International Journal of Psychosocial Rehabilitation, Vol.24, Issue 04, 2020
ISSN: 1475-7192

Designing an Aid Device in Learning the Skill of Handstand in the Technical Gymnasium for Students

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Abstract-*The study aimed to design an aid in learning the skill of handstand and learning about the effect of using an assistive device in learning the skill of handstand in the artistic gymnastics of female students. The assistive device consists of (2) U-shaped legs upside down, and at the end of each base post, the post can be enlarged and zoomed out, and the bar in the middle is covered with a sponge to avoid injury. The researcher used the experimental approach to design the two equivalent experimental groups: the experimental and the control group, the test: pre and post, on a sample of the second stage students, the Department of Physical Education and Sports Sciences / College of Education / Al-Farahidi University, then the researcher divided the division (1,2) randomly by drawing lots into two groups of the control group Its number is (27) students, which is a division (1) and the experimental group and its number is (27) students, and it is a division (2). The research program was implemented using the assistive device. The preparatory and the closing section are the same. The researcher concluded that adopting the designed assistant device improves the level of performance of the skill of handstand. Where it recommended the necessity of adopting assistive devices and tools that prove scientifically effective for learning artistic gymnastics skills to students of physical education and sports sciences.*

Definition of the research

Introduction and Importance of Research

Recent years have highlighted a special indication of the importance of physical education, as it seems clear that the developed countries have reached high levels of sport, which have been achieved thanks to scientific research as well as studies aimed at raising the level of achievement. In various sports in general and gymnastics in particular, because the person adopts a healthy and healthy building as a result of his inclusion on multiple devices. The level of development that gymnastics has experienced in recent years was no accident. Rather, it was the result of the coaches' continuous planning and the use of innovative scientific methods in education and training, in addition to recent developments in the world of assistive gymnastics devices that had a clear impact on the development of XD. Assistive devices are considered one of the most important factors that achieve achievement in gymnastics because they are auxiliary factors and accelerate the learning process if used well, and they facilitate the performance of movements and simplify the learning process in addition to their presence. An important and fundamental role in the learning process for the purpose of improving the skill aspect, as approaching the form and method of optimal performance is a basic duty of the learning process, so it is necessary for teachers to use assistive devices that facilitate learning. The process of recognizing the correct performance of movement and encouraging the learner to learn the skill in order to get rid of Fear of injury to overcome the difficulty and complexity in learning the skill of handstand, reaching the level of good performance, and contributing to the discovery of technical errors that the student made during the performance. Therefore, the importance of research appears in the design of an assistive device in learning the skill of handstand, as well as the skill gradient from easy to difficult using the assistive device that helps in learning the skill of handstand, which achieves some desired benefits in learning this skill and providing safety to prevent injury during Performance and optimization, reducing time and effort.

Research Problem

The difficulty of performing artistic gymnastics skills for students does not come to the previous practice of physical gymnastics in the schools in which they studied, and their sense of danger when performing the skills leads for the first time, and these skills are the skill of handstand, which is the systematic planned movements for students of the second grade and student learning due to the requirements of the exam, and the skill of standing by Difficult skills on the student's performance from the lack of a safety factor and some external phenomena. Bs abstains from performing the skill to avoid injury. Through the researcher's realization of being a teacher of this subject, he found that there is a difficulty in learning this skill, as well as fear of falling and injury, which negatively affects performance, lack of a

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sense of movement, and the correct alignment of the body when standing on the hands and the inability to perform the end of movement by Bending the arms and hugging the head and descending on the fallen shoulders (performing the half of the forehead rolling) and directly on the Z cat. One of the obstacles in the performance of the skill of handstand and the inability to perform properly and the lack of safety factor that facilitates and helps the student to learn a skill and also requires a great effort by a student A teacher while helping, as a teacher, puts great effort into helping students, which is a burden on the back muscles not to mention the possibility of injury when the teacher helps the student not to do so. You do not know the correct performance of the skill.Therefore, the researcher decided to design a device that helps to learn the skill of standing on the hands and not falling directly on the back, which may provide a factor of safety and security for the student and the teacher, and may reduce effort and effort. Time to learn the skill and the correct technique.

