The Effect of a Proposed Educational Program Using Mental Training on Learning Some Gymnastics Skills

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Abstract

This study aimed to identify the effect of a proposed educational program using mental training on learning gymnastics skills. The study sample consisted of 24 female students from the Department of Physical Education at Al al-Bayt University who are enrolled in the gymnastics course from the summer semester of the academic year 2021-2022. The study sample was divided into two equal groups: experimental and control each containing 12 students. The control group was traditionally taught gymnastics skills, while the experimental group was taught gymnastics skills using a mental training program. The results showed that the mental training accompanying the educational program is effective in teaching gymnastics skills. The researchers recommended using mental training coupled with skill learning within the educational units because of its positive effect on accelerating the learning process.

Keywords: Mental Training, Gymnastics Skills, Training Program

تأثير برنامج تعليمي مقترح باستخدام التدريب العقلي على تعلم بعض مهارات الجمباز

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ملخص

هدفت هذه الدراسة إلى تحديد تأثير برنامج تعليمي مقترح باستخدام التدريب العقلي على تعلم مهارات الجمباز. تكونت عينة الدراسة من ٢٤ طالبة من قسم التربية البدنية في جامعة ال البيت المسجلات في مساق الجمباز (١) في الفصل الصيفي من العام الدراسي ٢٠٢١-٢٠٢٢. تم تقسيم عينة الدراسة إلى مجموعتين متساويتين تجريبية وضابطة، تحتوي كل مجموعة على ١٢ طالبة. تم تدريس المجموعة الضابطة مهارات الجمباز بالطريقة التقليدية، بينما تم تدريس المجموعة التجريبية مهارات الجمباز باستخدام برنامج تدريب عقلي. وأظهرت النتائج أن التدريب العقلي المصاحب للبرنامج التعليمي فعّال في تعليم مهارات الجمباز. وقد أوصى الباحثين باستخدام التدريب العقلي بالتزامن مع تعلم المهارات ضمن الوحدات التعليمية بسبب تأثيره الإيجابي على تسريع عملية التعلم.

الكلمات الرئيسية: التدريب العقلي، مهارات الجمباز، برنامج تدريب.

Introduction

Gymnastics is considered one of the major sports in physical education programs because it is characterized by movement and requires agility, strength, and art. Abdel-Haq (2011) refers to gymnastics as one of the most important and vital sports, which includes various methods for teaching it to advance players' performance levels and improve their skills.

The Jordanian Gymnastics Federation was founded in 1982 and is currently headed by Her Highness Princess Rahma bint El Hassan. The Jordanian Gymnastics Federation includes 3 training centers in Amman, Zarqa, and Irbid. The goal of these centers is to attract young talents of both genders, train them in the sport of gymnastics in a professional and safe manner, and later include them in the National teams, and the national teams in gymnastics achieved several achievements and

colorful medals at the Arab level, the Arab and Asian tournaments, and the World Cup series as well. One of the most important achievements recorded in the name of Jordanian gymnastics is the inclusion of the movement carried out by the national gymnastics team player, Ahmed Abu Al-Saud, in the World Cup Challenge Championship, which took place in the Slovenian city of Koper in the year (2019) (Jordanian Gymnastics Federation, 2024).

The sport of gymnastics in Jordan has witnessed remarkable development since the founding of the Federation, through the achievements made by players at various levels, in addition to the increase in the number of practitioners of this sport. In Jordan, it always seeks to increase the number of male and female players who practice this safe sport if it is practiced in designated places where safety equipment is available. With the presence of locally and internationally accredited trainers, gymnastics is a sport that combines sport and art together, and its importance lies in that it demonstrates the player's abilities in terms of strength, stability, balance, and motor and muscular coordination. The Jordanian Gymnastics Federation also works to invite everyone to join the training sessions in the federation and the federation centers in Amman and Zarqa. Irbid, and we also focus on joining children because at this age their bodies are formed in a correct and flexible way and it helps to develop their level (Jordan Olympic Committee, 2024).

Teaching gymnastics courses in the plan of the Department of the College of Physical Education at Al al-Bayt University is considered one of the compulsory courses that students must study and obtain success rates in these courses. It is taught at a rate of hours per week during the first or second semester, and is presented in a practical and applied manner to the students, and a portion of time is allocated Lecture to teach theoretical aspects (Al-Bayt University, 2024).

AlShadida (2018) confirmed that gymnastics is one of the individual and competitive sports in which individuals participate in the implementation of motor duties that depend on the link between the mind and motor performance (Proios & Marrovouniottis, 2012). Gymnastics requires a great sense of body awareness and a high level of stability, despite the similar level of training on all devices, in order

to achieve the required level, as it is one of the sports that already use many different strategies and limbs. The diversity of relaxation, self-talk, attention, imagination, and other techniques is due to the fact that it is a sport that, on the one hand, elicits a powerful emotional thrill and, on the other, a sensation of dread, which the coaches seek to dispel.

