor neuron commands for control and neuromuscular compatibility, whether it is for the movement of the player's leg, holding the racket, or hitting the tennis ball.[1]

The importance of the research is evident in the preparation of suitable exercises for the development of kinesthetic-sense perceptions that contribute to benefiting from them appropriately and investing them in developing more than one characteristic of sense-kinesthetics such as directing the body and its parts in space, positioning the arm and leg, the sense of strength and movement, the extent of the sense of time and distance, in addition to that the sensory-kinesthetic perceptions It has a role in increasing the player's ability to differentiate between near and far balls. Those who have a deficiency in determining the proximity or distance of the ball find it difficult to put their bodies in a place that suits a place for good performance. The researchers noticed the lack of interest in developing the neurological and psychological aspects, including sense-kinesthetic perceptions for players under the age of 14 years. Thus, they considered studying this topic as a problem for their research because of the importance of sense-kinesthetic perceptions in developing the front and back hand strike with tennis ball. This requires thinking about finding a way to teach and develop skills. The basic tennis ball is concerned with the development of sense-kinesthetic perceptions, and thus we can prepare the players appropriately to teach and develop the required skills.the research aim to Building a program of exercises for sense-kinesthetic perceptions (perceiving the sense of distance, perceiving the sense of time, perceiving the sense of force, perceiving the sense of movement, perceiving the sense of space) for players under the age of 14 years with tennis ball. Building tests for the front and back hand strike with a tennis ball suitable for players under 14 years of age. Identifying the impact of sense-kinetic exercises on developing basic skills (forehand groundstroke, backhand groundstroke) for players under the age of 14 with tennis ball

Identifying the differences in the forehand and backhand groundstroke in tennis ball between the experimental and control groups. Research Hypotheses There are statistically significant differences in the development of basic skills (forehand groundstroke, backhand groundstroke) in tennis ball between the pre and post- test and in favor of the post test for the

experimental group. There are statistically significant differences in the development of basic skills (forehand groundstroke, backhand groundstroke) in tennis ball between the experimental and control groups, in favor of the experimental group in the post-test.

Research areas

Human field: Karbala governorate tennis players under the age of 14 years.

spatial field: Al Wahda Youth Forum Stadium / Karbala Governorate.

temporal field: From 6/18/2022 to 5/3/2023.

The second chapter: theoretical studies and similar studies

Sports activity is associated with many types of perceptions that can be cultivated and developed during learning and training processes.

Kinesthetic- Sense perceptions in a tennis ball

Perception of the feeling of muscular strength It is the ability of the tennis player to show the appropriate amount of muscle strength necessary to perform a specific movement, such as showing maximum muscle strength or showing moderate or little strength, as is the case when hitting the tennis ball at different distances or correcting the ball to certain areas of different dimensions, as well as it is a Neuromuscular stimuli in the sense organs resulting from external stimuli that go to the different parts of the brain to create close neural connections that make the tennis player feel the amount of force exerted in performing the motor skill. **Perceiving a sense of distance** It is the ability of the tennis player to determine the distance he travels during the performance, then his ability to determine the distance of hitting the ball to a specific place, as well as his ability to determine the distance that separates him between the ball or the opponent player also is the ability of the player to determine his position during the movement performance, as well as the ability to perceive the relationship Between his place in the game and the place of the teammate or the competing players, that is, the awareness of spatial relationships during the motor performance. **Perception of time** It is the tennis player's ability to determine the time of performing a movement or a specific tactical performance. An example of this is the tennis player's realization of the time of feeling the ball by touching it with the racket. This ability is very important in the sports field, as it is imperative for the player to have a full sense of the time that the movement takes. repeated and successive to be able to determine the speed of motor performance. **Awareness of motion** It means moving the common body parts and moving them during the performance in a coherent and coherent manner, and the motor perception is important in the sports activity in terms of realizing the movements performed by the player himself or realizing the movements performed by the competing players. The sense of movement plays an important role in the process of motor coordination, as this feeling is either a sense of muscular effort or a sense of resistance in the case of muscle tension, or a sense of speed of movement, all of which are required and necessary for the purpose of achieving the required level of effective performance during competition and training, where the individual gains The ability to evaluate skill, where muscles play an important role in the player's balance process, for example in the skillful performance of some difficult skills. The continuous and repeated exercise of the internal variables through the sensory perception receptors enables the individual to feel the conditions of his body

during the performance, so the workers in the field of tennis see that the sensory perception is muscular and has a great and actual role in learning and motor performance, as we often see that the coaches emphasize that the players acquire The correct feeling in the motor path, as well as the amount of effort and ability needed for it.[2] Perceiving a sense of emptiness