Research Objectives

Designing an assistive device in learning the skill of handstand in the artistic gymnastics of the female students. Understanding the effect of using an assistive device in learning the skill of handstand in the technical school of female students.

Research hypotheses

The presence of statistically significant differences between the results of the pre and post tests and for the control and experimental groups in learning the skill of standing hands in your artistic gymnastics and in favor of the post test. The presence of statistically significant differences between the control and experimental groups in the results of the post-test in learning the skill of standing hands in your artistic gymnastics and for the benefit of the experimental group.

Research areas

Human field: Female students of the second stage, Department of Physical Education and Sport Sciences / College of Education / Al-Farahidi University (2018-2019)

Time range: the period from 3/3/2019 to 05/29/2019.

Spatial domain: Gymnasium / Department of Physical Education and Sports Sciences / College of Education / Al-Farahidi University.

Theoretical studies and previous studies

Theoretical studies:

Teaching aids:

“ They are all the tools that can be used to help achieve the educational objectives of the learning process” ((1))

The didactic method is important in its ability to bring the learning process closer to reality, and this makes the exploration perception work used to stabilize the learning process. Meaning that the method is closer to the truth during the learning process, to be used in conveying information to the learner ... “Learning based on sensory experiences is fruitful learning. Sensory experiences require that the student pass direct and realistic experiences.” (2)

There are different names for educational aids that seek to achieve two basic principles: ((3))

Assistance in achieving and completing the objectives of the educational process.

It depends on the learner’s senses in order to provide the acquired experience away from the use of verbal language.

Educational methods are important in the learning process ((4))

The educational aids enhance the perception through the experiences provided to the student.

It works to attract the student's attention as well as focus his attention by adding dynamic and realistic and stimulating their interest in learning as well as increasing the excitement of studying.

The student’s positive participation in gaining experiences.

Providing experiences close to realism to satisfy and fulfill their desires.

Availability of mutual time and effort between the student and the teacher and facilitating the learning process.

Through feedback, it increases the quantity and quality of the learning provided to the student.

The researcher agrees with the important points of educational aid because it serves learning and helps and enhances the arrival of the curriculum in achieving its goals because it is a realistic and real thing. Therefore, any kind of educational means and tools can be used in any sports game, but on the condition that these educational methods and tools are appropriate for the ages and levels of students, and that they are resulting from the reality and conditions of these games. In order to work to find reality while practicing it. This is to obtain a qualitative development with the least time and effort through a scientific approach that creates excitement and creates desire and excitement in performance.

Basis for choosing the appropriate teaching method

It is summarized as follows

The teaching aids must be fit for use and be well made.

Clear, simple and accurate information.

It should be suitable for students 'age and intelligence, as well as with the scientific and technological development of society.

To be flexible and can be modified and moved.

Effective in stimulating students' interest and excitement.

It must be closely related to the subject of the study, as well as compatible with the goal to be achieved.

Teaching aids that are included in the process of teaching motor skills in gymnastics

The complete mastery of the motor skills in the gymnastics game represents the main goal of the kinetic learning process through which the learner achieves the desired results because no matter how much the level of the learner's physical characteristics develops and improves, as well as anything else. Intentional features, he cannot achieve the desired results unless all this is associated with mastery. Full of motor skills as in gymnastic movements on different organs ((6)), and physiologically, the process of learning movement between the brain and muscles takes place. The brain is the one that issues commands (stimuli) to the muscles, and these muscles respond to these commands and do an action (tension and relaxation), and then send a copy (picture) of the work that was performed. Using it (movement performance) to the brain so that a comparison is made between what was done and what needs to be done, as well as correcting errors, and thus the process of (mastering movement) in the circuit is carried out through the brain and muscle orders in response ((7)).

