



ISSN: 2456-4419

Impact Factor: (RJIF): 5.18

Yoga 2024: 9(2): 379-382

© 2024 Yoga

[www.theyogicjournal.com](http://www.theyogicjournal.com)

Received: 18-09-2024

Accepted: 22-10-2024

**Dr. Zahraa Salah Abd Ali**

Faculty of Physical Education  
and Sports Sciences, University  
of Kufa, Iraq

**Dr. Rihab Nabeel Abdul Adheem**

Faculty of Physical Education  
and Sports Sciences, University  
of Kufa, Iraq

**Rasal Adnan Wahhab**

Faculty of Physical Education  
and Sports Sciences, University  
of Kufa, Iraq

**Hasan Khalil Ismail Alnajjar**

Faculty of Physical Education  
and Sports Sciences, University  
of Kufa, Iraq

## The effect of compound exercises on improving the performance of handstand and headstand skills on the floor exercise mat in artistic gymnastics

**Zahraa Salah Abd Ali, Rihab Nabeel Abdul Adheem, Rasal Adnan Wahhab and Hasan Khalil Ismail Alnajjar**

### Abstract

Gymnastics is one of the sports activities that depend on basic skills as an important basis for the progress and integration of the student's level, as all technical aspects cannot be applied without relying on mastering the performance of basic skills, which prompted teachers to spend most of the time teaching these skills and giving them a greater share in the educational curricula.

The research problem: It was focused through the researchers' follow-up and their field experience in the field of gymnastics. They noticed that there is difficulty in students performing the basic skills in gymnastics. Among these skills that they find difficulty in mastering is standing on the hands and head, despite the long time that teachers spend teaching these two skills. The researchers attribute the reason for this to the lack of diversity in the complex exercises that target the motor performance of the two skills directly. Given the importance of these skills, which are the cornerstone on which artistic performance is formed, researchers decided to study this problem by preparing complex exercises that work to improve the artistic performance of the skills of standing on the hands and head, which in turn is reflected in the general artistic performance.

**Keywords:** Gymnastics, artistic gymnastics, general artistic performance, educational curricula

### Introduction

The research aims to identify the effect of compound exercises in improving the performance of handstand and headstand skills for students, as well as identifying the differences between the control group and the experimental group in improving handstand and headstand skills for students.

The researchers followed the experimental approach to suit the nature of the research problem and its solution. The research community was determined as the second-stage students in the College of Physical Education and Sports Sciences / Al-Qasim Green University, numbering (60) students distributed over (2) departments, which are (B, C). As for the research sample, it was chosen randomly. By drawing lots from the community to represent Section (B) the experimental group and Section (C) represents the control group, each group includes (30) students, as the complex exercises are given to the experimental group while the control group is taught using the method followed by the teacher, and thus the sample constitutes a percentage of (50%) of the research community, which is a good percentage to represent the community in a true and real way.

The researchers concluded that: The educational units using compound exercises have a positive effect in improving the technical performance of the handstand and headstand skills in artistic gymnastics, and that the duration of the independent variable represented by the number of educational units was sufficient to have a development for the members of the experimental group at the expense of the members of the control group in the handstand and headstand skills.

The researchers recommended several recommendations, including: using compound exercises in educational curricula when learning to stand on the hands and head in artistic gymnastics, and conducting similar studies and research on the use of compound exercises in other types of sports such as basketball, volleyball, and handball.