The personal space of the tennis player, which is concerned with the space directly surrounding the body and reached by the body from a fixed point. As for the public space, it is defined by floors, walls, and ceilings, and both of them (personal and public) are divided into three levels high-medium-low. that is either straight, curved or zigzag. [3] If we take the moving performance against the balls, we will find to what extent our motor apparatus has reached, and the expectation does not come quickly through continuous training on the individual's condition from the beginning of his life as a child, how to learn, and for this we find that the tool's expectation is a complex motor intellectual issue that occurs in tenths of a second, and this expectation occurs when the response Act quickly, as motor expectation is very important in receiving the balls when executing the serve and receiving the strikes, because the player will quickly decide to respond to the method of strikes appropriate to the tactical skillful performance of the situation in executing the strikes and receiving the balls for the racket the moment it is hit. Expectation precedes sensation, and from this we understand that motor expectation is necessitated by prior knowledge in order to be in harmony with it, and we explain the expectation of the tool sent by the competitor in the game of tennis and what is the speed of the balls heading for the serve, as the athlete can receive them and anticipate their arrival.

Research Methodology

research community The researchers adopted the experimental approach by designing the experimental and control groups, with a pre- and post-measurement to measure the variables.

Research community and sample The research community was chosen by the intentional method, and they are tennis players under the age of 14 years. Two groups, control and experimental, in a random manner. The researchers verified the homogeneity and equivalence of the research sample and between the control and experimental groups in terms of age, weight, height, front and back ground strikes.

Forehand and backhand groundstroke tests with tennis ball For the sake of modernity and development in conducting appropriate tests for the basic skills of tennis, the researchers designed tests for the front and back groundstroke for tennis players under the age of 14 years. Their opinions on the proposed basic skills tests with tennis ball, and by processing the results of the opinions of experts and specialists statistically using chi-square, reliability and honesty, it was found that the tests are suitable for the sample of Appendix .

Applied procedures for sensory-kinesthetic exercises The researchers selected a number of (perceptual-kinesthetic exercises) Appendix found in the literature that were presented to a group of experts and arbitrators, Appendix to judge

the validity of each activity for the purpose assigned to it. developed for him, and it included the following sensory-motor perceptions (the sense of movement, the sense of space, the sense of time, the sense of distance, the sense of strength[4] The experiment lasted for (3)

months, and the researchers were keen to apply the (perceptual-kinesthetic exercises) proposed by the researchers to the experimental group only, without the control group seeing it for a period of (30) minutes, which the sports coach works with, at a rate of three units per week between One day and another, the role of the researchers was to supervise and provide the needs only, and the researchers did not interfere in dealing with the control group, as it works according to the regular program that the sports coach works for for a period of (3) months, at the rate of three units per week.[5]

Exploratory experiences

The first exploratory experiment The researchers conducted the first exploratory experiment on (Saturday) corresponding to 6/23/2022 on a sample of (5) players under the age of 14 from the Karbala national team players in the Al-Wahda Youth Forum with tennis ball to apply the (perceptions exercises) unit sense-kinesthesia) which is a sample from the research community and outside the research sample, and its objectives have been achieved. The(Saturday) corresponding to 6/29/2022 on a sample consisting of (5) players under the age of second exploratory experiment The second exploratory experiment was applied on 14 years from Al Wahda Youth Forum players with tennis ball, which is a sample from the research community and outside a sample The research is to apply the front and back ground strike tests with tennis ball, and its purposes have been achieved.

The main experience

Tribal measurements: Tribal measurements were taken on (Monday), corresponding to 4/7/2022. Application of sensory-kinesthetic perceptions: The researchers started applying sensory-kinesthetic exercises, starting with the first unit on(Wednesday) corresponding to 7/6/2022, at the rate of (3) units per week, and ending with the thirtieth (last) unit on (Saturday) corresponding to 8/ 10/2022, (Training site, Unity Youth Forum). Dimensional measurements Dimensional measurements were taken on (Wednesday) corresponding to 10/10/2022

Statistical means The researchers used appropriate statistical methods [6]

Presentation and analysis of results

Table 1. It shows the arithmetic mean, standard deviation, and the value of (T) calculated for the experimental group for the accuracy of the forehand groundstroke with tennis ball the pre and post test.

Improvement rate	Statistical significance	The level	Calculated t- value	Value f	Post-test	Pretest	Basic tennis skills
35%	moral	0,01	10,34	8	48,67	31,63	Accuracy of the frontal ground

It is clear from Table (1) that the (T) value calculated for the frontal ground strike test amounted to (10.34), which is a significant value at the 0.01 level of significance, and the improvement rate reached (35%). Thus, there are significant differences between the pre and post measurement in the group. Experimental performance in the performance of the accuracy of the front ground strike in tennis and in favor of the post-measurement.

