The Effect of Special Exercises Using Methods to Help Develop Reactive Agility and Perform the Skill of Forehand and Backhand Strokes in Tennis Players Aged (12-14) Years

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Abstract
The goal of the research is to identify the effect of special exercises and methods to help develop Reactive Agility and learn the skill of Forehand & Backhand Strokes in tennis players aged (12-14) years. The researcher assumed that there are statistically significant differences between the (Pre and post test) in Reactive Agility and the skill of the Forehand & Backhand Strokes in tennis players aged(12-14) years. The experimental approach was used to design one experimental group with two pre-tests. The research sample included the players of the national team at the age of (12-14) years in the game of tennis, and the number of (16) players was selected (5) players, including (55.55%) of the original community, and the players were excluded from them and the other (11) because of their inability to adhere to the training curriculum because they are heroes of Iraq in the provinces, the researcher made a special exercise curriculum of (16) units and for a period of (8) weeks, two units per week for each unit (90) minutes , after which the implementation of the curriculum began on 3-7-2022 and the application of the curriculum ended 4/9/2022 , and the researcher reached the most important conclusions that the exercises have a positive effect on the development of Reactive Agility and learning the skill of the Forehand & Backhand of ground tennis, and also recommended to conduct similar studies for samples and other age groups and work on studying new physical and motor abilities.

1 Introduction

Research definition

Introduction and significance of Research

That the interest of specialists in the education and training of various sports, especially tennis, has spent a long time focusing on the skill, physical and functional aspects and developed programs and units to develop them, while we did not find mental training with an active or full role in the educational and training units, and that tennis is one of the games that rely on the element of speed, strength and surprise in its skills and plans and that play goes smoothly through its need to always anticipate the changing positions of the competitor. This comes through the availability of exercises to acquire and learn skills in tennis for different age groups and the effect of these exercises on improving their learning for the player, which must resemble the conditions of play in the game and show the urgent and clear need for Reactive Agility when situations require the player to form a future vision and change the position of the body in an open environment in the light of the player's experience, It is also linked to time estimates that are closely related to the time taken by Reactive Agility within the Turkish prediction programs, and the performance of skills that have a great relationship with the prediction of the frontal and backstroke in particular.

Hence, the research gained its importance as a recipe that deals with a vital topic for those involved in the educational and training process through the researcher's preparation of special exercises using aids to develop Reactive Agility and learn the skill of the front blow in tennis to reach the correct performance to achieve the main goal in the learning process and pay attention to the level of the broad base of age groups as they are one of the pillars of reaching the higher levels in tennis.

Research problem

The researcher was encouraged to study this problem and determine its dimensions in order to help improve the level of the game due to the lack of research dealing with these variables and the game in particular, which necessitated the researcher to introduce special exercises in Reactive Agility and the skill of the Forehand & Backhand Strokes and how to deal with it and discover its direction and alternative possibilities until the player reaches the decision of the behavior he performs .

From the above, the idea of the study was born by the researcher as a scientific attempt through the preparation of exercises to develop the skill of Forehand & Backhand Strokes and Reactive Agility , which took it upon itself to improve the performance of the chosen skill and motor quality in the research. Therefore, the problem of research lies in the following question: - Is the special exercises using methods of assistance contribute to the

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development of Reactive Agility and the skill of Forehand & Backhand Strokes in tennis for players aged (12-14 years) .

1-3 Research Objectives

1. Identify the effect of special exercises and methods to help develop Reactive Agility and learn the skill of Forehand & Backhand Strokes in tennis players aged (12-14) years.

1.4 Research Hypotheses

2. There are statistically significant differences between the (pre- and post-test) in Reactive Agility and the Forehand & Backhand kick skill of tennis players aged (12-14) years.

1.5 Research fields

1. Human field: National team players (12-14 years) in tennis.
2. Time range: (period from 17-1-2022) to(22/7/2022) .
3. Spatial area: (tennis courts in the international people's court) .