Annett (2008) pointed out the importance of using modern teaching aids that help precise motor visualization of the movement and advance the motor skill. Interest has increased in the training and mental preparation of athletes due to their importance in improving the speed of learning skills. There must be a guide and leader for these physical capabilities and physical fitness, and the one who plays this role is the mind that uses them in the right direction to achieve the required achievement, which depends on the extent to which the players benefit from their physical capabilities, as it helps them mobilize their capabilities and energies to achieve the best sports performance.

This is confirmed by Al-Qawamzeh (2001) that mental training plays an important role in the process of motor learning, and helps to develop motor abilities and learn tactics in all kinds of sports, as it must take into account the necessity of training motor skills as a whole, to link the vocabulary of movement and the composition of the total perception of the motor skill.

Gordon(2002) asserts that mental training is an important and essential part of sports training of all kinds and means in preparing the player to reach higher levels. The tool of competition, as sporting achievements, require a measure of mental use and the issuance of decisions without any delay or hesitation for the player to be able to do so, he must develop and elevate his mental potential.

Also, mental training has become a complementary and valuable means in the technical and tactical training of athletes, which can be used for its quality in improving the performance of gymnasts, and is used by coaches in developing groups of mental qualities through pre-competition images, motivation, and decision-making before and after competition, in addition to a set of exercises aimed at developing attention and using mental strategies to activate positive thoughts among players (Grosu & Other, 2013).

In addition, mental training is a complement to skill training and not a substitute for it. The production of the motor attitude mentally Traditional increases the control of skilful performance in terms of appropriate timing and motor rhythm for the different parts of the skill. Thus, it becomes a frame of reference for the learner by fixing the movement path in the learner's mind by forming a mental image of the components of the movement before he performs it, which gives him more accuracy in his performance (Khalil, 2002), in addition to that skilful learning by keeping pace with basic mental skills such as relaxation, mental visualization, attention, and setting goals, contributes to feeling more self-confidence and reducing errors in performance. Because the skill is reviewed mentally, and this includes getting rid of errors by visualizing the correct method of artistic performance, controlling mental images has become one of the most important skills in developing the accuracy of performance (Khayoun, 2002; Mahjoub, 2000).

Woodman & Hardy (2003) indicate that mental practice through imagination is an effective tool to positively influence the cognitive, emotional, motivational, and behavioural results in sports in the form of science and gymnastics in particular, and also helps to learn movements and reach the highest levels of performance in competitions. On the other hand, it works to regulate anxiety, focus, and serious training in all competitions.

The researchers believe that mental training helps the learner learn motor skills. Through this type of training, the nervous system can record motor and sensory patterns. Therefore, the mental aspect must be taken into consideration in the process of teaching, learning, and acquiring motor skills.

The importance of the study:

1- Helping learners develop skilful performance in gymnastics, and Helping students quickly learn gymnastics skills.

2- Helping learners use programs that contain relaxation and reduce the level of anxiety when learning gymnastic skills

3- Increasing the cognitive aspect of teachers and making mental training a habit used in learning skills and improving performance.

The study problem:

Learning the basic skills of gymnastics requires a connection between the technical, physical, mental, and psychological aspects. The success of the educational process also depends on the use of methods for teaching skills that take care of all aspects and focus on the mental aspects. Through the work of researchers in the field of teaching gymnastics skills for years, they noticed a weakness in the performance of gymnastics skills, which affects the result of their achievement tests, and a lack of interest in teaching aids (visual, auditory, and sensory), which are effective means in learning gymnastic skills, so the researchers decided to study this problem through the use of mental training as a means accompanying skilful education and upgrading the educational process so that the level of good at performing is maintained.

Objectives of the study:

This study aimed to identify:

1. The effect of the traditional educational program on learning some basic skills in gymnastics.
2. The effect of the educational program associated with mental training on learning some basic skills in gymnastics.
3. The differences between the effect of the traditional educational program and the educational program coupled with mental training on learning some basic skills in gymnastics.

Study hypotheses:

This study came to verify the following hypotheses:

1. There are statistically no significant differences at the significance ($\alpha \leq 0.05$) between the pre and post- measurements of the control group in favour of the post- measurement.

2. There are statistically significant differences at the significance ($\alpha \leq 0.05$) between the pre and post-measurements of the experimental group in favour of the post- measurement.
3. There are statistically significant differences at the significance ($\alpha \leq 0.05$) between the experimental and control groups in the post-measurement, in favour of the experimental group.

Terminology of study:

Mental training: "The strategy by which mental skills are used in an attempt to improve performance" (Shamoon & Obaid, 2001, 32).

Previous studies

Ahmed & Mohamed (2021) conducted a study aimed at identifying the effect of a training program for mental perception on the skilful performance of some ground movements among artistic gymnastics juniors (9–10 years), where the study sample consisted of eight youths in artistic gymnastics, and the study contained two homogeneous and equal groups, one experimental and the other control. The researchers applied the program to the experimental group for a period of eight weeks at a rate of three training units per week. The background and the results of the study revealed that there is a direct positive relationship between the level of mental perception and the level of skilful performance of the motor skills under study. The study recommended applying training based on mental perception in the skill performance of some artistic floor movements among junior gymnasts.