Table 2. The arithmetic mean, standard deviation, and t-value calculated for the experimental group are shown for accuracy Backhand tennis ball between pre and post test

Improvement rate	Statistical significance	The level	Calculated t- value	Value f	Post-test	Pretest	Basic tennis skills
29%	moral	0,01	9,58	17,04	43,13	30,78	Backhand accuracy

It is clear from Table (2) that the (T) value calculated for the back ground strike test amounted to (9.58), which is a significant value at the 0.01 level of significance, and the improvement rate reached (29%). Thus, there are significant differences between the pre and post measurement in the experimental group. In performing the accuracy of the backhand kick in tennis, in favor of the telemetry.

Table 3. It shows the mean, standard deviation, and t-value calculated for the experimental group The control for the accuracy of the front ground hit with tennis ball in the post test

Statistical significance	The level	Calculated t- value	The control group		Experimental group		Basic tennis skills
			Standard deviation	Arithmetic mean	Standard deviation	Arithmetic mean	
moral	0,01	8,97	2,41	36,03	2,38	48,67	Accuracy of the frontal ground

It is clear from Table (3) that the (T) value calculated for the frontal ground strike test to (8.97) which is a significant value as it is greater than the level of significance at the level of amounted significance of 0.01. Thus, there are significant differences between the experimental group and the control group in the accuracy of the strike. front floor tennis and in favor of the experimental group.

Table 4. It shows the mean, standard deviation, and t-value calculated for the experimental group The control for the accuracy of the back ground hit with tennis ball in the post test

Statistical significance	The level	Calculated t- value	The control group		Experimental group		Basic tennis skills
			Standard deviation	Arithmetic mean	Standard deviation	Arithmetic mean	
moral	0,01	7,34	2,22	35,61	3,01	43,13	Accuracy of the frontal ground

It is clear from Table (4) that the (T) value calculated for the back ground strike test amounted to (7.34), which is a significant value as it is greater than the level of significance at the level of significance of 0.01. Thus, there are significant differences between the experimental group and the control group in the accuracy of the strike. the back floor tennis and in favor of the experimental group.

Discussing the results

We notice through the tables (4,3,2,1) that there are significant differences in the basic skills of tennis ball between the pre and post- test and in favor of the post- test in the experimental group due to the use of exercises for sensory-kinesthetic perceptions and their moral impact on basic skills and there are significant improvement rates that were (29%-35%) and there are differences between the control and the experimental and in favor of the experimental in the front ground strike and the back ground strike as shown in tables (1, 2, 3, 4) and the researchers attribute to the use of exercises for sensory-kinesthetic perceptions, where the researchers worked on developing and developing the perceptions Sense - motor which is very important in understanding, perceiving and performing basic skills The player cannot perform the skills well except through the development of sensory-kinesthetic perceptions in order for the player to obtain a good skillful performance and achievement.

Where the researchers mention that the sense-kinesthetic perceptions are important in the ability to accurately perform the basic skills of tennis ball and the improvement in the spatial and temporal characteristics of the movement.

The exercises of sensory-kinesthetic perceptions contributed to improving the ability to control and develop the interrelationships between the nervous and muscular-motor systems in order to develop the basic skills of the tennis player. Through the use of aids in exercises that made the player feel sensory-kinesthetic perceptions and their impact on the basic skills of tennis that contributed to the player's control over performance and giving self-confidence to the player to reach the best levels. [7] The researchers mention that the sensory-kinesthetic exercises and the movements directed to the development of perceptions provided the players with an appropriate amount of sensory-kinesthetic information in quantity and quality to form the special motor developments of the tennis player where the sense of skill mentally and physically contributes to the development of the level of performance if it is within a training program based on the scientific standards to which the training operations are subject.[8] The researchers confirm that the sensory-kinesthetic perceptions, including the motor sense, can