**Corresponding Author:**

**Dr. Zahraa Salah Abd Ali**

Faculty of Physical Education  
and Sports Sciences, University  
of Kufa, Iraq

## 1. Definition of the research

### 1.1 Introduction and importance of the research

The sports development that has occurred in various fields is nothing but the result of research, studies and scientific efforts that have contributed to the advancement of sports achievement in all sports fields. The world has witnessed in the second half of the last century a lot of development in various sports sciences and knowledge, including artistic gymnastics. It is one of the sports that has global importance, and it is also one of the academic activities that is characterised by multiple skills, the mastery of which depends on the students possessing a sufficient degree of physical and motor fitness that helps in the success of the artistic performance. Gymnastics is one of the sports activities that depend on basic skills as an important basis for the progress and integration of the student's level, as all technical aspects cannot be applied without relying on mastering the performance of basic skills, which prompted teachers to spend most of the time teaching these skills and giving them a greater share in the educational curricula. But the long time in skill education is not the only method for teaching and developing basic skills. There are many diverse and multiple modern methods and approaches that help in speeding up and mastering the teaching and acquisition of skills, including the use of complex exercises that work primarily to develop motor skills in artistic gymnastics. Teachers interested in the field of motor learning believe that these exercises are necessary and must be given carefully by the teacher, as they cannot be dispensed with because they are the exercises that work on directly building the student's level in basic skills such as (rolling, diving, standing on hands and head, etc.) in addition to the fact that they work on integrating the students' technical performance. Hence, the importance of research in preparing complex exercises that work to improve the technical performance of the handstand and headstand skills in artistic gymnastics for students.

### 1.2 Research Problem

The researchers focused through their follow-up and field experience in the field of gymnastics. They noticed that there is difficulty in students performing basic gymnastics skills. Among these skills that they find difficulty in mastering is standing on the hands and head. Despite the long time teachers spend teaching these two skills, researchers attribute this to the lack of diversity in the complex exercises that directly target the motor performance of the two skills, and the importance of these skills, which are the cornerstone on which artistic performance is formed.

### 1.3 Research objectives

- Identify the effect of compound exercises in improving the performance of students' handstand and headstand skills.
- Identify the differences between the control group and the experimental group in improving students' handstand and headstand skills.

### 1.4 Research hypothesis

There is a positive effect of compound exercises in improving the performance of handstand and headstand skills in artistic gymnastics for students.

### 1.5 Research areas

**1.5.1 Human field:** Second-year students in the College of Physical Education and Sports Sciences / Al-Qasim Green

University

**1.5.2 Time frame:** From 10/4/2024 to 12/20/2024

**1.5.3 Spatial field:** Gymnastics Hall in the College of Physical Education and Sports Sciences/Al-Qasim Green University.

## 2. Research methodology and field procedures

### 2.1 Research methodology

The researchers used the experimental method because it is suitable for the nature of the research problem, and by designing the method of two equivalent groups (experimental and control) with pre- and post-tests.

### 2.2 Research community and sample

The research community was determined as the second-year students in the College of Physical Education and Sports Sciences / Al-Qasim Al-Khadra University, numbering (60) students distributed over (2) departments, namely (B, C). As for the research sample, it was randomly selected by lottery from the community to represent department (B) the experimental group and department (C) represents the control group. Each group includes (30) students.

The complex exercises are given to the experimental group, while the control group is taught using the method followed by the teacher. Thus, the sample constitutes a percentage of (50%) of the research community, which is a good percentage for representing the community in a true and accurate manner.

### 2.3 Devices, tools and methods used in the research

#### 2.3.1 Research methods used

- Observation.
- Arab and foreign sources and references.
- Information network (Internet).

#### 2.3.2 Tools and devices used

- Ground movement mat device.
- Sponges of different heights.
- Rubber ropes.

### 2.4 Field research procedures

#### 2.4.1 Determining the tests for the variables

The researchers, in cooperation with experts and specialists in the field of learning and gymnastics, built and prepared a form to evaluate the technical performance of the headstand and handstand skills. The researchers presented the stages of technical performance for both skills to experts and specialists in (motor learning and gymnastics), in light of which the performance is evaluated.

The researchers conducted the exploratory experiment on 11/5/2024 on a sample of (5) students from the same research community. The purpose of this experiment is to identify the validity and efficiency of the tools and devices used in the test, as well as the overall difficulties facing the researchers during the implementation of the main experiment How to avoid them and find the best solutions for them, and know the amount of time needed to conduct the main experiment and standardize the educational units using complex exercises and applying them, and know the extent of their difficulty for the sample individuals, the required repetitions, and the time taken.

### 2.5 Main Experiment

**2.5.1 Pre-tests:** The researchers conducted the pre-tests on

11/12/2024, where the researchers implemented the tests to measure the skill performance of the handstand and headstand skills, to obtain the results of the pre-test.