The study of the Almaternhi & Bani Hani (2020), aimed to identify the effect of the mental training program on developing some basic skills in gymnastics. The researchers used a sample of (20) students from the faculty of sports sciences at Mutah University. The experimental group were subjected to a mental training program while the control group were applied to the regular program. The study findings showed significant differences in favour of the experimental group. The researchers recommended the necessity of applying mental training programs during learning motor skills in gymnastics.

Tabana (2020) carried out a study aimed at identifying the effect of a mental training program on improving the skills of the motor sentence on the ground movement apparatus. The researcher used the experimental method and a sample of gymnast juniors from the Maadi Sports Club under 8 years old; their number reached seven youths, and the most important results were that there were statistically significant differences. At the level of motor sentence performance, the researcher recommended paying attention to training mental skills using mental training

Abdelkader & Abdelhamid (2019) conducted a study aimed at identifying the use of mental visualization strategies to improve the level of skilful performance in gymnastics. The study contained two groups of twenty (20) students for each. The experimental group applied to strategies of mental visualization accompanying the skilful performance, while the control group, was subjected to a regular skill training program. A skilful performance in some basic skills in gymnastics between the experimental and control groups in the post-measurement, in favour of the experimental group. It recommended using mental visualization strategies to improve the level of skill performance in gymnastics.

The study of Ay & Abu Al-Tayeb (2017) sought to identify the effect of a proposed educational program using mental training on learning the skill of accurate transmission in volleyball. The sample consisted of students from the Faculty of Physical Education at the University of Jordan, with an average age of 20.3, who are registered for a volleyball course (2), and the sample was divided into two equal groups, experimental and control. The experimental group consisted of 15 students who were taught the skill of accurately serving the hook in volleyball. With the use of a mental training program, the control group consisted of fifteen (15) students who were taught the skill of accurate hook transmission in the Traditional way. hooks in volleyball, and the results showed the effectiveness of mental training in achieving accurate performance in serving hooks in volleyball. The researchers recommended the use of mental training coupled with skill learning within the educational units because of its positive role in accelerating the learning process and achieving accuracy in performance.

Abdel-Haq (2016) conducted a study to identify the effect of a mental training program accompanying skill training on improving the level of skill performance in some basic skills on the ground movement mat, parallel bars, and pommel horse. The study sample consisted of 36 students from the college of physical education who registered in the gymnastics course (1), and the experimental method was used, as the students were divided into two groups, with 18 students for each group: the experimental group, which was applied to the mental training program accompanying the skilful performance, and the control group, which was applied to the skill training program. The results of the study showed that there were statistically significant differences in the level of skill performance in some basic skills on the mat of floor movements, parallel bars, and handling horses between the members of the experimental and control groups in the post-measurement and in favour of the experimental group that used the mental training program associated with skill training. The study recommended the necessity of using mental training programs to improve the level of skill performance in some basic skills.

Al-Qawza & Bani Atta (2008) aimed to identify the effect of skill training and mental training accompanying skill training on learning basic gymnastics skills on the floor. The sample consisted of 24 students from the model school, Mutah University. The study concluded that the experimental group, which was applied to the skill training program associated with mental training, achieved a remarkable development in learning and acquiring basic skills, and it outperformed the control group in all skills except for the skill of standing on the shoulders. Rrecommended to combine skill training and mental training in learning the basic skills in floor gymnastics.

Hannant (2007) aimed at identifying the understanding of the extent of the experience of athletes in the use of preparation and mental training, and the study sample consisted of (8) male professional athletes from different sports, and he used the descriptive approach and interviews to find out what tools are used in mental training And their mental preparation, and the results of the study showed that these athletes use different types and variety of mental skills with different

tools, including mental exercises on video and others, and that they are fully aware and aware that they have to improve their skills and mental capabilities exactly as they improve their technical. The study recommended the use of mental training programs while training players in various sports.

Callow & Fawkes (2006) sought to identify the effect of moving and fixed mental perception on activating mental perception and self-confidence among snowboarders in a sample of 24 skiers. The sample was randomly divided into three experimental groups that applied mental visualization. The first group applied mobile mental visualization, the second applied static visualization, and the third only used stretching exercises as the experimental method, and the results showed that the fixed and mobile mental visualization produced a remarkable development in the performance method of skating on the specified track in favour of the first experimental group. It recommended training on moving and static mental perception in activating mental awareness and self-confidence among ice skaters.

Al-Qawaqzeh (2001) conducted a study aimed at knowing the application of a proposed program for mental training associated with skill training to improve the level of skill performance on the basic movements of the floor mat. The study sample consisted of (24) students from the basic stage, divided into two experimental and control groups. The experimental approach was used, and a mental training program was applied. The results of the study showed that the experimental group achieved progress in learning and acquiring basic skills, and outperformed the control group in all skills except for the skill of standing on the shoulders. It recommended using program for mental training associated with skill training to improve the level of skill performance on the basic movements of the floor mat.

Study limitations:

Spatial limits: Gymnastics Hall, Department of Physical Education, Al-Bayt University, in Mafraq City.

