



The Impact of Special Exercises on Cognitive Speed and Learning Some Basic Skills in the Horizontal Bar for Students in Artistic Gymnastics

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Received: 19 September 2021 **Accepted:** 09 December 2021 **Published:** 20 January 2022

Abstract : *The current study was conducted in order to develop the cognitive speed and learn some basic skills in the horizontal bar in artistic gymnastics for students. The experimental method was used on the students of the second stage of the College of Basic Education, Department of Physical Education and Sports Sciences, with the subject of artistic gymnastics for boys, numbering 20 students, who were divided into two equal groups. Each of them was consisted of (10) students, as the experimental group was carrying out the special exercises, while the control group used the method followed by the teacher. The aim of the study is to set special exercises in cognitive speed and learn some basic skills of in the horizontal bar in the artistic gymnastics for students , and to identify the effect of special exercises on cognitive speed and learn some basic skills in the in the horizontal bar in the artistic gymnastics for students. Having conducted the pretest and posttest process for the two groups, and obtained their results , the data were processed statistically. The researcher concluded that the special exercises that were applied in the implemented educational session had a positive effect in the process of special exercises in cognitive speed and learning some basic skills in the horizontal bar in the artistic gymnastics for students.*

Keywords : *Special exercises , Cognitive Speed , Basic Skills in the Horizontal Bar in the Artistic Gymnastics*

1. INTRODUCTION

The special exercises are an assistant factor as they aim to set and develop the student's level in the type of sports activity he practices, as Layla Zahran defines them as "exercises that aim to set and develop special motor skills for various types of sports activities such as ball games, athletics, gymnastics, tournament exercises and others."

So they have a role in all sports, including artistic gymnastics. Gymnastics is one of the basic sports in the physical education curriculum because of their significance and many benefits. They are characterized by the gradation of its skills from the simple to the difficult. According to the learners' abilities level, the suitable exercises can be determined



One of the important cognitive abilities that both the student and the learner need is the cognitive speed, as most of the skills of artistic gymnastics, including the basic skills of the horizontal bar depend on them. Thus, Motor abilities are “innate ability and willingness and they also mean the extent of motor skill, its accuracy, speed and strength”

The horizontal bar (pull-up) device is one of the most wonderful gymnastic devices and is loved by many because of its attractiveness, excitement, breadth and innovation in the skills used, and the nature of performance on the horizontal bar (pull-up) device is represented in the weights, whether large or small close to the bar. The skills are performed from different types of fists with a change of direction and the player must leave the bar to perform the flying skill and then return to catch the bar again. The performance on the horizontal bar (pull-up) device ends with a kinetic end of landing on the ground, and skills are performed on it consecutively in a form of a kinetic sentence. The basic skills of horizontal bar in artistic gymnastics are considered among the difficult skills to perform as they require accuracy, speed and mastery.

Among these important skills are the skill of rising (pull-up), swinging and the skill of taking small rotate above the bar. The latter is considered as one of the important methodological and difficult to teach skills, because teaching several other skills is based on them.

Hence, the importance of the study lies in the students' learning the skill of swinging, the skill of the back flip, and the skill of rising by kneeling on the bar device in artistic gymnastics

In addition to developing cognitive speed through special exercises, the study aimed at:

- Learning about the effect of special exercises prepared on cognitive speed, and learn some basic skills in the bar device gymnastics for students.
- There are significant differences between the pre and post tests for students in the control and experimental groups in the cognitive speed and learning some basic skills in the bar device gymnastics for students.

2. METHOD AND FIELD PROCEDURES OF THE STUDY: Method of the Study:

The researcher used the experimental method appropriate to the nature of the problem, and that the choice of the experimental method is “the deliberate and controlled change of the specific conditions of a particular incident, and then observing the resulting changes in such event as well as its interpretation.”

The design of the two equivalent experimental and control groups was chosen, as the design included steps and stages divided between the control and experimental groups, as the independent variable of the experimental group is cognitive speed exercises and the independent variable of the control group is the traditionally followed method.

