

THE EFFECT OF SPECIAL EXERCISES ON DEVELOPING ATTENTION ASPECTS AND THE PERFORMANCE OF SOME TABLE TENNIS SKILLS FOR PLAYERS AGED (12-14) YEARS

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ABSTRACT

The attribute of speed serves the motor performance and gives it the required effectiveness, and the attributes of strength and speed together serve the motor performance so that it performs properly and effectively, thus the ability to score points in the shortest possible time and win against the competitor. The importance of the research lies in preparing special exercises to develop attention aspects and the forehand and backhand skills in table tennis for players according to the correct performance of the skill. From this standpoint, the researcher turned to this study, believing that these special exercises will contribute to developing the physical and skill levels of table tennis players. The research problem was noticed by the researchers through their previous experiences as practitioners of the game in the weakness of attention aspects among table tennis players. The researcher believes that the reason for this is that most coaches do not use modern devices during their training for skills, as they usually rely on traditional methods in implementing and teaching the skill to beginners. Therefore, the researcher decided to add some modern techniques during her study of this problem by trying to use special exercises to develop attention aspects and some table tennis skills for players. The research aims to prepare special exercises to develop attention aspects and some table tennis skills for players, and to identify the effect of special exercises in developing attention aspects and some table tennis skills for players. Conclusions, the results showed that there is a positive effect of special exercises in developing attention aspects (focus – transfer – distribution) among table tennis players aged (12-14) years. The results also showed that there is a positive effect of special exercises in developing some table tennis skills for players aged (12-14) years.

KEYWORDS: *Special exercises, attention aspects, some table tennis skills.*

INTRODUCTION

The game of table tennis is characterized by its many stimuli. The player faces many stimuli during performance, such as the competitor, the ball, the net, etc., which require him to deal with each situation according to the skill and conditions of its implementation within a very short time. Table tennis movements and skills are characterized by speed and quick strength. The attribute of speed serves the motor performance and gives it the required effectiveness, and the attributes of strength and speed together serve the motor performance properly and effectively, thus the ability to score points in the shortest possible time and win against the competitor. The importance of the research lies in preparing special exercises to develop attention aspects and the forehand and backhand skills in table tennis for players according to the correct performance of the skill. From this standpoint, the researcher turned to this study, believing that these special exercises will contribute to developing the physical and skill levels of table tennis players. The research problem was noticed by the researcher through her previous experiences as a practitioner of the game in the weakness of attention aspects among table tennis players. The researcher believes that the reason for this is that most coaches do not give much importance to attention aspects as they usually rely on traditional methods in implementing and teaching the skill to beginners. Therefore, the researcher decided to add some modern techniques during her study of this problem by trying to use special exercises to develop attention aspects and some table tennis skills for players. The research aims to prepare special exercises to develop attention aspects and some table tennis skills for players, and to identify the effect of special exercises in developing attention aspects and some table tennis skills for players.

Practical Part

The researcher used the experimental method as it is suitable for the nature of the research problem on players of Karbala Tennis Academy for the season (2023-2024), and their number was (20) players. The research sample was chosen by comprehensive enumeration, then the main research sample was chosen from the academy players in Karbala Governorate, and their number was (10) players, representing (50%) of the research population. They were distributed into two groups (control, experimental) equally in a random way (lottery). The researcher gave five attempts to each player, thus the research sample consisted of (50) attempts for the whole sample, on which the main experiment will be conducted. The test construction sample consisted of the research population members, and their number was (20) players with five attempts given to each player, so the final total number of attempts was (100) attempts used for test construction.

Field Research Procedures

Identifying Research Variables: The researcher reviewed scientific sources and references to collect as much information as possible about attention aspects. These variables were presented to experts in sports training, motor learning, and table tennis through survey forms to identify attention aspects and the performance of some table tennis skills for players aged (12-14) years, and their number was (12) experts. After processing the forms and extracting the relative weights, variables that obtained a percentage of 53.33% or more of the relative weight were nominated.