Assistive devices in teaching the skills of gymnastics and their importance

Aid means "all means that avoid injury and advance the educational process," and it is considered one of the most important components that contribute and help effectively in teaching students motor skills and their sense of safety and confidence during movement performance. This feeling does not come unless there are some conditions, namely (8):

Maintenance of devices must be carried out by trainers, as well as choosing methods of protection and simplification to prevent injuries before they happen. The assistance is to assist the student in obtaining the movement perception through the performance of movement. The assistance must be according to the movement path so that the educational process does not deviate from the set plan. Gradual transition to difficult movements (9). Assistive devices in gymnastics work by segmenting skills, facilitating the learning process, and teaching difficult and complex skills, and assistive devices are important in (10):

1. Teaching the correct form of the required movement.
2. It helps in developing the motor skills of the learner.
3. Helping to speed up the learning process.
4. Facilitates performing the most difficult movements.
5. It helps the learner to focus more on the skills that must be learned.
6. Helping the learner to overcome the fear factor when making new movements.
7. Assisting the teacher in diversifying the learners and motivating them to improve performance for the better.

Research methodology and field procedures

Research Methodology

The researcher used the experimental method to design the two equivalent experimental groups: the experimental and the control group with the test: the pre and the post, due to its relevance to the nature of the research problem.

Research community and sample

The research community was deliberately identified, represented by students of the Department of Physical Education and Sports Sciences, the second stage of the College of Education - Al-Farahidi University for the academic year 2018 - 2019 and their number (68) students The research sample was intentionally selected from the original community represented by two divisions (2). 1) Their ages ranged between (21-22) years. Recruited students and students absent from data, data delays and data uploads were excluded. The number of the sample was (54) students, thus the sample constituted (79.41%) of the original community. Then the researcher divided the division (1,2) randomly, by drawing lots, into two groups, the control group (27) students, which is Division (1) and the experimental group (number) 27, which is Division (2). The teacher assigned to implement the educational curriculum also taught the students two preliminary units for the skill of standing hands before the initial tests, because the students had not learned that skill before as this method guarantees the researcher achieving the goal of the study. They faithfully represent the research community.

Equality between the two groups

Table No. (1) Illustrates the parity between the experimental and control groups

Indication of differences	Indication level Sig	The calculated value (v)	standard deviation	Arithmetic mean	the group	measuring unit	Variables
random	0.718	0.363	0.408	2.877	Experimental	Degree	Technical performance of handstand skill
			0.415	2.837	Control		

Significant (0.05)> random (0.05) <versus a degree of freedom of 52

Means of gathering information, tools and devices used in the research

Methods of gathering information

Sources and references Arab and foreign .

A form for recording and dumping data

Auxiliary Work Team Annex (5)

Devices and tools used in the research

A device designed by the researcher to learn the skill of handstand in the artistic gymnastics for female students.

Mat ground movements.

Your gymnastic sponge rugs, count (4)

Field research procedures

Select the skill used in the research

The skill on which the research will be conducted was chosen by the researcher, and it is the skill of standing hands, which is one of the basic skills taught in the courses of the Faculties of Physical Education and Sports Sciences.

Auxiliary device specifications

The auxiliary device consists of (2) upside down lists, with a width of (2) meters, and at the end of each main column the column can be enlarged and minimized, and the tape in the middle is covered with a sponge to avoid injury as shown in Appendix No. (1) The device was presented to a group of experts ([*]) and the opinions of experts were surveyed and their approval was approved for the device. It is designed to help the student learn the skill of standing

hands by placing your feet on the iron bar and avoiding falling on the back, then the ball and landing and performing a half-turn and this helps to stay away from injuries A direct fall eases the burden of helping the teacher.

Exploratory Experience

The researcher conducted the first poll test on Sunday (3/3/2019) on a sample consisting of (3) students randomly selected from outside the research sample. Facing the researcher, identifying the expected errors and obstacles in implementation, and trying to develop solutions before starting the implementation of the main experiment. The researcher benefited from the exploratory experience and showed that the device is suitable for assistive work, is safe, there is no danger to the student's performance, and is suitable for students 'abilities.

Preliminary test

The researcher conducted a preliminary test for the research sample on Sunday 6/3/2019 with a brief summary after giving two units of the Tarevican skill used in the research. The initial test was performed for the control and experimental groups, in which the two groups performed the skill.