Community and Sample of the Study:

The community of the study are deliberately chosen, and they are male students of the second stage in the Department of Physical Education and Sports Sciences - College of Basic Education for the subject of artistic gymnastics. In the following detail:

The total number of the sample is students and students were excluded from the main sample who participated in the pilot experiment, thus the number of the final application sample members reached students. The study sample was divided into two equal groups and by



random method (lot). The first group was the experimental group and it included students, while the second was the control group which included students, representing a percentage of (99%) of the study community.

Tests Implemented in the Study First: Cognitive Speed Test (6) :

- Purpose of the test: To measure cognitive-motor speed.
- Tools used: 3 poles, a stadium, a stopwatch.
- Performance specifications: the test includes two main points, namely the starting and ending points. The distance from the start to point A is m, and from point (B) to (C) the distance is m.
 1. Run from number "1" to point (A) and touch it.
 2. Then run towards (B) and touch the point.
 3. Then towards the point (C).
 4. Then run towards (A) and touch it.
 5. Return to the starting and ending area in Figure 5.

Scoring: Calculating the time to the nearest 1/10 of a second.

Second: The assessment of basic skills in the horizontal bar

After conducting the pre and post tests and videotaping them, they were presented to assessors of experts and specialists to assess the skillful performance of the pre and posttests of skills, for both experimental and control groups.

Using a special evaluation form and according to the performance for each of the movements, the evaluation was done by means of grades for the selected skills, and the evaluation degree was determined in a range of (0-10) degrees for the skill.

The evaluation did not depend on direct observation, but on watching the performance recorded in the videotaping. The evaluation was by excluding the highest and lowest degrees and adopting the arithmetic mean of the two intermediate degrees of the judges' scores Student's score = sum of the two average grades divided by

A: Pretest :

The pre tests were conducted on Thursday, October 14, 2021, and the researcher was keen to find all the conditions for the pretests and their requirements when conducting the post tests in terms of time, place, test methods, equipment, tools and the assistant work team.

Main Experiment :

As the researcher set special exercises for cognitive speed and learning some basic skills in the horizontal bar in artistic gymnastics for students, that suit with the students' physical and skillful abilities, and are in the interest of the performance of skills; She takes into account the following matters:



The experiment was implemented on Sunday (17/10/2021) and ended on 12/12/2021, as the duration of the experiment was (8 weeks), with one educational session per week, where the total number of educational sessions throughout the experiment was

The following steps were adopted in the educational sessions:

- When setting special exercises, the level of the sample should be taken into account.
- Using exercises that are appropriate to the nature of performance.
- Using exercises that directly help to develop cognitive speed.
- Gradual performance, taking into account the principle of ease in the first place.
- The experimental group performs the special exercises set by the researcher.
- The control group applies the method followed by the teaching staff. The pre-tests were conducted one day before the start of the experiment. The post-tests were conducted a day after the end of the experiment.
- The educational session was divided into three sections (preparatory, main, and final). The exercises were applied in the main section of the session.
- The duration of one educational session was (90) minutes, distributed over the sections as follows: the preparatory section (15) minutes , the main section (70) minutes, as the special exercises time was (30) minutes and the final section was (5) minutes.

B: Posttests:

The post-tests were conducted on Sunday, 18/12/2021 , and the same method was followed in the pretests, after the completion of the prescribed period of the experiment. In order to assess skill.

Statistical means:

The researcher used statistical methods according to the (SPSS). (5)

3. RESULTS AND DISCUSSION:

Table (1)

Shows the values of arithmetic mean and standard deviations and accounted (t) of the post tests for the skillful tests of the two groups , experimental and control

No.	Variable	Measure Unit	Experimental Group		Control Group		Accounted (t)	Error Percentage	Significance
			M	SD ±	M	SD ±			
1	Cognitive Speed	Second	05456	65310	75700	65054	05306	65666	Corporeal



0	Back flip	Degree	7206	62410	5256	62474	42696	65666	Corporeal
3	Swing	Degree	7206	62096	5296	62300	9260	65666	Corporeal
4	Small rotate above the bar	Degree	0216	62030	5236	62510	112401	65666	Corporeal

*** Corporeal in the error percentage >) 0.05)**

Results of the current study showed in Table (1) that there are highly significant differences in the post-tests under the level of significance (<0.005) between the experimental and control groups and in favor of the experimental group in cognitive speed and learning some basic skills of the horizontal bar in the artistic gymnastics for students.