1.6 Defining terminology

Reactive Agility

It is the process of linking agility with speed, agility and the ability to change direction unexpectedly are open movements that occur during the course of the game, linking the eye and perception of the situation and then making the decision and then the movement to perform the appropriate muscle work with this stimulus(Abu Al-Ela, 1997).

2 Chapter III – (Research Methodology and Field Procedures)

Research Methodology

The experimental approach was used to design one experimental group with two pre-tests.

The research community and its sample

After identifying the sample of the important steps and stages in the process of conducting the research, the researcher can address the whole community by research and study if the size of this community falls within the limits of its capabilities(Abdullah and Mohammed Ahmed , 1999).

The research sample included the players of the national team aged (12-14) years in the game of tennis, and the number of (16) players were selected (5) players, of whom (55.55%) were from the community of origin, and the players were excluded from them and(11) others because of their inability to adhere to the training curriculum because they are among the heroes of Iraq in the provinces, and tables (1) show the description of the sample.

Table (1) Description of the study sample

No.	Variables	Measuring unit	s	Arithmetic average	Sample	Skewness
1	Chronological age	Year	13.200	13.500	919	-.473
2	Training Age	Year	4.200	4.000	1.135	661
3	mass	kg	39.900	40.000	2.998	275
4	Length	cm	139.200	139.000	2.530	.389

Methods of collecting information and tools used

Methods of collecting information : The researcher used the following

1. Arabic and foreign references.
2. Test scoring forms.
3. Data dumping form tests and measurements.
4. Interviewing.
5. Internet.
6. Module form templates.
7. Auxiliary Working Group (Appendix No. 1) .
8. Questionnaire .

Instruments used in research

1. Various tennis rackets, tennis nets, basketball collectors.
2. Chinese-origin tennis balls.
3. Aluminium sticks 8 feet high.
4. Adhesive tapes, ropes, whistle, tape measure.
5. Medical scale to measure mass and length.

Devices used in research

1. MacBook Air computer.
2. A Chinese-made I-PHON mobile camera.
3. Japanese-made Casio electronic stopwatch.

Tests used in research

The tests for the research were determined by the student and the supervisor, including the mobility and skill (Reactive Agility and the skill of the Forehand & Backhand Strokes in ground tennis to be an indicator to adjust some variables and control them to ensure the accuracy of the results on the one hand, and the effect of the educational curriculum on the learning and development of the skills under study on the other hand.

Tests of motor expectancy components

Reactive Agility Test (Matthew D. Jeffriess, 2015)

1. Purpose of the test: Measuring the Reactive Agility of tennis players.
2. Tools used: poles (6), a quick camera to calculate laboratory time, a distance measuring tape, a geometric protractor to determine the angles.
3. Performance description: The laboratory stands at the starting line and proceeds at full speed in a straight line of (5) m. When it reaches its end (Trigger-Gate), the person standing at the end of the test (Reactive-Gate) directs his arm in a straight line to the right or left direction and randomly for each attempt. The laboratory must go according to the signal and skip the end of

the test (Exit-Gate).