Time limits: The program was implemented during the summer semester of the academic year 2021–2022.

The human limits: female students of the gymnastics course "1" of the Department of Physical Education, Al al-Bayt University, who are enrolled in the summer semester for the academic year 2021-2022, and their number is 30 students.

Study methodology:

The experimental approach was adopted due to its suitability for the nature and objectives of the study.

Study population:

The study population consisted of all female students enrolled in the gymnastics course (1) in the summer semester for the academic year 2021/2022, which are (30) students in the Department of Physical Education at Al al-Bayt University.

The study sample:

The study sample consisted of thirty (24) female students enrolled in the gymnastics course (1) at the Faculty of Physical Education Department at Al al-Bayt University in the summer semester of the academic year 2021–2022. The study population selected all female student (12) female students were subjected to the mental training program, and the control group consisted of (12) female students who were subjected to the traditional program used in the Department of Physical Education. Exploratory sample (6) female students were excluded from the study population after they were approved.

Sample Equivalence:

To verify the equivalence between the research groups, the pre-measurement tools (skill performance, mental visualization, the ability to relax, and the ability to focus attention) were applied, as well as the equivalence of the groups in each of the variables (height, weight, and age), and due to the small size of the sample and the lack of its suitability for laboratory test assumptions, the Mann-Whitney

test was used for independent samples, which is one of the appropriate non-parametric tests to detect the presence of statistically significant differences between the performance of the two groups in the pre-application, and the following is a presentation for that:

1. Chronological Age, Height and Weight:

Table (1)

Mann-Whitney test to examine the differences in the performance of the two groups with the variables of chronological age, height and weight

Variable	Group	Mean	SD	Rank Mean	Rank Sum	U	Z	Sig
Chronological Age	Experimental	21.00	0.88	15.79	221.00	80.00	0.88	0.38
	Controlled	20.71	0.83	13.21	185.00			
Height	Experimental	166.21	5.98	13.36	187.00	82.00	0.74	0.46
	Controlled	167.21	6.12	15.64	219.00			
Weight	Experimental	69.36	4.27	13.00	182.00	77.00	0.97	0.33
	Controlled	70.86	4.42	16.00	224.00			

It appears from Table (1) that there are no statistically significant differences at ($\alpha \leq 0.05$) between the control and experimental groups according to the variables of chronological age, height, and weight, which indicates the equivalence of the two study groups before starting to apply the program.

2. Mental perception, relaxation and attentional focus:

Table (2)

Mann-Whitney test to examine the differences in the performance of the two groups on the mental skills scale (mental perception, relaxation, attentional focus)

Variable	Group	Mean	SD	Rank Mean	Rank Sum	U	Z	Sig
mental perception	Experimental	13.93	0.47	13.68	191.50	86.50	-0.62	0.53
	Controlled	14.07	0.73	15.32	214.50			
Audio Perception	Experimental	14.36	0.84	15.14	212.00	89.00	-0.47	0.64
	Controlled	14.14	0.66	13.86	194.00			
kinesthetic sensation	Experimental	14.07	0.47	15.71	220.00	81.00	-0.86	0.39
	Controlled	13.86	0.86	13.29	186.00			
accompanying emotionality	Experimental	13.29	0.61	14.04	196.50	91.50	-0.39	0.69
	Controlled	13.36	0.63	14.96	209.50			
The ability to control mental perception	Experimental	13.57	1.09	16.96	237.50	63.50	-1.77	0.08
	Controlled	13.07	0.73	12.04	168.50			
Total	Experimental	13.84	0.41	16.00	224.00	77.00	-0.97	86.50
	Controlled	13.70	0.55	13.00	182.00			
relaxation	Experimental	2.86	0.86	14.93	209.00	92.00	-0.29	0.77
	Controlled	2.71	1.07	14.07	197.00			
Attentional focus	Experimental	9.14	0.77	15.96	223.50	77.50	-0.99	0.32
	Controlled	8.64	1.22	13.04	182.50			

Table 2. shows that there are no statistically significant differences at the level ($\alpha \leq 0.05$) between the control and experimental groups according to mental skills (mental perception, relaxation, attentional focus), which indicates the equivalence of the two study groups concerning the mental skills scale (mental visualization, relaxation, attentional focus) before starting the application of the program.

3. Skillful Performance:

Table (3)

Mann-Whitney test to examine the differences in the performance of the two groups on the skills of the performance scale

Variable	Group	Mean	SD	Rank Mean	Rank Sum	U	Z	Sig
Front balance skill	Experimental	3.93	0.47	13.68	191.50	86.500	-0.621	0.603
	Controlled	4.07	0.73	15.32	214.50			
Forward roll	Experimental	3.93	0.62	13.29	186.00	81.000	-0.895	0.454
	Controlled	4.14	0.66	15.71	220.00			
Handstand	Experimental	2.64	0.93	14.14	198.00	93.000	-0.240	0.839
	Controlled	2.71	1.07	14.86	208.00			
overall skill performance	Experimental	3.50	0.45	13.18	184.50	79.500	-0.870	0.401
	Controlled	3.64	0.44	15.82	221.50			

It appears from Table 3 that there are no statistically significant differences at ($\alpha \leq 0.05$) between the arithmetic means of the control and experimental groups according to the skill performance scale (front balance skill, forward roll, handstand), which indicates the equivalence of the two groups.