**2.5.2 Applying the educational units using complex exercises:** The researchers prepared and implemented the complex exercises based on their field experience, as the aim was to improve the technical performance of the handstand and headstand skills on 11/13/2024, at a rate of two units per week (practical/theoretical), for a period of four weeks, with a total of (8) educational units. Note that the teaching of the experimental and control groups was on the same day of the week. The educational units were implemented using complex exercises on the experimental group, and the students of the control group were subjected to the units followed by the teacher.

**2.5.3 Post-tests:** The researchers conducted the post-test for the control and experimental research groups on 12/20/2024

in the gymnastics hall of the College of Physical Education and Sports Sciences / Al-Qasim Green University, where the researchers applied the tests related to the technical performance of the skills of standing on the hands and head to obtain the results of the post-test. The researchers were keen to provide the same conditions surrounding the pre-tests in terms of time, place, implementation methods, test sequence, and control of extraneous factors.

**2.6 Statistical methods used:** The researchers used the statistical package (SPSS) to analyze the research results.

**3.1 Presentation and discussion of the results of the pre- and post-tests of the control and experimental groups for the variables under study**

**3.1.1 Presentation of the results of the pre- and post-tests of the control group for the variables under study**

**3. Presentation, analysis and discussion of the results**

**Table 1:** It shows the pre- and post-test t-values of the control group in the tests used.

Statistical Feature	Researched Variables	Unit of Measurement	The Tribal (Mean ± SD)	Al-Baadi (Mean ± SD)	Calculated Value (t)	Sig.	Type of Indication
Handstand	Degree	4.725 ± 1.221	6.958±0.737	5.071	0.000	Moral	
Headstand	Degree	5.858 ± 1.336	7.150±1.023	4.209	0.001	Moral	

Table 1 it shows the pre- and post-test t-values of the control group in the tests used.

\*The calculated (t) value is significant at a significance level of < (0.05) and a degree of freedom of (59).

**3.1.2 Displaying the results of the pre- and post-tests of the experimental group for the studied variables:**

**Table 2:** It shows the pre- and post-test t-values for the experimental group in the tests used

Statistical Feature	Researched Variables	Unit of Measurement	The Tribal (Mean ± SD)	Al-Baadi (Mean ± SD)	Calculated Value (t)	Sig.	Type of Indication
Handstand	Degree	Degree	4.133±1.105	8.625±0.985	7.387	0.000	Moral
Headstand	Degree	Degree	6.216±1.031	9.467±1.121	7.805	0.000	Moral

\*The calculated (t) value is significant at a significance level of < (0.05) and a degree of freedom of (59).

**3.1.3 Presenting the results of the post-tests for the control and experimental groups for the studied variables.**

**Table 3:** Shows the value of (t) calculated for independent samples, the level of significance of the test, and the significance of the differences between the results of the test (post-test. post-test) for the control and experimental groups for the variables under study

Statistical Features And Researched Variables	Unit of Measurement	The Tribal (S)	The Tribal (±p)	Al-Baadi (S)	Al-Baadi (±p)	Calculated Value (T)	Sig	Type of Indication
Handstand	Degree	6.958	0.737	8.625	0.985	4.08	0.00	Moral
Headstand	Degree	7.15	1.023	9.467	1.121	8.34	0.00	Moral

\*The calculated (t) value is significant at a significance level of < (0.05) and a degree of freedom of (59).

**4. Discussion of Results**

By observing Tables 1 and 2, it is clear that there are significant differences between the pre- and post-tests and for the control and experimental groups in the tests used and in favor of the post-tests. This indicates that the two groups have learned to perform the skills of extinguishing and heading the ball. The reason for learning the control group is attributed to the educational units used by the subject teacher and the method followed by him in organizing the lesson and the correct learning outcomes that helped to occur. Changes in the skill performance of the control group, as the good organization of the lesson contributed to the learners acquiring the ability to experience the lesson, understand it, and modify their behavior so that they acquire desirable behavioral standards (Enayat Muhammad Ahmad Farag, 1998) [1].