4. Recording: The arithmetic mean of the test time of the six attempts is calculated.

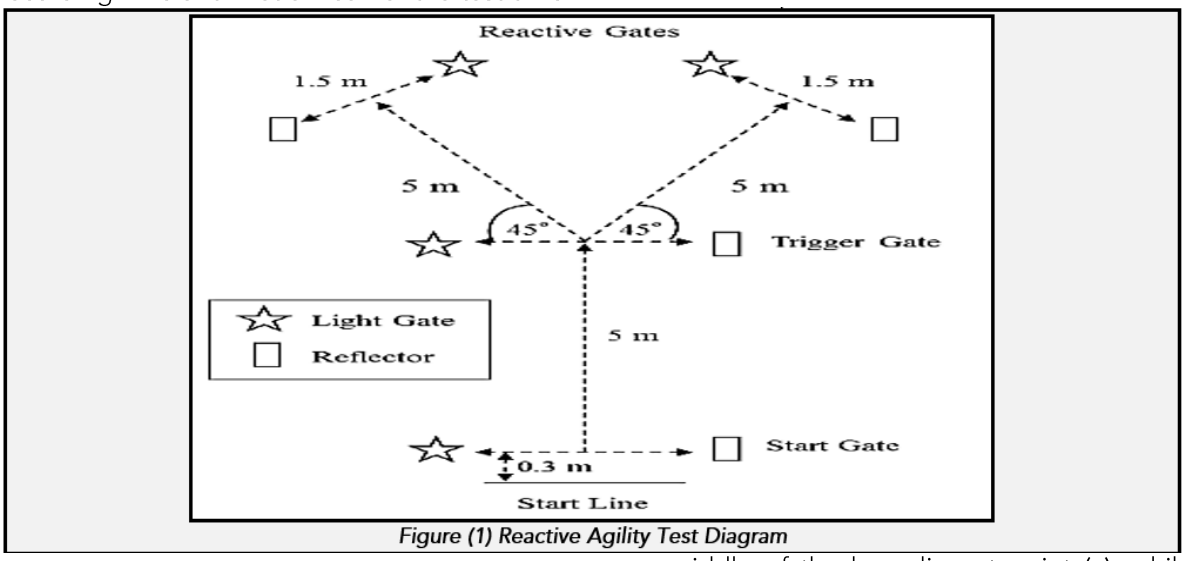

Figure (1) Reactive Agility Test Diagram

Skill tests

Brewer Miller forehand and backhand test (ITF , 2004)

1. Purpose of the test: Test the accuracy of the forehand and backhand stroke.
2. Procedures: Plan the tennis court from one side as shown in the figure below and install a rope from both ends in the two legs of the net parallel to it and at a height of (7) feet from the ground and(4) feet from the net, then draw (3) parallel lines between the transmission line (The.service.line) and the base line (The.base.line) so that the distance between the lines is (5.4) feet.
3. Method of measurement: The numbers (1, 2, 3, 4, 5) indicate the grades assigned to each of the areas where the ball falls. The laboratory wraps on the center marker that is located at the middle of the base line at point (a), while the coach wraps in the half of the pitch facing at point (b) that is located on the midline, and then hits the ball to the pitch behind the transmission line while the laboratory moves from its place to take the appropriate position to hit the ball in a Forehand strike way to pass over the grid and below the rope to fall in the area indicated by the numbers. The laboratory performs performance (10) times in the same way in all attempts. The coach hits the ball in a unified and legal manner, so that it is as similar as possible to the balls in actual playing situations, and the right laboratory begins with the front or rear ground strike.
4. Scoring: The student's score is the sum of the points obtained from hitting (10) balls in the way of the front or rear, and the maximum score of the test (50) score.