be developed and developed through continuous training and effort, and that performance can be developed through the good use of the perceptions, so their impact on the performance of the basic skills of tennis will be positive in order for the player to achieve a high level of skill and performance through training. Continuous, and thus the imposition of the first and second research has been achieved. There are statistically significant differences in the development of sensory-kinesthetic perceptions and basic tennis skills between the pre and post- test and in favor of the post- test and there are significant differences between the experimental group and the control group in favor of the experimental group. The researchers point out the importance of the player's sense of place and time in the post-test through the movement of his body parts, seeing the ball, executing the movement and the ball on the ground or in the air, especially the arms and the movement of the legs. Linking movements and affects the player's movement ability and improves and develops it. The researchers also attribute the clear improvement in the level of performance of the skills of the tennis player to the improvement in the technique that contributed to the development of sensory-kinesthetic perceptions and the improvement of the compatibility processes by developing the development of perceptions in the form of stations measured by time and performance, which contributed positively to controlling the timing and performance of the player that he emphasizes Mahjoub, [9] that the player's sense of time helps him to control his speed in line with the speed of the ball sent to him by the opponent. suitable for taking a space or receiving the ball ... etc., and points out. Robert Nairver [10] The good athletes during training to perform the basic skills in the game of tennis, which require a certain time are more accurate in estimating the time it takes for the motor skill that is they are more close to the real time for the skillful performance. In order to improve the morale aspects of the athlete he cares about the other psychological aspects such as the sense of time and the sense of distance as well as showing morale or insisting on continuing the performance of intense work in the harsh and different conditions that he is exposed to during the competition while he is in a state of extreme fatigue. [11] The researchers confirm that perceiving the sense of distance is very important for the tennis player in estimating the distance when performing hitting the ball or estimating the distance and time in the event of moving to receive the ball from the opponent. The researchers emphasize the importance of sensory-kinesthetic perceptions, including the sense of strength, as it helps in the movement of the joints and the degree of muscle tension in the muscles of the arms of the tennis player. Henry & Rogers, 2009 confirms that the higher the level of sensory-kinesthetic perceptions the higher the learning and development of basic skills will be [12] and the study of Torabi [13] and the study of) Aidar [14] where these studies showed that The athletes who used sensory-kinesthetic development exercises increased and improved their ability to estimate distances, directions and times more than the group that did not use sensory-kinesthetic perceptions (control). The researchers point out that when the tennis player hits the ball towards the opponent, this requires him to have a certain degree of tension in the muscles of the arm, according to the distance that the player desires and the appropriate place to hit the ball to him. It gives us information about body positions, contraction strength and direction while performing basic tennis ball skills. The researchers confirm that the correct perception of the distance of the tennis ball plays the role of superiority during competitions and tournaments. There is no doubt that the player's need to realize the distance is very important, and so is the case with

regard to determining the force needed to reach the goal or to confront the opponent's ball by retreating quickly and at a distance commensurate with the strength and speed of the opponent. It prevents him from winning. The sense of estimating distance and time and its relationship to accurate handling and scoring in football.[15] This confirms what was indicated by (2009, Gandevia & Proske) in terms of the importance of sensory-kinesthetic perceptions of the strength of muscle contraction, which shows its importance in reducing errors directing and correcting movement during its performance in terms of direction or motor path, and this also leads to a higher ability to control fine movements. And maintaining proper motor conditions [16] and the sense of movement plays an important role in accurately estimating the movement of the human body especially those movements associated with spatial estimation and the muscular sensation is the closest follow-up and guidance device for movement. Accuracy is one of the complex physiological characteristics, as mentions that the individual maintains the accuracy of movement in space by changing muscle contractions, and thus accuracy is one of the functions of the nervous system, as is the case in the sensory organs of the muscles and eyes [17] And the researchers confirm sometimes by controlling the player to jump up or to one of the sides to hit the ball and return it to the opponent if it is inside his court, especially if it is far from him, then this requires not only the arms, but also the two legs, and this requires applying a certain appropriate force on the ground according to the speed and height of the ball from In order to jump or bounce on the ball, this requires a high sense-motor awareness in the legs, then it is the role of the arms in how much they extend up or to the side in order to return the ball to the opponent and at the appropriate point to obtain a point. The researchers point out that the results of their research are consistent with the results of the study Ihsan Ali Thabet, 2010[18] in that the exercises that were used for the experimental group showed real differences in the development of sensory-kinesthetic perceptions and some basic skills with the control group that relied on the traditional approach and study. Alaa Badr Nouri, 2020 [19] in that the program has a positive impact on the development of basic skills in tennis, and the results of the research agree with the results of the study Ihsan Thabet, 2011 in that sensory-kinesthetic perceptions contribute to the development of basic skills in tennis

CONCLUSION

In light of the foregoing, the researchers reached the following conclusions The accuracy of the forehand ground strike has developed among tennis players under the age of 14 years in the experimental group. The use of sensory-kinetic exercises had a positive effect on developing the accuracy of the backhand kick for players under 14 years old with tennis ball.

Recommendations

The use of perceptual-kinesthetic exercises used in the research for tennis players under 14 years of age. Adding sensory-kinetic exercises to the training programs for players under 14 years of age with tennis ball. The use of basic skills tests with tennis ball for players under the age of 14 years. Do not ignore the psychological factors in the training units for tennis players under 14 years of age.

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