Attention Aspects:

- Focused Attention
- Transfer of Attention
- Distribution of Attention

Table Tennis Skills:

- Forehand Topspin and Backhand and Foot Movements

Tests and Measures Used in the Research:

After identifying the research variables represented by attention aspects related to the research topic according to the relative weights of each variable by experts, to identify the tests for the research variables and their validity, they were presented to a group of experts and specialists in table tennis, testing, and measurement. Despite these tests being standardized and applied to the same category and game, the researcher conducted personal interviews with the experts and specialists previously mentioned in the field of tests, motor learning, psychology, and sports training to ensure the validity of the tests specific to table tennis players.

Measuring Attention Aspect Tests:

The study required finding scores for each player's attention aspects. The researcher used the modified (Bourdon – Anfimov) attention test, which is one of the special tests for athletes and is used to measure five aspects of attention: acuity, focus, stability, distribution, and transfer.

Skill Tests for Table Tennis:

- Test Name: Forehand Topspin, Backhand, and Foot Movements Skill Test
- Purpose of the Test: To determine the performance and success rate of the forehand topspin, backhand, and foot movements skill.
- Tools: Legal playing table, legal rackets, legal balls, basket for collecting balls, and recording form.

- **Test Description:** The player stands in the backhand area, and the coach or the person throwing the balls stands in the diagonal opposite side with a group of balls next to him. He throws (10) balls at a suitable speed in specific places on the table, which are hit with the above skills and foot movements towards them for three attempts for each player, and the arithmetic mean is taken for each attempt. Each attempt includes (10) balls as follows:
 - Backhand – One side step – Alternating forehand topspin
 - Backhand – Jump step – Alternating forehand topspin
 - Backhand – Half-circle step – Alternating forehand topspin
 - Backhand – Half-circle step – Alternating forehand topspin – Cross-movement to the side – Alternating forehand topspin

Scoring:

The test was evaluated by three table tennis experts using a form prepared for this purpose to determine the players' scores during the tests, and the arithmetic mean of the experts' scores was taken. The evaluation score ranges between (0-20), divided into (1-10) for performance shape through expert evaluation, and (1-10) for successful balls in the opponent's area. The highest score a player can get is (20), divided into (10) for performance and (10) for successful balls.

Scientific Basis for the Tests:

- **Test Validity:** The researcher relied on content validity to determine the tests' validity by presenting the proposed tests for use in the research on forms distributed to experts and specialists in table tennis and fields of testing and measurement to agree on their suitability for the research sample.
- **Test Reliability:** The test-retest method was adopted. The researcher, after seven days from the first trial, reapplied these tests (some table tennis skills) to the exploratory sample of (5) players on Monday (26/9/2023) at 5 PM. The relationship between the results of the first and second trials was found using Pearson's simple correlation coefficient. The results showed that all tests have a strong and high degree of reliability.
- **Test Objectivity:** The objectivity of the tests was determined by using the scores of three evaluators to assess the skill performance of some table tennis skills through their apparent form. The correlation coefficient (Pearson) between their scores was calculated, showing that these tests have high objectivity.

Equality of Research Groups:

To attribute any differences in post-test results of the variables under study to the experimental factor of special exercises, the researcher verified the equality of the two groups using the t-test for independent samples of the research variables.

Table (1) Demonstrates the parity between the research groups

Variables	Unit of M.	Control Group		Experimental Group		(t) Value	Significance Level (Sig)	Type of Significance
		Mean	Std. Dev.	Mean	Std. Dev.			
Focused Attention	Score	80.36	18.36	81.36	17.35	1.83	0.129	insignificant
Transfer of Attention	Score	5.326	1.397	5.986	1.487	0.62	1.237	insignificant
Distribution of Attention	Score	30.28	7.318	30.869	7.128	1.73	0.128	insignificant
Tennis Skills	Score	12.34	4.85	12.69	4.12	0.72	1.947	insignificant

According to the table (1) results, the test significance is not significant since the test significance level (sig) for each of the variables under investigation seems to be bigger than the significance level (0.05).

