



Review Article

The effect of proficiency learning using the variable exercise method in learning some motor abilities and accuracy of tennis performance at 16-17 years of age

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Abstract	Manuscript Information
<p>Teaching methods have evolved in the teaching and educational process due to the development of research in physical education, and it is necessary to use many new methods to build and develop the players' abilities, skills, and motor abilities, and their importance in the field of modern learning methods and methods, so that it can keep pace with the progress made in the field of learning and teaching processes, and the importance is evident. The research is that mastery learning in a variable exercise method involves learning some motor abilities and accuracy of tennis performance at the age of 16–17 years in order to advance the learning process for the better, and from here the researcher noticed, through his presence in the field and academic field, the weakness and variation occurring in the level of players' performance due to the lack of diversity. using new educational methods that work to simplify understanding and realizing the correct performance of tennis skills. Therefore, the researcher decided to use new methods in teaching players, including the use of mastery learning in a variable exercise method. The research aims to establish the effectiveness of peer education for cooperative learning in learning some basic skills in the game of tennis accuracy. The researcher used the experimental method with a pre- and post-test for the experimental and control groups to suit the nature of the research. The research population was identified as the tennis players for the Shooting Sports Club in Baghdad Governorate for the 2021 sports season, and they numbered 12 players. The research sample was chosen using a comprehensive enumeration method, and the sample was divided. It was divided into two experimental groups and a control group, with six players in each group. Mastery learning was applied in the variable exercise method for a period of six weeks, with three educational units per week. The researcher used the statistical package SPSS to process the data, and the researcher reached the most important conclusion that mastery learning in the variable exercise method had an impact. Positive in learning some motor abilities and accuracy of playing tennis at the age of 16–17 years.</p>	<ul style="list-style-type: none"> ▪ ISSN No: 2583-7397 ▪ Received: 07-01-2024 ▪ Accepted: 30-01-2024 ▪ Published: 10-02-2024 ▪ IJCRM:3(1);2024:111-115 ▪ ©2024, All Rights Reserved ▪ Plagiarism Checked: Yes ▪ Peer Review Process: Yes
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Keyword: Learning, exercise and motor abilities, teaching methods, Flexibility, Tennis performance

1. Introduction

Teaching methods have evolved in the teaching and educational process due to the development of research in physical education, and it is necessary to use many new methods to build and develop the players’ abilities, skills, and motor abilities, and their importance in the field of modern learning methods and methods, so that it can keep pace with the progress occurring in the field of learning and teaching processes and to follow Whatever suits him, which makes the educational unit enjoyable and exciting, we need to apply the correct principles and methods of learning, which must be effective and brief at the same time. The sport of tennis, like any individual game that has many basic principles, depends on its mastery of factors. Among them is following appropriate learning methods that achieve the required goals while saving effort and time in the learning process. Mastery learning is done through the variable exercise method, which means bringing the learning group to the degree of mastery, and this method takes into account the individual differences among the members of the group. [1] These modern methods and the justifications for their discovery were In general, there are methods of learning and teaching, and the importance of the research is evident in the fact that mastery learning using the variable exercise method helps in learning some motor abilities and the accuracy of playing tennis at the age of 16–17 years in order to advance the learning process for the better.

Research Problem

The main goal of the educational process is correct learning, which helps from the beginning in reaching the best level. There is no doubt that the method and method of learning have an important role in acquiring and developing skills, which are important for any sports game. Therefore, it has become necessary to use new methods and methods in learning in a way that ensures Mastering aspects of the correct performance of basic skills in the sport of tennis, which helps increase the sense of correct performance and enhances the players’ drive towards learning. Hence, the researcher noticed, through his presence in the field and academic fields, the weakness and variation occurring in the level of players’ performance due to the lack of diversity in the use of educational methods. A new method that works to simplify understanding and realizing the correct performance of tennis skills. Therefore, the researcher decided to use new methods and methods in teaching players, including the use of mastery learning in a variable exercise method.