Study tools and procedures

Study tools:

The following tools and tests were used in conducting this study:

- A device for measuring length in centimeters (Stadiometer)
- A device for measuring weight in kilograms (medical scale).
- A laptop type (HP).
- Data Show.
- Data registration form.
- Whistle.

- Explanatory videos.
- The proposed program.

Pilot study:

The pilot study was conducted on 15/7/2021 on a sample of (6) female students from outside the study sample, whom were randomly selected from the original study population. The researchers repeated the experiment for the second time after a week on the same sample (test-retest). The purpose of the pilot study was:

1- Examination and knowledge of the suitability of the gymnastics hall of the Department of Physical Education at Al al-Bayt University and its suitability for conducting the study.
2- Knowing the timings of the program and organizing a time limit for each training unit.
3- Ensure the validity of the used tools such as, mattresses and appliances.
4- Clarify the vocabulary and instructions for the study sample before conducting the study.
5- Distribute the work between the two groups and organize the time.
6- Organizing the work of the team which is assisting in implementing the program.

Validity of the tests:

After reviewing multiple models for basic skills tests in gymnastics by listing and reviewing previous references and studies, Abdul Qadir and Abdel Hamid (2019), Ahmed and Muhammad (2021), Abed Al-Haq(2007); Al-Qawza and Bani Atta (2008); Almaternhi and Bani Hani (2020); Tabana (2020); Qurin and Madani (2021); Hannant (2007); and Callow & Fawkes (2006), which is commensurate with the nature of the current study sample, as these references and studies agreed on the validity of the tests used as well as their suitability for measuring the variables of the study.

The study tests were presented to a number of arbitrators and experts with specialization, as they were asked to choose the most important tests that are commensurate with the objectives of the study, in order to ensure the validity of these tests and their suitability for measuring the variables of the study.

Then the researchers conduct the necessary modifications according to the observations and suggestions made by the arbitrators.

After reviewing the studies and scientific references related to mental training programs, which include (relaxation, focus of attention, and mental perception), some modifications were made that are commensurate with the nature of the skills used in the study, in order to facilitate its application and focus its dimensions on the motor skills parts of any skill in a coherent ideal manner, as it was applied in many studies and scientific researches, in addition validity and reliability was taken for it.

The reliability of the study tools:

To verify the reliability of the study tools, the method of (test-retest) was used by applying the study tool to a sample of (6) female students from a community and outside her main sample, after a week had passed from the time of the first application, the researchers re-applied the tools to same individuals. The reliability of the tool was verified by extracting the Pearson correlation coefficient between the two times of application as shown in Table 4.

Table (4) the reliability coefficient values for the study tools

Scale	Dimension	Reliability
Mental Perception	visual perception	0.73*
	audio perception	0.72*
	kinesthetic sensation	0.74*
	accompanying emotionality	0.73*
	The ability to control mental perception	0.76*
	total	0.74*
Relaxation		0.72*
Attentional Focus		0.73*

Table No. (4) shows that the reliability coefficients for the dimensions of the mental perception scale ranged between (0.72-0.76) and for the scale as a whole (0.74), while the reliability coefficient for the relaxation scale was (0.72), and the reliability of the attentional focus scale reached (0.73), all of which are values Statistically significant at ($\alpha \leq 0.05$), which indicates the reliability of the scale (mental perception, relaxation, attentional focus). With regard to the skill performance measure, the maximum score (10) scores was adopted, and when calculating the final score for the student, the average of the two scores was taken for the two middle judges. Table (5) Display the coefficients for the reliability of skill performance.

Table No. (5) Reliability coefficients for the dimensions of the skill performance scale

Dimension	Reliability
Front balance	0.75*
Forward roll	0.74*
Handstand	0.76*
Total	0.75*

Table (5) shows that the reliability coefficients for the dimensions of the skill performance scale ranged between (0.74-0.76), and the value of the reliability coefficient for the scale as a whole was (0.75), all of which are statistically significant values at ($\alpha \leq 0.05$), and accepted for the study purposes.

Education programs:

The educational program consisted of (9) educational units at a rate of 4 units per week the duration of each unit was (60) minutes. Each unit consisted of three parts, distributed as follows:

- The introductory part, which lasts (10) minutes, includes recording attendance and absence.

- The main part and its duration are (40) minutes. It includes the educational and applied activity of the skill. For the control group, traditional program. As for the experimental group, its duration is (40) minutes. The time distribution was (15) minutes for mental training, including (mental perception, sensory, visual, auditory) and (the ability to relax), (attentional focus) and (25) for educational activity and application of skills.
- The concluding part, which lasts (10) minutes, includes calming down exercises.

The mental training program included:

-The student begins with a mental perception of the performance after attending the video about the skill that she will learn so that it consists of a sitting position, in a state of stress-free relaxation, eyes closed, and listening to quiet music.