Experience President

After conducting the pre-tests, the implementation of the educational units was started on an experimental research consisting of (24) educational units, meaning a class (12) weeks at a rate of (2) units per week for two days, Sunday - Wednesday of every week, starting from the date of 3/10/2019. The research program using the auxiliary device, and the same educational material was given to the experimental and control groups, and the difference between the two respondents only in the department head and the final preparatory section are similar. Where educational exercises were used for skill and graduation from ease to difficulty, and the assistant device was used for the experimental group and the teacher's method was left for the control group and at the same time and iterations for the two groups with a time of (90) minutes for one educational unit where the researcher used (60) minutes for the applied part in the main section of the unit As for the remaining time of the unit, it is for a teacher of physical education, sports science and gymnastics study.

Another test

The pre-test was approved after completing the educational curriculum on Wednesday 29/5/2019 for the experimental and control groups for the two groups, and the researcher followed the procedures and methods in the same pretest procedures for the two groups.

Statistical treatments

The researcher used statistical methods through the Statistical Package for Social Sciences (SPSSA) and using statistically relevant laws:

Arithmetic mean.

Standard deviation.

T-test for correlated samples.

T test for unrelated samples.

Coefficient of torsion.

Mistake percentage.

Percentage.

Presentation, analysis and discussion of results

Presenting and analyzing the results of the technical performance evaluation (tribal and posterior) for the control group.

Table (2) shows the arithmetic mean, standard deviations, and value (T)for the overall technical performance of the control group

Statistical significance	Error level (sig)	(T) Values The * calculated	test Post	pretest The	Post tests		Pre-tests		measruing unit	Statistical parameters
					P	s	P	s		
moral	0.000	17.182	0.126	2.179	0.501	5.016	0.415	2.837	Degree	Technical of performance handstand skill

At a degree of freedom (26) and a level of significance (0.05)

Discussing the results of the control group between the pre and post tests.

The results of analyzing the statistical data obtained using the test (c) the independent samples to know the meaning of the differences between the pre and post tests, the presence of statistically significant differences in developing the level of technical performance of the skill of standing on the hands and supporting the post test. The group returns to the fact that these students have prepared educational units for them in advance. Academic professor specializing in learning gymnastics skills and using a correct mechanism of action that depends on applying scientific theories to practical reality, using feedback, correcting errors and gradient with difficulty in order to properly acquire motor skills. These lessons have contributed in improving the skill of handstand, so it was reflected on the results of the post-test, and here (Waj ih Mahjoub): "One of the results of the exercise is a relatively constant ability to perform or learn. This effect results in a continuous change in the behavior of the individual, and in fact a continuous change in operations. Which allows the individual to perform some work in the future. " [11] In addition, the learning steps are clear and the scientific materials are presented in a way that suits the needs of the learner. Maine through feedback and correcting errors in the practical application and using repetition to apply the skill that left a clear and effective impact on learning the skill of handstand. Here, (Wajih) Mahjoub and Ahmad Al-Badri indicate that the development of motor skills is affected by many factors, including repetition, perception, comparison, mental abilities and motor experiences As well as the thrill factor, excitement, and practice, the gradation of skills from easy to difficult) (12) so the results were logical.

Presenting the results of the overall technical performance evaluation for tests (pre and post) of the experimental group and its analysis.

Table (3) Shows the arithmetic mean and standard deviations for evaluating the overall technical performance For pre and post tests and value (T) For the experimental group.

Statistical significance	Error level (sig)	(T) Values The * calculated	test Post	pretest The	Post tests		Pre-tests		measuring unit	Statistical parameters
					P	s	P	s		
Moral	0.000	36.969	0.0874	3.2333	0.414	6.111	0.408	2.877	Degree	Technical of performance handstand skill

*With a degree of freedom (26) and a degree of significant significance (0.05)

Discussing the results between the pre and post tests of the experimental group:

The results of analyzing the statistical data obtained using independent test samples (T) to find out statistically significant differences between the pre and post tests. There are statistically significant differences in the technical development of the skill of performance on the hands and in favor of the subsequent test. The researcher believes that the reason is due to the adoption of the proposed assistant skill Segmentation and the difficulty of gradual performance and avoiding motor performance errors through repetition and performance and overcoming the fear factor, as the learner hesitates while making movements as a result of fear of injury, fall, failure or lack of performance, and thus affects learning the skill due to fear and not using educational aids in the movements Difficult. Therefore, it is better to use educational methods and equipment. Here (Haydar Nawar Hussain) points out that "the educational method or the educational system contributes to the speed of acquiring motor skills when practicing performance, as learners can follow the components of the skill and imitate it and touch its strengths and weaknesses. This helps to exclude wrong movements and establish the correct movements in them." 13) Therefore, this device works to get rid of these negatives and raise the level of impulse towards performance and overcome the factor of fear and feeling of safety. Which reflects positively on learning the skill of handstand quickly and easily.

Presenting the results of the differences between the experimental and control groups in the research variables:

Presenting and analyzing the results of the degree of evaluation of the technical performance of the tests (dimensions) of the experimental and control groups.

Table (4) the arithmetic averages, standard deviations, and (T) value of the tests (dimensions) for the experimental and control groups.

Statistical significance	Error level (sig)	* (T) Values The calculated	Post-check				Statistical parameters Variables
			Experimental group		Control group		
			P	s	P	s	
moral	0.000	8.733	0.414	6.111	0.501	5.016	of Technical performance handstand skill

*With a degree of freedom (52) and a degree of significance (0.05)

Discussing the results between the experimental and control groups through subsequent tests.

Results of analyzing the statistical data obtained using the test (T) independent samples to find out the significance of the differences between the experimental and control groups in the post test and the presence of statistically significant differences in the technical development. The level of performance of the handstand skill in favor of the experimental group, and the researcher believes that the reason for this development is for the group Experimental at the expense of the control group is due to the use of the device, which had a great impact on the technical performance as the development of the device forced the learners to perform through the many iterations that were carried out during the educational units, which increased the learner's confidence in performance and not fear of falling and led to repeat this performance to learn The skill of standing hands to reach the best performance, so the use of learning using the utility device was reflected through the learner's interaction with performance in a more realistic way in the performance of the skill and comparing it to the control group. This is consistent with what was mentioned. (Zafer Hashem 2002) The learner is an opportunity to interact with the activity at an appropriate level, which is a process of moral and enjoyable success for the learner, which leads to the performance of the learner at a high level. ([14]) You get the results logically.

Conclusions and recommendations

Conclusions

Through the foregoing, the following conclusions were reached:

1. The adoption of the designed assistant device improves the performance level of the handstand skill.
2. The experimental group that used the auxiliary device outperformed the control group through the results of the post-test for the performance of the skill.

Recommendations

1. The necessity of adopting assistive devices and tools that prove scientifically effective for learning artistic gymnastics skills to students of physical education and sports sciences.
2. Diversity in educational means to help in learning skills better and correct.
3. Adopting the device designed to teach the skill of standing hands.
4. Conducting studies similar to this study by designing assistive devices that facilitate the learning process on the parallel device for women.

References

1. Osama Kamel Ratib: Teaching Swimming, Cairo, Arab Thought House, 1999.
2. Haydar Nawar Hussain: The effect of some educational programs for the development of some kinematic aspects and technical performance of the long jump event for beginners aged (15-16) years. PhD thesis. College of Physical Education - University of Baghdad. 2012.
3. Zafer Hashem Al-Kazemi; Interacting training method and its effect on learning and development through spatial organizational experiences of tennis learning environment, PhD thesis, College of Physical Education, University of Baghdad, 2002.