While the reason for learning and the noticeable difference between the pre-test and post-test in favor of the post-test for the experimental group, as shown in Table 2, is due to the educational units using complex exercises that have an effective role in improving the performance of the skills of standing on the hands and head, if complex exercises are considered the effective tool for all the problems that occur during performance (Essam Abdel Khaleq, 1993) [2].

By observing Table (3), it was shown that the experimental group outperformed the control group in the performance of the skills of standing on the hands and the head. The researchers attribute this to the educational units using complex exercises and the regularity and continuity in them by the members of the experimental research group and their practice of complex exercises and benefiting from the time invested in the technical performance of the skills of standing

on the hands and the head. The head contributed effectively to accelerating the learning of the skill well, as increasing the actual time for skill performance leads to increasing the understanding and comprehension of the movements, and this condition gives stability, firmness and comprehension, which leads to increasing the experience of these students in implementing the technical performance, as the educational curricula must include the required repetitions because The skill can only be performed through actual practice of skill performance, and the skill does not come through a little performance, but rather comes through repeated performance coupled with learning) Wajih Mahjoub and Nizar Al-Talib, 1987 [3]. (The amount of time the learner spends practicing exercises is not the only factor in developing learning, but also the quality of the exercise during the specified period, as we find that learners sometimes exert great effort for several hours.

The amount of time that the learner spends practicing the exercises is not the only factor that influences the development of learning, but also the quality of the exercise during the specified period. We find that learners sometimes exert great effort and for several hours in ineffective exercises, which causes them failure and frustration. Therefore, the teacher must keep in mind that he should be proficient, persistent, and organized in building the structure of the exercise in an effective manner (Scrmid A, Richard and Eraig A. Wrisberge 2000) [4].

The use of complex exercises works to bring the reality of the desired movement or skill to be learned closer to the learner's mind, as "the player's feeling of his ability to perform means feeling the movement, which plays an important role in skill performance (Wajih Mahjoub, 2000) [5].

The purpose of learning is to bring about changes and development in the learner's being, and it also includes an activity by the teacher or instructor who works to stimulate the learner's motivations for learning and to form tendencies and desires. (Qasim Lazam Sabr and others, 2005) [6]. These exercises also made the learning steps for the skills under study clear, in addition to presenting the skills in a way that suits the learners' needs by linking the theoretical aspect with practical application, which left a clear and effective impact on developing and improving the level of students' performance and increasing their capabilities in practical application. Which in turn was reflected in the results of the post-test for the experimental group, which outperformed the control group.

## 5. Conclusions and Recommendations

### 5.1 Conclusions

**Based on the research results that were reached within the limits of the research community, it was possible to reach the following conclusions:-**

- The educational units using complex exercises have a positive effect on learning the skills of standing on the hands and head
- The duration of the independent variable represented by the number of educational units was sufficient to cause development for the members of the experimental group at the expense of the members of the control group in the skills of standing on the hands and head.

### 5.5.2 Recommendations

**In light of the conclusions reached by the researchers, they recommended several recommendations:-**

- Adopting complex exercises in educational units because

of their positive impact on learning skills.

- Using complex exercises in educational units for learning other skills in artistic gymnastics.
- Conducting similar studies and research and using complex exercises in other types of sports such as basketball, volleyball and handball.

## 6. References

1. Farag EMA. Curriculum and methods of teaching physical education. Cairo: Dar Al Fikr Al Arabi, 1998, p. 92.
2. Abdel Khaleq E. Sports training. Cairo: Dar Al Maaref Publishing, 1993, p. 171.
3. Mahjoub W, Al-Talib N. Kinetic analysis. Baghdad: Higher Education Press, 1987, p. 28.
4. Richard SA, Wrisberg CA. Motor learning and performance. 2<sup>nd</sup> Ed. Champaign, IL: Human Kinetics, 2000, p. 81.
5. Mahjoub W. Encyclopedia of kinesiology, learning and training scheduling. Baghdad: Ministry of Education Press, 2000, p. 229.
6. Sabr QL, *et al.* Foundations of learning and teaching and its applications in football. Baghdad, 2005, p. 36.