- Using relaxation of all kinds and breathing exercises from slow inhalation and exhalation.
- The student reviews the imagination images of the skill again with more focus and attention is focused on the details of the performance.
  Pause for a plan with an inhale and exhale.
- Then the students are asked to perform the process of mental perception of the skill.

Study variables:

- Independent variable :Proposed Educational Program Using Mental Training.
- Dependent variable: Learning Some Gymnastics Skills.

Statistical Procedures:

The researchers used appropriate statistical treatments to verify the hypotheses of the study, as the (SPSS) program was used to find:

- Arithmetic means and standard deviations.
- Mann-Whitney test.
- Wilcoxon Matched Pairs Signed.
- Contrast Assignment (ANCOVA).
- Cooper test.

Presentation and discussion of results:

The results of the study will be presented by testing its hypotheses, as follows:

First: Results related to the first hypothesis: There are statistically significant differences at (α≤0.05) between the pre and post- measurements of the control group in favor of the post -measurement.

To validate this hypothesis, the arithmetic means and standard deviations of the pre and post- measurements were extracted for the control group members on the mental perception and skill performance scales, and to reveal the significance of the differences between the arithmetic means, the Wilcoxon Signed Ranks test was used for the scores of the control group members on the mental perception scales. And the skillful performance in the pre and post-measurements as Table (6) illustrates.

Table (6)

Wilcoxon Signed Ranks test for the scores of the control group members on the mental perception and skill performance scales in the pre and post-measurements.

Scale	Dimension	Measurement type	Sample	Mean	SD	Rank	Rank Mean	Sum of Ranks	Z value	Sig
mental perception	Visual	pre	12	14.07	0.73	negative	0.00	0.00	1.89	0.059
		post	12	14.57	0.76	positive	2.50	10.00		
	audio	pre	12	14.14	0.66	negative	0.00	0.00	1.633	0.102
		post	12	14.43	0.65	positive	2.00	6.00		
	Kinesthetic sensation	pre	12	13.86	0.86	negative	0.00	0.00	1.633	0.102
		post	12	14.14	0.95	positive	2.00	6.00		
	accompanying emotionality	pre	12	13.36	0.63	negative	0.00	0.00	1.89	0.059
		post	12	13.86	0.95	positive	2.50	10.00		
	Control of mental perception	pre	12	13.07	0.73	negative	0.00	0.00	1.414	0.157
		post	12	13.36	1.01	positive	1.50	3.00		
	total	pre	12	13.70	0.55	negative	0.00	0.00	2.384*	0.017
		post	12	14.04	0.57	positive	4.00	28.00		

Scale	Dimension	Measurement type	Sample	Mean	SD	Rank	Rank Mean	Sum of Ranks	Z value	Sig
relaxation		pre	12	12	1.07	negative	0.00	0.00	1.841	0.066
		post	12	12	1.22	positive	2.50	10.00		
Focus Attention		pre	12	12	1.22	negative	0.00	0.00	1.342	0.18
		post	12	12	1.17	positive	1.50	3.00		
Skillful performance	Front balance	pre	12	4.07	0.73	negative	0.00	0.00	2.041*	0.041
		post	12	5.21	1.67	positive	3.00	15.00		
	forward rolling	pre	12	4.14	0.66	negative	0.00	0.00	2.041*	0.041
		post	12	5.29	2.13	positive	3.00	15.00		
	Handstand	pre	12	2.71	1.07	negative	0.00	0.00	1.414	0.157
		post	12	3.14	0.86	positive	1.50	3.00		
	total	pre	12	3.64	0.44	negative	0.00	0.00	2.527*	0.012
		post	12	4.55	1.12	positive	4.50	36.00		

* Statistically significant at the level of statistical significance ($\alpha \leq 0.05$)

It appears from Table (6) that there are statistically significant differences at ($\alpha \leq 0.05$) between the pre and post- measurements of the control group and in favour of the post measurement with regard to the level of mental perception as a whole, front balance, forward roll, and the level of skill performance as a whole, where all the values of (Z) are statistically significant, and after reviewing the arithmetic means, it was found that the differences were in favour of the post-measurement. The researchers attribute the development in the skilful performance of the control group members to the effectiveness of the traditional program used, including the explanation and clarification of the skill by giving a model, the gradual sequence in teaching the skill from easy to difficult, the adequacy and appropriateness of performance repetitions, and the error correction process based on timed feedback information, all of which contributed to the learning and development of the skilful performance of some gymnastics skills, and the result of the current study aligned with the result of the study of Al-

Qawqaza and Bani Atta (2008), whose results showed a positive effect of the regular program in improving and developing the level of motor sentence performance among young gymnasts and the study of Abd Al-Qader and Abdul-Hamid (2019), which found that there is a statistically significant effect of the traditional program on improving the level of skilful performance in some gymnastics skills, as the post arithmetic mean of the control group members were higher than the pre arithmetic mean for these dimensions, while the results showed that there were no differences between the pre and post measurements for the rest of the variables.

Second: Results related to the second hypothesis: There are statistically significant differences at ($\alpha \leq 0.05$) between the pre and post measurements of the experimental group in favour of the post measurement?