Table 2: Shows the results of the post-tests on the motor and skill abilities tests for the control and experimental groups

Motor Abilities	Experimental Group		Control Group		(t) Value*	Error Level	Statistical Significance
	Mean	STDEV	Mean	STDEV			
Flexibility	5.765	3.134	4.112	4.389	0.572	0.876	Non sig.
Agility	26.122	5.267	28.543	7.434	0.634	0.632	Non sig.
Moving balance	8.243	6.762	9.674	5.896	0.896	0.543	Non sig.
The leg matches the eye	10.674	7.218	11.564	6.831	0.784	0.789	Non sig.
Accuracy of tennis performance	15.321	4.875	14.678	8.784	0.452	0.432	Non sig.

*Significant below a significance level of ≤ 0.05 and below a degree of freedom of 10.

2. Research Objectives

1. Preparing mastery learning using a variable exercise method to learn some motor abilities and accuracy of tennis performance at the age of 16-17 years.
2. Identifying mastery learning using the variable exercise method in learning some motor abilities and accuracy of playing tennis at the age of 16-17 years.

Research Hypotheses

Mastery learning in the variable exercise method has a positive impact on learning some motor abilities and accuracy of tennis performance at the age of 16-17 years.

Research Field

Human field: Ground tennis players for the Shooting Sports Club in Baghdad Governorate for the 2021 sports season.

Time Range: Period 6/5/2021 to 8/17/2021.

Spatial Field: Al-Sayd Sports Club Stadium / Baghdad Governorate.

3. Research Methodology

The researcher used the experimental method with an experimental design with a pre- and post-test for two equal groups (experimental and control) to suit the nature of the research.

The Research Community and Its Sample

The research population was identified as the tennis players of the Al-Sayd Sports Club in Baghdad Governorate for the 2021 sports season, and their number is 12 players. The research sample was selected using a comprehensive enumeration method, and the sample was divided into two groups (experimental and control) with six players in each group.

Homogeneity and Evenness of the Sample

Table 1: Shows the homogeneity of the research sample members

Variables	Units	Mean	Median	STDEV	Skewness
Height	Meter	166.144	165.000	1.542	0.145
Weight	Kg	64.653	62.000	1.731	0.168
Age	Year	16.761	16.000	0.791	0.185

The value of the skewness coefficient is limited to ± 3 , which indicates a moderate distribution of the population.

Methods of Collecting Information

Observation, tests and measurements.

Devices Tools Used in the Research

- 3 legal tennis courts.
- 20 tennis rackets and balls.
- 4 electronic stopwatches.
- Measuring tape.
- Markers and chalk.
- Video camera (Sony).
- Dell laptop (20).
- Rope (20).
- Chair (2).
- Balance beam (1).

Tests used in the Research**Bend the Torso Forward From a Tall Sitting Position** ^[2]

Test presentation: Measuring the flexibility of the back and thigh in forward bending movements from a long sitting position.

Tools: The test can be performed directly on the ground by making chalk markings on the ground.

Performance Description

- The tester sits tall with the back straight and the hands on the sides touching the ground.
- The tester tries to extend the arms straight forward and bend the torso forward to reach the furthest possible range.

Calculating Grades

The distance is measured from the beginning of the heels to the extent that the tester can reach with his fingertips. The results of the best numbers for three consecutive attempts are recorded.

Zigzag Running Test Using the Barrow Method ^[3]

Test Presentation: Measuring the overall agility of the body during its transitional movement.

Necessary Tools: A rectangular running field built on solid, rough ground, 4.75 meters long and 3 meters wide, a stop watch, five posts used in high jumping, or corner flags such as those used in football, so that the length of the post or flag is not less than 30 cm.

Description of Performance

The tester takes the ready position from the high start behind the starting line, and when the start signal is given to him, he runs zigzagging between the five posts three times in a row.

Calculation of Grades

The time it takes the tester to cross the rectangle three times is recorded to the nearest 10/s and starts from the moment the start signal is given until he crosses the finish line after completing the third lap.

Running on the Balance Beam ^[4]

Purpose of the test: Moving budget.

Tool: A balance beam and a stopwatch.

Description of Performance

The tester begins at one end of the beam, then attempts to run, and ends when the tester passes the end of the beam upon returning.

Registration

The laboratory gives two attempts, and the attempt with the least time is counted.

Numbered Circles ^[5]

Purpose of the Test: compatibility of the eyes with the legs

Tools: Stopwatch, chalk, and whistle.