4. Abbas Ahmad al-Samarrai and Abdul-Karim al-Samarrai: Teaching competencies in methods of teaching physical education: Baghdad, Dar Al-Hikma, 1991.
5. Muhammad Abd al-Rahman; The importance of the age of the first school in learning the basic skills of swimming: Master Thesis, College of Physical Education, University of Baghdad, 1990
6. Muslim Badr Awad: The development of the learning speed of the Great Circle on the mind apparatus using the rotating wheel device (the factory), PhD thesis, College of Physical Education, University of Basra, 2000 AD
7. Mayouf Thanun Hantoush (and others): Technical and educational principles of gymnastics and physical exercise, Mosul, Mosul University Press, 1985 AD.
8. Nader Fahmy Al-Zyoud and others: Classroom Learning and Teaching: 2nd Edition, Jordan, Dar Al-Fikr for Printing, Publishing and Distribution, 1999.
9. Norman: Hardware Gymnastics, translated by Salman Ali and Mayouf Thanoon, Mosul, Mosul University Press, 1983.
10. Wajih Mahjoub: Learning and Scheduling Sports Training, Wael Publishing House, Amman, 2001.
11. Wajih Mahjoub, Ahmad Al-Badri: The Origins of Kinetic Learning, Mosul, University House for Printing and Publishing, 2002.
12. Yorken Lyrch (et al.): Theoretical Foundations of Gymnastics, 2nd Edition, Baghdad, Wawfset Mounir Press, 1978 AD.
13. Nader Fahmy Al-Zyoud and others: Chapter of Learning and Teaching: The Second Edition, Jordan, Dar Al-Fikr for Printing, Publishing and Distribution, 1999, p. 145.
14. Abbas Ahmad al-Samarrai and Abdul Karim al-Samarrai: Competencies for Teaching Methods of Teaching Physical Education: Baghdad, Dar Al-Hikma, 1991, p. 42.
15. Osama Kamel Ratib: Teaching Swimming, Cairo, Arab Thought House, 1999, p. 34.
16. Nader Fahmy Al-Zyoud and others: The previous source, p. 147, p. 148.
17. Nader Fahmy Al-Zyoud and others: The same source, p. 147.
18. Muslim Badr Awad: The development of the learning speed of the major circle on the mind apparatus using the rotating wheel device (the factory), PhD thesis, College of Physical Education, Basra University, 2000 AD, p. 11.
19. Yorkin Learch (and others): Theoretical foundations of gymnastics, second edition, Baghdad, Wovsett Mounir Press, 1978 AD, p. 180.
20. A. H. Jabbar et al., “Investigation of Antioxidant for Polyvinylpyrrolidone-Silver Nanocomposite Using Pandanus atrocarpus Extract,” Xi’an Jianzhu Keji Daxue Xuebao/Journal Xi’an Univ. Archit. Technol., 2020.
21. Norman: Norman: Gymnastics on Equipment, translated by Salman Ali and Mayof Thanon, Mosul, Mosul University Press, 1983., p. 183.
22. Mayouf Thanon Hantoush (and others): Technical and educational principles of gymnastics and exercise, Mosul, Mosul University Press, 1985 AD, p. 321.
23. Muhammad Abd al-Rahman; The importance of first school age in learning basic swimming skills: Master Thesis, College of Physical Education, University of Baghdad, 1990, p. 17.
24. Ms. Amira Abdel Wahed / Learning Dynamics / Tennis Trend.
25. Abdullah H. J. et, al (2018), Chemical synthesis and characterization of silver nanoparticles induced biocompatibility for anticancer activity. Indian Journal of Public Health Research & Development, 9 (11). pp, 352-357.
26. Dr. Bin Adnan Mohamed / Psychology / Gymnastics Technician.
27. Wajih Mahjoub: Learning and Scheduling Sports Training, Wael Publishing House, Amman, 2001, p. 28.
28. Wajih Mahjoub, Ahmed Al-Badri: The Origins of Kinetic Learning, Mosul, University House for Printing and Publishing, 2002, p.13.
29. Haydar Nawar Hussain: The effect of some educational programs in developing some aspects of movement and technical performance of the long jump event for beginners between the ages of (15-16) years. PhD thesis. College of Physical Education - University of Baghdad 2012 p. 69.
30. Zafer Hashem Al-Kazemi; Method of interdisciplinary training and its impact on learning and development through spatial organizational experiences in tennis learning environment, PhD thesis, College of Physical Education, University of Baghdad, 2002,

Appendices

Accessory (1)