To verify the validity of this hypothesis, the arithmetic means and standard deviations of the pre and post-measurements of the experimental group were extracted on the mental perception and skill performance scales, and the skilful performance in the pre and post-measurements, as Table (7) demonstrate.

Table (7)

Wilcoxon Signed Ranks Test for the scores of the experimental group members on the mental perception and skill performance scales in the pre and post measurements.

Scale	Dimension	Sample	Measurement type	mean	SD	Rank	Mean Rank	Sum of Ranks	Z Value	Sig
Mental perception	Visual	12	Pre	13.93	0.47	Negative	0.00	0.00	3.40*	0.01
		12	Post	15.50	0.52	Positive	7.50	105.00		
	Audio	12	Pre	14.36	0.84	Negative	0.00	0.00	2.46*	0.01
		12	Post	15.36	0.93	Positive	4.00	28.00		
	kinesthetic sensation	12	Pre	14.07	0.47	Negative	0.00	0.00	2.81*	0.00
		12	Post	15.36	0.93	Positive	5.00	45.00		

Scale	Dimension	Sample	Measurement type	mean	SD	Rank	Mean Rank	Sum of Ranks	Z Value	Sig
	accompanying emotionality	12	Pre	13.29	0.61	Negative	0.00	0.00	2.91*	0.00
		12	Post	15.14	1.29	Positive	5.50	55.00		
	Control of mental perception	12	Pre	13.57	1.09	Negative	0.00	0.00	3.02*	0.00
		12	Post	15.29	0.91	Positive	6.00	66.00		
	Total	12	Pre	13.84	0.41	Negative	0.00	0.00	3.06*	0.00
		12	Post	15.17	0.70	Positive	6.50	78.00		
relaxation		12	Pre	2.86	0.86	Negative	0.00	0.00	2.88*	0.02
		12	Post	4.64	0.63	Positive	5.50	55.00		
Focus Attention		12	Pre	9.14	0.77	Negative	0.00	0.00	2.43*	0.00
		12	Post	9.86	0.36	Positive	4.00	28.00		
Skillful performance	Front balance	12	Pre	3.93	0.47	Negative	0.00	0.00	3.34*	0.00
		12	Post	9.36	1.08	Positive	7.50	105.00		
	forward Roll	12	Pre	3.93	0.62	Negative	0.00	0.00	3.35*	0.00
		12	Post	9.57	0.85	Positive	7.50	105.00		
	Hand Stand	12	Pre	2.64	0.93	Negative	0.00	0.00	3.33*	0.00
		12	Post	8.50	1.02	Positive	7.50	105.00		
	Total	12	Pre	3.50	0.45	Negative	0.00	0.00	3.31*	0.00
		12	Post	9.14	0.58	Positive	7.50	105.00		

* Statistically significant at the level of statistical significance ($\alpha \leq 0.05$)

It is evident from Table (7) that there are statistically significant differences at ($\alpha \leq 0.05$) between the pre and post-measurements of the experimental group and in favour of the post measurement, where all the values of (Z) were statistically significant, and after reviewing the arithmetic means, it was found that the differences were in favour of the post-measurement, which indicates a positive effect of the proposed educational program in improving the level of mental perception and skill performance among the experimental group members. The mental performance and the sufficiency and appropriateness of the repetitions led to the improvement of the performance of this group in a way that helped to develop and improve the skilful performance, as the researchers found through

their observation of the members of the experimental group and after they received the proposed educational program based on mental training that their performance was distinguished by the ability to estimate needs. The physical activity of the given activity without an increase or decrease and the ability to perceive and understand the circumstances surrounding the performance, which showed visible motor behaviour codified and directed during their learning of the skill, is consistent with what Al-Aqili (2008) indicated that mental training is one of the training methods for higher mental processes to organize knowledge and enhance. The educational process affect changes in motor behaviour and skilful performance, and then it can be considered the link between sports psychology as a field that works to develop and control behaviour through the use of mental exercises that regulate the sensory experiences that the individual acquires, and the educational process responsible for applying these experiences on the skilful performance of the learner. This results is consistent with the findings of Al-Almaternhi and Bani Hani (2020) study which pointed out that the mental training program had a positive and statistically significant effect on the experimental group in learning some basic skills in gymnastics. In addition, these findings is aligned with the study of Ay and Abu Al-Tayeb (2017) which indicated that the mental training program has a positive effect on learning the skill of serving in volleyball for the members of the experimental group.

Third: Results related to the third hypothesis: There are no statistically significant differences at ($\alpha \leq 0.05$) between the experimental and control groups in the post-measurement in favour of the experimental group.

To verify the validity of this hypothesis, the arithmetic means and standard deviations of the post-measurement of the control and experimental groups were extracted on the mental perception and skill performance scales, and to reveal the significance of the differences between the arithmetic means, the Mann-Whitney test was used, as Table (8) display.