Description of the Performance

Eight circles are drawn on the ground; the diameter of each circle is 60 cm. The circles are numbered according to what is shown in the drawing. The experimenter stands in circle number (1), and when he hears the start signal, he jumps with his feet together to circle number (2) and then to circle number (3). In addition, to (4) and so on until the eighth circle, and this is done with the utmost speed.

Registration

The tester is given two attempts, and the attempt with the shortest time to move through the eight circles is calculated.

Testing the Accuracy of Tennis Serve Performance ^[6]

Test Name: Accuracy of serves in tennis from multiple areas.

The Aim of the Test: to measure the accuracy of the serve in tennis.

Tools Used: legal tennis racket, legal tennis balls, colored tape.

Performance Specifications: The area opposite the serving player is divided into three areas, and according to the measurements fixed on the court, the serving player stands in the designated serving area and performs (6) serves to each side (3).

Scoring Method: Accuracy scores are calculated based on the ball falling in the specified areas, as follows:

- a. If the ball falls in area (A), the tested player gets (3) marks.
- b. If the ball falls in area (B), the tested player gets (2) points.
- c. If the ball falls in area (C), the tested player gets (1) score.
- d. If the ball falls outside the field, the tested player gets a (zero).
- e. If the ball falls on the dividing line between the two zones, the tested player gets the higher zone score.
- f. The total score for the test is (18) points.

The exploratory experiment

The researcher conducted the exploratory experiment on (4) players on Saturday, 6/5/2021 at five in the afternoon, in the closed hall of the specialized schools for tennis affiliated with the Ministry of Youth and Sports / Baghdad Governorate. The exploratory experiment helped the researcher in identifying:

- a. The suitability of the devices and tools used in the research.

- b. The time it takes to conduct the tests.
- c. Identifying the difficulties that the researcher may encounter when conducting the main tests.

- The main section, which is (60) minutes long
- The concluding section and its duration (10).

Pre-Tests: The researcher conducted the pre-tests on Monday 6/8/2021 at the Shooting Sports Club / Baghdad Governorate.

Educational Programs

- Implementation of the educational units began on 6/12/2021 and ended on 8/14/2021.
- The duration of the educational curriculum is (8 weeks). Each week has three educational units, each on Sunday, Tuesday, and Thursday.
- The time of the educational unit was (85) minutes.
- The preparatory section, which is (15) minutes long, and the following section:

Post-Tests

The post-tests were conducted on 8/17/2021 at the Shooting Sports Club / Baghdad Governorate. The researcher took into account providing conditions similar to the pre-tests in terms of (time, place, tools used, and method of conducting the tests).

4. Results

Presenting the results of the differences between the pre- and post-tests of the control group in the investigated variables and analyzing them

Table 3: Shows the results of the significance of the differences between the pre- and post-tests of the experimental group in the motor and skill abilities tests under investigation

Variables	Pretest		Posttest		STDEV diff.	(t) Value*	Error Level	Statistical Significance
	Mean	STDEV	Mean	STDEV				
Flexibility	5.765	3.144	7.786	3.652	4.431	7.631	0.001	Sig.
Agility	26.122	4.675	25.001	6.754	8.564	6.673	0.000	Sig.
Moving balance	8.243	6.876	7.786	8.841	7.843	6.897	0.002	Sig.
The leg matches the eye	10.674	7.543	9.342	6.541	6.678	7.651	0.003	Sig.
Accuracy of tennis performance	15.321	3.732	16.543	7.234	3.731	8.897	0.001	Sig.

*Significant below a significance level ≤ 0.05 and below 5 degrees of freedom.

Presenting, analyzing and discussing the results of the pre- and post-tests in the motor and skill abilities tests of the control group

Table 4: Shows the results of the significance of the differences between the pre- and post-tests for the control group in the motor and skill abilities tests under investigation

Variables	Pretest		Posttest		STDEV diff.	(t) Value*	Error Level	Statistical Significance
	Mean	STDEV	Mean	STDEV				
Flexibility	4.112	2.345	5.897	5.543	5.456	9.223	0.003	Sig.
Agility	28.543	5.565	27.212	3.763	8.368	4.678	0.004	Sig.
Moving balance	9.674	6.984	8.341	7.321	6.786	8.545	0.002	Sig.
The leg matches the eye	11.564	7.432	10.763	8.633	7.654	8.432	0.001	Sig.
Accuracy of tennis performance	14.678	4.823	15.899	5.672	8.783	7.443	0.004	Sig.