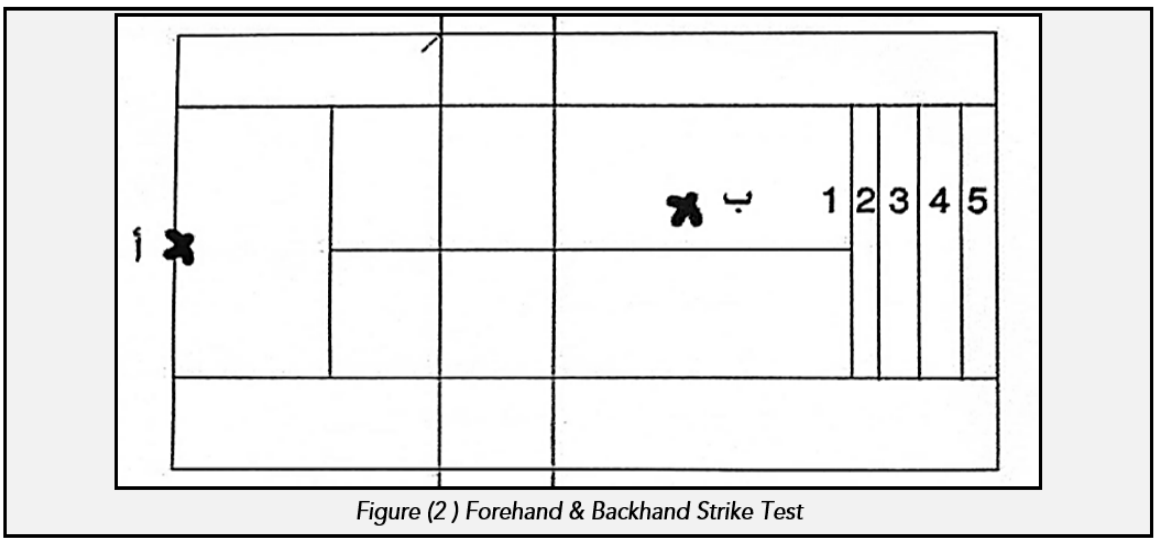

Figure (2) Forehand & Backhand Strike Test

Field Procedures

Exploratory experiment

An exploratory experiment methods " exploring the surrounding conditions in the phenomenon that the researcher wishes to study" (Nouri Al Shouk , 2004). The exploratory experiment was conducted on Tuesday (27/6/2022) at (6:00 pm) on (4) players from the research sample, in order to identify the suitability of the tests for them, the validity and organization of tools and devices, the efficiency of

the auxiliary work team and the calibration of the measuring devices used in the research tests, and calculate and estimate the total time in the implementation of the tests for each player to know the total time of the players and the training unit during the application of the current study to the research sample.

Key Experience

Pre-tests

The researcher undertook the pre-tests, that is, before applying the exercises within the vocabulary of the special educational curriculum of the researcher. The pre-tests were conducted on Friday at 6 pm on 1/7/20 22 on the ground tennis courts in the international people's court and ended on the same day, starting with the test of the Forehand & Backhand stroke skill in ground tennis and then one of the components of the motor expectation (Reactive Agility).

Application of the Special Exercise Curriculum

After the researcher was acquainted with the methods used and by informing the researcher about many available researches, sources and studies, the researcher formed a special exercise curriculum of (16) units for a period of (8) weeks by two units per week for a period of (90) minutes , after which the implementation of the curriculum was started on 3-7-2022 and the application of the curriculum ended 4/9/20 22.

1. In applying the curriculum, the researcher took into account the use of public and private methods in developing the skill of the Forehand & Backhand Strokes s, taking into account the principle of gradualism from easy to difficult and from simple to complex, in addition to stimulating motivation and love of learning among the sample (Muhammad Homs, 1997).

Post-tests

2. After the researcher conducted the pre-tests within the vocabulary of the training curriculum prepared by the coaches of the national teams in the game of tennis, the researcher then, with the help of the assistant team and the instructions and instructions of the supervisor in the implementation of the post-tests on 7/9/2022 and on 8/9/2022, at 6:00 pm, in the same order as the pre-tests. The researcher was keen to commit to creating the same conditions in which the pre-tests were conducted by the auxiliary team, place , time , devices and tools used in the implementation of the test vocabulary.

Statistical methods : The researcher used the statistical portfolio (SPSS) in processing the results of the tests in accordance with the following laws:

1. Arithmetic Mean
2. Standard Deviation
3. Arithmetic average
4. Modulus of torsion
5. (T.test) for associated samples.

3 Chapter IV (Presentation, analysis and discussion of results):

4-1 Presenting and analyzing the values of the differences in the (pre) post-test for Reactive Agility and performing the defensive Forehand & Backhand strike skill and discussing it:

4-1-1 Displaying the values of the test differences (upstream and downstream) for the Reactive Agility of the research sample and analyzing them:

Table (2) Values of differences of research variables for the experimental group

No.	Variables	Testing	s	E.	PRS	E-X	T Value Calculated	Value SIG
1	Reactive Agility	Pre	3.32	019	184	072	2.540	0.04
		Post	3.14	149				
Degree of freedom = 4 Significant at (Sig) < (0.050).								