Exploratory Experiment:

It is a preliminary experimental study conducted by the researcher on a small sample before conducting her research to select research methods and tools, clarify the tests and how to record data. The result of this procedure was to form an idea for the assisting work team and give some experiences that serve the skills, used because the sample is a beginner in this type of exercises and these skills, and to know the obstacles and difficulties that the researcher might face during the main experiment application. The researcher, with the help of the assisting work team, conducted the exploratory experiment for the skill tests in table tennis through their apparent form on Monday (19/9/2023) at 4 PM on the grounds of Karbala Tennis Academy. The experiment was conducted on (5) players selected randomly from the remaining research population who did not participate in the main research sample. The goal, in addition to the previously mentioned objectives, was:

- Ensuring the suitability of the field and the tools used and their suitability for the tests.

- Knowing the sample's readiness to perform the tests.
- Preparing the assisting work team and identifying the difficulties they may face.
- Knowing the time required and ensuring the adequacy of time to conduct and implementing all tests with the best methods for conducting them.
- Knowing the difficulties and obstacles that the researcher might face during the application of these tests and overcoming them in the main experiment.

After completing the exploratory experiment, all set objectives were achieved.

MAIN EXPERIMENT:

Pre-tests:

The researcher conducted pre-tests on the research groups (control and experimental) for the research variables, attention aspects, and accuracy of table tennis skills on Sunday and Monday (2 and 3 /10 /2023) at 4 PM on Karbala Tennis Academy's field. The tests were according to the following sequence:

- **First day: Attention aspect tests.**
- **Second day: Table tennis skills tests.**

Preparation and Implementation of Special Exercises:

After completing the pre-tests and measurements, the special exercises were implemented and included in the training program for the sample members in the main part of the training unit. The exercises were implemented according to the following:

- The exercises began on Sunday (9/10/2023).
- The exercises were applied within the main part of the training unit.
- The exercises continued for (8) weeks from (9/10 / 2023) to (4 /12 /2023) with (3) training units each week, so the total number of training units was (24). Four exercises were implemented in each training unit every week, and these exercises were changed to the following week, and so on for the rest of the weeks, i.e., (4) exercises.

Post-tests:

Following the same format as the pre-tests, the researcher administered post-tests to the study sample on Tuesday, June 12, 2023, following completion of the special exercise's application. The investigator considered the circumstances as much as possible during the pre-tests regarding the test sequence and timing.

RESULTS:

Presentation and Analysis of Pre-test and Post-test Results for the Control Group for Attention Aspects:

Table (2) Shows the arithmetic means, standard deviations, and calculated (t) value for pre-tests and post-tests of the control group for attention aspects

Variables	Unit of M.	Pre-test		Post-test		(t) Value	Sig	Type of Significance
		Mean	Std. Dev.	Mean	Std. Dev.			
Focused Attention	Score	80.36	18.36	83.36	17.94	4.36	0.000	significant
Transfer of Attention	Score	5.326	1.397	5.98	1.42	3.66	0.000	significant
Distribution of Attention	Score	30.281	7.318	32.63	6.39	3.86	0.000	significant

Presentation and Analysis of Pre-test and Post-test Results for the Experimental Group for Attention Aspects:

Table (3) Shows the arithmetic means, standard deviations, and calculated (t) value for pre-tests and post-tests of the experimental group for attention aspects

Variables	Unit of M.	Pre-test		Post-test		(t) Value	Sig	Type of Significance
		Mean	Std. Dev.	Mean	Std. Dev.			
Focused Attention	Score	81.36	17.35	85.98	16.97	4.69	0.000	significant
Transfer of Attention	Score	5.986	1.487	7.68	1.64	4.71	0.000	significant
Distribution of Attention	Score	30.86	7.128	34.67	6.97	4.62	0.000	significant

Presentation and Analysis of Pre-test and Post-test Results for the Control Group for Forehand and Backhand Skills in Table Tennis:

Table (4) displays the computed (t) value, arithmetic means, and standard deviations for the control group's pre- and post-test results for table tennis forehand and backhand abilities

Variables	Unit of M.	Pre-test		Post-test		(t) Value	Sig	Type of Significance
		Mean	Std. Dev.	Mean	Std. Dev.			
Focused Attention	Score	12.34	4.85	14.68	3.69	3.28	0.000	significant