*Significant below a significance level ≤ 0.05 and below 5 degrees of freedom.

Presentation, analysis and discussion of the results of post-tests in motor and skill ability tests for the control and experimental groups

Table 5: Shows the results of the post-tests in the motor and skill abilities tests under investigation for the control and experimental groups

Variables	Experimental group		Control group		(t) value*	Error level	Statistical significance
	Mean	STDEV	Mean	STDEV			
Flexibility	9.654	3.789	7.432	4.567	4.865	0.003	دال
Agility	24.654	5.976	26.021	6.873	6.654	0.002	دال
Moving balance	6.541	7.543	7.897	8.754	7.897	0.001	دال
The leg matches the eye	8.312	6.453	9.832	7.543	8.643	0.005	دال
Accuracy of tennis performance	17.234	4.532	16.112	5.876	7.783	0.003	دال

*Significant below a significance level of ≤ 0.05 and below a degree of freedom of 10.

5. Discussions

Showing the results of tables (3, 4, 5), we find that learning occurred in the test results of the experimental group in the post-

measurement, which indicates that the educational program that was prepared by the researcher has a positive impact on the skills of the game of tennis (forehand and backhand). , and

transmission) for the research sample, and the researcher attributes the effectiveness of mastery learning with the two variable exercise methods in learning tennis skills. Its success is measured by the extent of progress that the player achieves in the type of activity practiced through the skill level, and this depends on the adaptation that the individual achieves with the educational program that he applies^[7] and organizing the exercise in a diverse or variable manner and using stimuli or means is more effective in learning, as learning under difficult and diverse conditions pushes the player to cooperate and think about the skill on a deeper level, which results in better learning.^[8] In testing flexibility, the researcher attributes the reason for the development of the research sample to the effect of the program prepared by the researcher and the extent of the influence of the educational program's vocabulary and its suitability to the players' abilities, which led to the development of this ability because the effectiveness of the educational program lies in its containing different exercises that worked to develop flexibility and technique exercises for different skills. To influence the flexibility of the belt, shoulder, upper limbs, pelvis, lower limbs, and flexibility of the trunk and spine, and then lengthen the muscles, ligaments, and tendons that make up those joints and increase their range of motion^[9] as for developing agility, the significant differences confirm the effect and contribution of the educational program in developing this ability, through the shortened performance time resulting from the effectiveness of the exercises adopted by the researcher, which were in the right direction (one of the most important motor components that requires changing the direction of the body, or changing its positions in the air or on the ground, or starting and stopping quickly, or trying to integrate several motor skills into a single motor framework, and motor performance that is characterized by variable and dissimilar conditions with large proportions of compatibility and accuracy.^[10] As for as for the ability to move balance, we notice the development in the results of the post-test, as the apparent differences show the effectiveness of the program's vocabulary and the various movement activities it included that helped to develop this ability, in addition to the impact and effectiveness of the exercises used and the increase in the number of repetitions during one educational unit for this ability. Balance ability contributes largely. In performing most of the movements in tennis, the naturalness of test compatibility requires successful interaction to perform a task in which the eye and leg participate simultaneously. After progress in the learning stages, the eye takes control and control of the leg movement due to its speed, accuracy, and high effectiveness, and thus increases motor experience. (Repetition), in addition to the exercises used, establishes the ability to perform complex motor skills in different directions.^[11] The researcher attributes that the accuracy of performance in tennis focuses on skill performance and the correct technique of the skill, in addition to the speed and accuracy of decision-making, which leads to the player tends to repeat what he learned through the changing exercise method through repetition and skill adaptation that he obtained.

6. Conclusions

1. The results showed a noticeable superiority between the pre- and post-measurement of proficiency learning using the variable exercise method in learning some motor abilities for the experimental group, in favor of the post-measurement.
2. There is a positive effect of mastery learning with a variable exercise method on the accuracy of tennis performance at the age of 16-17 years, in favor of the post-measurement.

7. Recommendations

1. Adopting the educational program for mastery learning using the variable exercise method due to its positive and effective impact on learning some selected motor abilities and accuracy of tennis performance.
2. The researcher recommends giving a longer educational period to learn some motor abilities and basic skills for the sport of tennis, for all groups and for both genders.

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