All the results of the post-tests showed an evolution relative to the results of the pre-test, in the Reactive Agility amounted to (5.73), which shows the amount of the effect of exercises placed in the components of the Reactive Agility of the research sample as a whole.

1-4 Displaying the values of differe nces in the test (Pre and post test) to perform the front/back stroke skill of the research sample and analyze it

Table (3) The values of the differences in the performance of the front/rear stroke skill of the research sample

No.	Variables	Testing	h	E.	PRS	E-X	T Value Calculated	Value SIG
1	Forehand strike	Pre	14.60	4.561	2.200	2.354	.935	043
		Post	16.80	2.387				
2	Backhand strike	Pre	12.00	2.000	7.000	1.140	6.139	– 0.004
		Post	19.00	1.581				
		Post	13.80	1.789				
Degree of freedom = 4 Significant at (Sig) < (0.050).								

All the results of the post-tests showed an improvement compared to the results of the pre-

test, in the frontal blow amounted to (15.07%).Although the indication indicates the significance of the results between the pre-tests and the post-tests.

In the backstroke skill, there were significant differences and development in the backstroke (58.33%), which shows the amount of effect of exercises placed in this skill. The researcher attributes those results of the studied variables to the nature of the exercises and their graduation from easy to difficult, in addition to simulating these exercises for the studied skills in terms of the mental exercises prepared by the researcher, and this is what she confirmed (Nahid Al-Khayyat, 2001) that these exercises "aim to build the body and formation to reach the learner or player to the best possible performance in games, events and various life activities, and there are those who consider special exercises as an advanced and more effective methods of training to link the training components in the preparation period (general – special – competition), and this is confirmed by (Diaa Al-Khayyat and Nofal Muhammad 2001)," as they were considered as a methods to develop the form of training during the preparation and competition period for many sports and their effect is effective and complete to other training methods , so they maintain good cohesion and development of training components. "

And that the correct performance in the sample through the use of mental exercises of a cognitive nature and a sense of correct performance reflect positively on the results of the sample and this is consistent with what he pointed out (Oliver 2009) that the interactive fitness training using visual stimuli contain specific exercises directed to the development of physical and functional capabilities help to increase the perception and sense of correct motor performance, and be in the same direction of the work of the working muscles and the same form of performance of the game skills, they aim to improve the ability of players to control their bodies , and the development of speed, agility and body agility, they are exercises with diverse motor paths characterized by diversity and suspense, which affects performance and works to improve and develop the technical performance of basic skills and positively affects the development of the work of foot movements, which is the key to the success of game skills.

The researcher also attributes the development of the Forehand & Backhand strikes to the repetitions and timings sufficient to develop them and the fact that these two skills are the basis for learning and training to play, so the focus on them was because the group of these strikes is very important, but it is a vital part of learning the arts and skills of the game, so the trainer must focus on these strikes and make the trainee continue for a long time to perform them and focus on them in order to become a good player (Abdul Nabi Al-Jamal , 1988).

1. **Conclusions:** There is a positive effect of the exercises developed and the exercises of the trainer in the development of Reactive Agility and learning the skill of the Forehand & Backhand of the research sample.

Recommendations

1. Conducting similar studies for other samples and age groups and working on studying new physical and motor abilities.
2. Paying attention to the aspect of motor abilities in training more than physical abilities because it is the most important at this age.
3. Work on enriching the training centers for these ages with newer tools and aids because they contribute to the development of players significantly.

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