Table (8)

Mann-Whitney test for the scores of the experimental and control group members on the mental perception and skill performance scales in the post-measurement

Scale	Dimension	Sample	Measurement type	mean	SD	Rank	Mean Rank	Sum of Ranks	Z Value
Mental perception	Visual	12	Pre	15.50	0.52	19.00	266.00	3.145	0.00
		12	Post	14.57	0.76	10.00	140.00		
	Audio	12	Pre	15.36	0.93	18.39	257.50	2.641	0.00
		12	Post	14.43	0.65	10.61	148.50		
	kinesthetic sensation	12	Pre	15.36	0.93	18.96	265.50	2.979	0.00
		12	Post	14.14	0.95	10.04	140.50		
	accompanying emotionality	12	Pre	15.14	1.29	18.64	261.00	2.792	0.00
		12	Post	13.86	0.95	10.36	145.00		
	Control of mental perception	12	Pre	15.29	0.91	20.14	282.00	3.767	0.00
		12	Post	13.36	1.01	8.86	124.00		
	Total	12	Pre	15.17	0.70	20.07	281.00	3.627	0.00
		12	Post	14.04	0.57	8.93	125.00		
Relaxation		12	Pre	4.64	0.63	19.07	267.00	3.123	0.00
		12	Post	3.36	1.22	9.93	139.00		
Focus Attention		12	Pre	9.86	0.36	18.29	256.00	2.793	0.00
		12	Post	8.86	1.17	10.71	150.00		
Skillful performance	Front balance	12	Pre	9.36	1.08	21.04	294.50	4.312	0.00
		12	Post	5.21	1.67	7.96	111.50		
	forward roll	12	Pre	9.57	0.85	20.96	293.50	4.296	0.00
		12	Post	5.29	2.13	8.04	112.50		
	Handstand	12	Pre	8.50	1.02	21.50	301.00	4.565	0.00
		12	Post	3.14	0.86	7.50	105.00		
	Total	12	Pre	9.14	0.58	21.50	301.00	4.557	0.00
		12	Post	4.55	1.12	7.50	105.00		

* Statistically significant at the level of statistical significance ($\alpha \leq 0.05$)

It appears from Table (8) that there are statistically significant differences at ($\alpha \leq 0.05$) between the experimental and control groups in the post-measurement, where all the values of (Z) were statistically significant, and after reviewing the arithmetic means, it was found that there were differences in favour of the experimental group, which indicates a positive effect of the proposed educational program in improving the level of mental perception and skilful performance of the experimental group members. Moreover, this indicates that the experimental group members excelled over the control group members in learning some gymnastic skills under study.

The researchers attribute this to the use of relaxation exercises, mental visualization of the skill, and attention to the important details when performing the skill, which had a clear effect on reducing confusion at the moment of performance, increasing the element of focus and accuracy, and isolating external influences on performance. These things combined helped learners master the performance and easily reach the stage of accuracy in it. The production of the motor situation mentally Traditional increases the control of the skilful performance in terms of the appropriate timing and the motor rhythm of the different parts of the skill, so it becomes a frame of reference for the learner by fixing the movement path in the learner's mind by forming a mental image of the components of the movement before he performs it, which gives him More accuracy in his performance. The results of the current study agrees with what was indicated by Khion (2002) and Mahjoub (2000) that skill learning by keeping pace with basic mental skills such as relaxation, mental visualization and attention, contributes to feeling more self-confidence and reducing errors in performance because it is done Through it, the skill is reviewed mentally, and this includes getting rid of errors by visualizing the correct method of artistic performance. The result of the current study agrees with the results of the studies of Al-Qawaqzeh (2001), Al-Qawaqzeh and Bani Atta (2008), Almaternhi and Bani Hani (2020), and Tabana (2020). Their results showed that there is a preference for and statistically significant differences between the mental training program and the experimental group over the regular program in the level of skilful performance of some gymnastics skills.

The researchers believe that mental perception is important in helping the learner perform the correct responses by evoking the mental image of the skill to be learned and preventing the distraction of his thoughts, thus allowing him to focus better on its performance. Annett (2008) asserts that some studies have shown that mental training is more effective for the tasks that need to be learned. It contains a high cognitive component, and motor learning that occurs in the early stages has a cognitive basis, which means that mental training is more effective during the early stages of learning, and the researchers believe that mental training leads to increased self-confidence and motivation in building new patterns that achieve The required goals, as well as the use of mental perception, helped the learners perform correctly as a result of visualizing strengths and weaknesses, thus developing the method of performance and acquiring the motor skill.

Conclusions:

- The mental training program and video watching contribute to increasing the effectiveness of skill training to improve and develop skillful performance in gymnastics.
- The application of mental training combined with skill training has a better effect on the level of skill performance.
- Mental training is suitable for different age groups, especially young people and young adults in individual sports such as gymnastics.

Recommendations:

- Paying attention to developing aspects of mental awareness and focusing attention while performing various motor skills that help speed up learning and acquiring skills.
- Integrating the mental training and skill training program for motor skills in gymnastics to raise the level of skill performance.
- Conducting studies on the rest of the gymnastics skills according to the variables of age, gender, and level.
- Carrying out similar studies on mental training associated with skill training in other sports, either team or individual sports.

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