

**DEVELOPMENT OF JOINT MOBILITY AND BALANCE IN STUDENTS
OF THE FACULTY OF PHYSICAL EDUCATION AND SPORTS
THROUGH AESTHETIC GYMNASTICS MEANS**

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Abstract:

The paper aims to verify the role of introducing aesthetic gymnastics means, within the practical work in the discipline Theory and practice in branches of artistic and acrobatic gymnastics, in 2nd year students. The aesthetic gymnastics means, introduced in gymnastics lessons for 2nd year EFS students, act correctly and efficiently on the development of joint mobility and muscle elasticity, also making an important contribution to the development of balance. Even though these means, by the nature and specificity of aesthetic gymnastics, are relatively easy to perform, they could have an optimal influence in terms of the development of joint mobility and muscle elasticity, but also of balance, in students of the Faculty of Physical Education and Sports.

Introduction

Aesthetic gymnastics is a branch of gymnastics that is based on harmonious movements, strength, mobility and balance, which can be performed without exceeding the normal, natural limits of the body, in order to achieve and maintain an optimal state of health. Basically, Aesthetic Group Gymnastics, as this type of gymnastics is called, is a group sport and includes specific body movements of wave, swing, tilts, bends, twists, relaxations, contractions, as well as technical acrobatic elements of mobility, sagittal rope and lateral rope, static elements of balance and strength, balances, elements of balance with the inverted body, but also a series of artistic jumps, which must be performed in a fluent way, in different combinations and choreographies.

"The AGG philosophy is based on harmonious, rhythmic and dynamic movements performed with the natural use of breathing and strength, in perfect fluency. Body movements performed with the AGG technique must prevail in the composition"

Considering the AGG technique, based on mobility, balance, and strength movements, great emphasis is placed on a certain fluency of the body in linking movements and series of body movements, on the unity of the composition from the beginning to the end of the program.

Aesthetic gymnastics is a group sport (4-14 gymnasts), which involves varied compositions of movements, in different directions, planes, levels, in different

formations and with a fluency in the execution of movements and movements from one formation to another.

The composition of an AGG choreography is evaluated from 3 perspectives:
- Technical - Artistic - Execution The composition must include varied, ample body movements demonstrating the gymnasts' qualities: muscle strength and control, flexibility, speed, endurance, coordination.

Aesthetic gymnastics is a sports branch on the border between dance and gymnastics, which involves the execution of specific technical elements with a certain degree of muscle tension, fluency and joint mobility and involves superior control of the body, in different planes and directions, based on important coordination capacities of the performers. The means of aesthetic gymnastics are essentially found in rhythmic gymnastics, representing body, trunk and arm waves, artistic gymnastic jumps, such as the half-rope jump, the step jump, the Cosak jump, specifically combined, and some specific movements come from general physical development exercises, such as tilts, bends, rotations.

"Training/education/development exercises are structures created by specialists by combining the action of body segments, under mental control, in order to solve the objectives of the bio-psycho-physiological-socio-motor adaptation of the human species. Through an objectified content, they contribute harmoniously to the complex, intersystemic activation on evolutionary levels, from initiation to "excellence" of all human systems and capacities, according to the general and specific requirements of motor activities"

Because it is performed to music, by combining technical elements with variations of rhythmic movement and dance steps, the choreographies can be diverse and varied, in accordance with the music, and the combinations must meet certain technical conditions imposed by the regulations.

Material and method

Regarding the introduction of aesthetic gymnastics means, in gymnastics lessons with students, it can be said that the baggage of specific skills is considerably enriched, and the execution of some elements in certain combinations to music, determines a better development of motor capacity and ensures a positive transfer of skills from aesthetic gymnastics to artistic gymnastics.

"Through the so-called phenomenon of extrapolation and that of anticipated reflection of reality, the presence of a large reserve of acquired motor skills and habits ensures efficiency for any motor activity and wide possibilities to create new ones, without requiring special training. The term transfer implies a process in which something overlaps the previous, identifying with the dialectic of the new that restructures the old but also vice versa."