Presentation and Analysis of Pre-test and Post-test Results for the Experimental Group for Forehand and Backhand Skills in Table Tennis:

Table (5) displays the computed (t) value, arithmetic means, and standard deviations for the experimental group's pre- and post-test results for table tennis forehand and backhand abilities

Variables	Unit of M.	Pre-test		Post-test		(t) Value	Sig	Type of Significance
		Mean	Std. Dev.	Mean	Std. Dev.			
Focused Attention	Score	12.69	4.12	16.34	3.56	4.67	0.000	significant

Presentation and Analysis of Post-test Results Between the Control and Experimental Groups for Attention Aspects:

Table (6) Shows the calculated (t) value for post-tests between the control and experimental groups for attention aspects.

Variables	Unit of M.	Control Group		Experimental Group		(t) Value	Sig	Type of Significance
		Mean	Std. Dev.	Mean	Std. Dev.			
Focused Attention	Score	83.36	17.94	85.98	16.97	3.69	0.041	significant
Transfer of Attention	Score	5.98	1.42	7.68	1.64	3.89	0.036	significant
Distribution of Attention	Score	32.63	6.39	34.67	6.97	3.49	0.047	significant

Discussion of Post-test Results Between the Experimental and Control Groups for Attention Aspects: Through the demonstration of the test findings (focused attention, transfer of attention, and distribution of attention) shown in Table (6), it is clear that the t-test was used to indicate the significance of the effect on the level of attention aspects (focused attention, transfer of attention, and distribution of attention) between the control and experimental groups in favor of the experimental group. The researcher believes that the reasons for the development of the experimental group are due to the exercises prepared to develop the aspects implemented by this group at the end of the units. Moreover, the skill and physical training aspect was evident in the (focused attention) aspect, as the development in this aspect resulted from the special exercises that helped the player analyze the movement into parts and analyze the muscle groups that contribute to the performance. The focused attention had an effective impact on this, "focused attention on a specific aspect of the motor skill allows players to analyze the muscle groups used and analyze the important parts that make up the skill, which positively reflects on the performance."

Presentation and Analysis of Post-test Results Between the Control and Experimental Groups for Forehand and Backhand Skills in Table Tennis:

Table (7) Shows the calculated (t) value for post-tests comparing the experimental and control groups for forehand and backhand skills in table tennis.

Variables	Unit of M.	Control Group		Experimental Group		(t) Value	Sig	Type of Significance
		Mean	Std. Dev.	Mean	Std. Dev.			
Table Tennis Skills	Score	14.68	3.69	16.34	3.56	4.17	0.000	significant

Discussion of Post-test Results Between the Control and Experimental Groups for Table Tennis Skills:

From the results shown in Table (7), it appears that there are significant statistical differences between the post-test results in favor of the experimental group. The researcher attributes this to the improvement in the forehand skill due to the players in these ages being characterized by a lack of coordination and agreement between contraction and relaxation and the relative tension and relaxation of the muscles during skill performance, as well as not reaching the correct movement range, so the player performs the movement either quickly or slowly, leading to a lack of stability and accuracy in performance. Thus, the player needs significant strength when performing the skill to overcome resistance, and when using the exercises prepared by the researcher, he needs speed and high focused attention to achieve accuracy in performing the exercise, as well as performing the movement in the same direction as the striking arm, which is somewhat easy for new players. Saadi L. indicates that "the tool provides the learner with sufficient sensory-motor experience and highlights the ideas and concepts, supporting theoretical ideas and concepts."

The goal that the researcher aims to achieve is to reach the players' maximum influential development of the studied skills within a specific period, which is the duration of the prepared exercise program. The selection of the appropriate tool for this purpose enables us to reach the desired goal within the specified time, "the selection of the appropriate method and tool within the specified time aims to organize and enhance the learning process."

CONCLUSIONS:

Considering the findings that the investigator has acquired from the field experiment and using the most appropriate statistical methods used to analyze the results, the following conclusions were reached:

- The results showed a positive effect of special exercises in developing attention aspects (focus – transfer – distribution) among table tennis players aged (12-14) years.
- The results showed a positive effect of special exercises in developing skills among table tennis players aged (12-14) years.

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