The researcher attributes the reason for the improvement in cognitive speed and learning the basic skills of the horizontal bar device in artistic gymnastics. And this is due to the effect of special exercises and their application in a correct scientific manner gradually from easy to difficult and with deliberate, reviewed and scientific repetitions that contributed to the speed and stability of learning such skills.

And that was confirmed by Ahmed Mahdi Salih saying that "The exercises, if applied on scientific bases, help in organizing the learning process and creating a relationship of interaction between the teacher and the learner." The special exercises, which were set on the principle of gradation from easy to difficult and, were also characterized by diversity, as well as continuous repetition of performance.

Schmidt asserts that "teachers or trainers are supposed to encourage learners to perform as large number of rehearsals as possible"

These exercises helped in : developing both the cognitive speed ability and the gymnastics skills in question and introducing the learner to his mistakes, re-exercise and performing the skills correctly, free from errors. Such issues increased the rate of development. That was reinforced by (schmidt2000) saying that "Feedback increases the energy and motivation of individuals, enhance correct performance. It also helps the learner avoiding the wrong performance and gives him suggestions for corrective methods for his performance" Displaying and explaining the skills in full or in part led to an increase in the motor sense of performance, with attention to not losing the integrated unit of skill performance and its compatibility as a whole" All of this helped in the development of cognitive speed and basic skills in the horizontal bar device of the artistic gymnastics for students.



4. CONCLUSION

The use of special exercises in a scientific, thoughtful and correct way, through the application of instructions and performance evaluation, was very effective. It also had an impact on developing cognitive speed and learning the skills of rising and swinging and the small rotate above the bar , in the horizontal bar device , in the artistic gymnastics. In addition , such exercises improve cognitive speed and learn basic skills of the horizontal bar device in artistic gymnastics.

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Appendix

Special skill exercises for cognitive speed and learning some basic skills in horizontal bar device in artistic gymnastics

First: Swinging exercises on the bar:

1. Practicing attachment to the bar, feeling the bar, changing the type of grip , and trying to move from one grip to another to feel the surface of bar.



2. Performing the back jump exercise on the device of the jumping platform or the pommel of the handles device . In addition, performing the back jump, bearing in mind that the legs are close together and without opening the legs, because the performance of the skill of rolling on the bar depends mainly on the back swing.

3. Performing the front jump exercise on the parallel device by resting on the armpit, taking into account the focus on the front and both legs.

4. Doing the exercise backward and forward jumping on the fixed rings and parallel bars devices with the help of a colleague or teacher.

5. Fully performing the skill of swinging , with and without assistance, on the horizontal bar device.

Second: Backward Rising Exercises on the horizontal bar device:

1. Performing the back and forth jump with swinging of one leg.

2. Performing the snatch movement jump with both legs on a parallel device of different heights for women or men, taking into account that the snatch jump is with both legs and close to the bar or the axis of rotation and that the hip or center of gravity of the body is raised close to the bar.

3. Performing chin-ups (pull-up) exercise on the bar, so that the student tries to pull the bar with both arms so that the chin area is above the level of the bar. Taking into account that the body is close to the axis of rotation.

4. The student tries to perform the rotation exercise on the bar by raising one leg higher on the high bar on a parallel device of different heights for women while the other leg is with the body .Then he tries to push the leg on the high bar and complete the process of spinning on the bar with the help of the leg.

5. Performing the skill of getting up on the bar with the assistance of a colleague and then without.

Third: exercises specific to the small rotate (small abdominal rotation)

1. Performing the swinging and back jump exercise from the lean position on the bar.

2. Performing the previous exercise with an attempt to return the head and torso to the back, taking into account that the body is close to the bar.

3. Performing the swing and jump exercise with the torso from a position of leaning on the bar and moving the wrist with the torso swing in the same direction.

4. Performing the skill of rotation, in full, on the low bar in the parallel device of different heights for women ; with the help of a colleague or teacher.

5. Performing the skill of the small rotation (spin) on the horizontal bar device, with or without assistance.