Aesthetic gymnastics means used in the study:

- Linking two BM (body movement) that includes tilt/line.
- Linking three BM (body movement) that includes bending

- Linking four BM (body movement) that includes twisting
- Cossack jump on the spot
- Linking two jumps: half-rope jump + passe jump
- Side balance held by the hand on the same side (with the left or right)
- Linking two balances: right leg forward at 90 held with one hand + facial balance with the left leg up and arms up.
- A series of dance steps and jumps, with movement;
- Forward wave
- Forward swing

The specific means of aesthetic gymnastics, introduced in the gymnastics lesson for second-year students, could lead to a better processing of the motor quality and skill, with an emphasis on balance, but also of suppleness, by developing joint mobility and muscle elasticity, provided that they are systematized and applied correctly. As a result of the process of mastering the means of aesthetic gymnastics, they can also contribute to the creation of choreographies to music, which also gives them a touch of attractiveness and originality and can be used in gymnastics and dance competitions or festivals.

"Skill is a complex motor quality, with many aspects that have not been sufficiently studied. Skill is composed of a set of qualities: spatial orientation, flexibility, mobility, coordination, balance. It represents the body's ability to perform complex motor acts and actions with precision, accuracy and amplitude in space and time."

"The ability to perform is currently considered by most specialists in the field of physical education and sports as a motor quality belonging to the locomotor apparatus, the physiological and psychological system, the content of which is expressed by the precision of movements, their coordination, stability, balance, safety, depending on the general requirements of sports performances, especially in order to achieve the most efficient motor response..."

The introduction of aesthetic gymnastics means in gymnastics lessons for second-year students can determine their better involvement in learning new skills, which are otherwise quite easy to achieve, but which directly influence the education of mobility and balance and are also achieved in an attractive way (conferred by music and the collaboration determined by synchronous work, in a group).

"Practice is the conscious and systematic repetition of motor acts that must be mastered in order to achieve various objectives." In the case of using specific aesthetic gymnastics skills in gymnastics lessons for students of the Faculty of Physical Education and Sports, they can also contribute favorably to the development of motor skills.

The fact that the purpose of aesthetic gymnastics is represented by a choreography to music stimulates students to better learn certain specific skills, to collaborate in order to perform movements synchronously and to repeat them several

times, which effectively leads to an increase in the indicators of all motor skills, but especially those of mobility and balance.

In order to develop skills in students involved in the study, in addition to specific means of aesthetic gymnastics, a series of "exercises for the development of muscle elasticity" were also used, exercises for the development of static and dynamic balance, as well as static and dynamic elements of acrobatic gymnastics.

"The superior development of acrobatic gymnastics requires teachers - specialists to have thorough training and a scientific, ascending, objective, planned, algorithmized, adapted methodological approach. This involves the application of an operational, structural, ascending staged, structural type system."

The elements of acrobatic gymnastics (both static and dynamic) are harmoniously intertwined in aesthetic gymnastics choreographies and contribute optimally to increasing mobility and balance indicators in 19-20 year old students.

As in rhythmic gymnastics, aesthetic gymnastics is based on a technique and a style of its own:

"Technique consists in the execution of movements specific to the respective sport, selectively, systematically, precisely and economically. During the development of sports branches, technique has become so pure that it can be taught, that is, mastered, in a unitary manner, it can be reproduced and based on what has been learned, it can be further improved"

To the specific technique of aesthetic gymnastics, elements of specific style are also added. "Style is a way of execution that is initially common, and later an individual variant. Thus, in sports, the technique of a certain branch contains specific basic features from the culture of movements, and their totality characterizes the respective branch of sport.

Hypothesis

The work started from the hypothesis that if aesthetic gymnastics means are used in practical gymnastics lessons for second-year students, the indicators of motor quality development, especially joint mobility and balance, will increase.

Conducting the research

The experiment was conducted at the Faculty of Physical Education and Sports, "Ștefan cel Mare" University of Suceava, on a group of 60 students in the second year of study. The students were divided into two study groups, a mixed experimental group (girls and boys), which included a number of 20 subjects and a mixed control group, which was also made up of 20 subjects.

The subjects were informed about the objectives of aesthetic gymnastics, the philosophy of this sport, its content, the introduction of specific technical elements in gymnastics lessons, in addition to the acrobatic gymnastics means in the curriculum. The students were delighted to learn the means of aesthetic gymnastics and enthusiastically participated in the experiment.

The research began in the first semester of the 2024-2025 academic year and lasted 14 weeks, during which the practical work in the discipline Theory and Practice in Branches of Artistic and Acrobatic Gymnastics was also carried out.

The experiment itself consisted of introducing the means of aesthetic gymnastics, proposed by us in the current study, into the lessons of acrobatic gymnastics to the subjects of the experimental group. The control group followed the usual curriculum, not being introduced into the lessons and means of aesthetic gymnastics.

The initial tests were carried out at the end of October 2024, and the final tests were carried out in May 2025, at the end of the semester. The experiment lasted six months, during which the two groups completed 14 gymnastics lessons. The experimental group was introduced to the aesthetic gymnastics means, proposed by us for the current study, and the control group worked according to the classical curriculum.

All data recorded during the initial tests through mobility and balance tests, as well as the data from the final tests, both in the experimental group and in the control group, were analyzed, compared and synthesized and were statistically interpreted.

Results

Table 1. The results of the experimental group in "Anterior trunk mobility" and "Flamingo Static Balance"

No	Name	Anterior trunk mobility		Flamingo Static Balance	
		T.I.	T.F	T.I.	T.F.
1	C.D.	19	22	11,63	14,45
2	C.E.	15	30	4,02	5,13
3	C.G.	24	35	2,99	7,33
4	C.D.	18	26	5,91	20,14
5	C.D.	28	30	2,99	4,09
6	F.A.	27	29	7,55	11,83
7	G.A.	23	29	4,93	5,57
8	G.D.	17	27	4,79	7,29
9	G.E.	29	31	6,25	10,11
10	H.I.	22	26	6,18	8,15
11	I.C.	25	32	8,44	12,42
12	I.A.	18	19	13,35	16,34
13	P.I.	22	27	6,58	8,04
14	P.S.	27	34	4,88	6,62
15	P.C.	30	36	19,52	23,53
16	R.L.	29	32	30,24	45,83
17	R.R.	31	36	10,66	13,44
18	S.A.	33	34	4,15	8,01
19	S.L.	35	39	28,12	35,19
20	T.D.	29	30	20,03	25,98
	X	25,05	30,2	10,16	14,47

S	5,52	4,77	7,92	10,61
CV	0,220	0,157	0,779	0,733

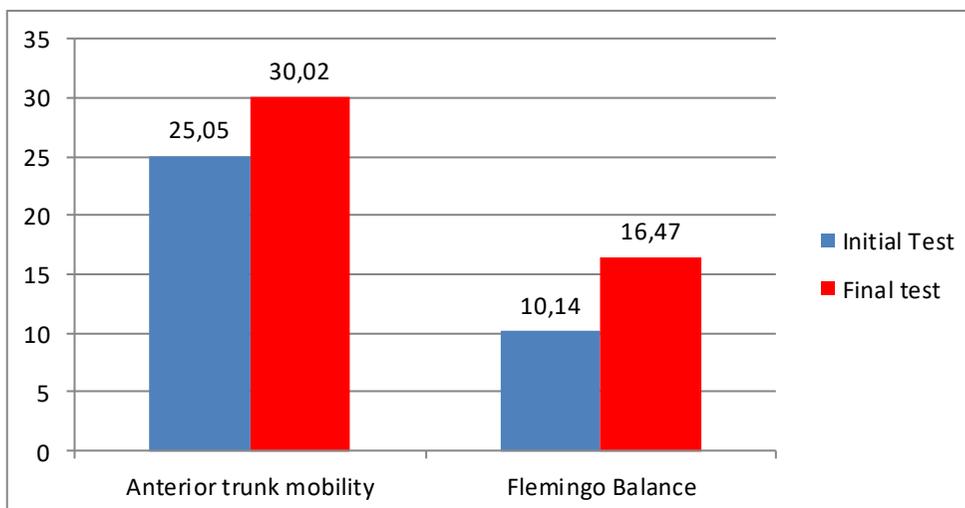


Chart no. 1. Results obtained by the experimental group in the two tests

Statistical indicators control group

Statistical indicators control group			
Anterior trunk mobility		Flamingo Balance	
T.I.	T.F.	T.I.	T.F.
24,15	27,8	10,2275	12,3275
4,065403	2,767671	7,453211	8,468265
0,168	0,099	0,728	0,686

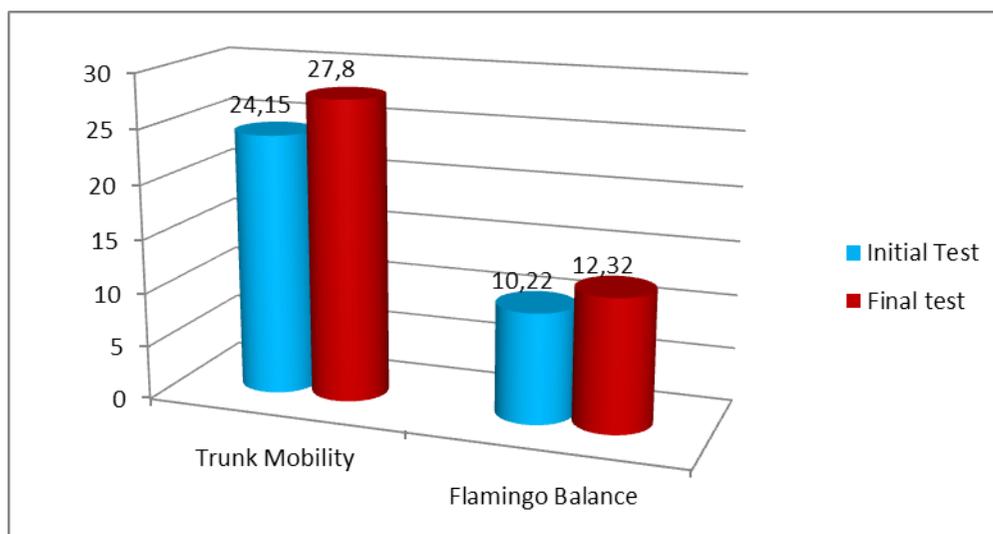


Chart no. 2. Results obtained by the control group in the two tests

Conclusions

The means of aesthetic gymnastics introduced in the gymnastics lesson for students of the Faculty of Physical Education and Sports, contributed greatly to the development of mobility indicators in the experimental group. The results obtained by the experimental group in the test "Trunk mobility in the anterior plane" clearly show a significant increase in the mobility of the subjects, from the initial testing to the final testing. This proves that the means of aesthetic gymnastics contributed optimally to the development of joint mobility and muscle elasticity.

Regarding the balance testing of the subjects of the experimental group through the Flamingo test, a fairly good increase in the balance indices is observed, from the initial testing to the final testing, which proves that the means of aesthetic gymnastics had a favorable and beneficial contribution in terms of the development of balance in 19-20 year old students.

Analyzing and comparing the data obtained in the two tests, by the subjects of the experimental group, compared to the students of the control group, a much greater progress is observed for those in the experimental group, with a difference of 14.15 on average in the "Anterior trunk mobility" test, compared to 3.65 difference obtained on average in the same test by the control group.

In the Flamingo balance test, the differences in average obtained by the two groups, from the initial testing to the final testing, show a better progress of the experimental group, compared to the control group, which proves that the means applied by us to the experimental group contributed optimally and more efficiently to the development of mobility and balance.

As a result of analyzing and synthesizing the data obtained in the two tests, it can be stated that the hypothesis from which we started the research was verified and confirmed, the specific means of aesthetic gymnastics contributing positively to the development of joint mobility and muscle elasticity, but also to the development of balance, in students of the Faculty of Physical Education and Sports.

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