

## EFFECT OF IMPROVING AEROBICS CLASSES AT THE LEVEL OF FLEXIBILITY OF FEMALE STUDENTS

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**Annotation.** The features of the influence of a set of special exercises with gymnastic stick and elements of stretching to develop flexibility while improving aerobics classes. In pedagogical experiment involved 20 girls 17 - 18 years old, first-year student. During the final part of the session used a set of special exercises aimed at increasing the range of motion when the torso and the mobility of the shoulder joints. The dynamics of indicators of flexibility. Determined that the selected set of special exercises in the classroom improving aerobics has a positive effect on the performance increase flexibility. Significant increase in the results can be seen in test 1 tilt body forward, which is characterized by increased mobility of the joints of the spine. It was determined that the transfer of gymnastic stick behind his back indicates an increase in the mobility of the shoulder joints.

**Keywords:** aerobic, flexibility, students, girls, movement.

### Introduction

Aerobics trainings with health improving orientation are directed on maintaining of optimal level of physical abilities. Scientific researches of domestic and foreign authors witness that systemic attendance of aerobic trainings positively influences on students' health and physical levels. Efficiency of health improving aerobics' influence on students' physical development depends on correctness of exercises' fulfillment and systematic attendance of trainings [1, 10, 11].

An important mean of solution of tasks of students' physical education is development of physical qualities, flexibility including. In theory and methodic of physical education flexibility is regarded as morpho-functional peculiarity of human supporting motor system that determines the limits of body links' movement [9].

Interest to this physical quality is explained by the value of flexibility in fulfillment of any motion action. In researches of scientists [1, 11] it is stressed that it is necessary to develop flexibility for mastering sports and with fulfillment of any actions in the course of labor activity. Many domestic and foreign authors [2, 5, 12] wrote about influence of flexibility on improvement of motion possibilities and health improving of all organism. Insufficient flexibility can result in abnormalities of posture, appearance of osteochondrosis, deposition of salts, changes of gait and can become a reason of traumas [2].

The problems of flexibility's development are elucidated in scientific –methodic literature rather sufficiently. Great number of researches is devoted to methods and means of flexibility's development, to age aspects of its development [6, 7]. Flexibility as one of human motion qualities, have been researched from the point of view of anatomy, physiology and bio-mechanic [2, 4].

However, development of flexibility of students, who practice aerobics with health improving orientation, has been elucidated insufficiently. All these condition urgency of the chosen direction of our research.

The research has been carried out as per plan of scientific & research works of Kharkiv national economic university.

### Purpose, tasks of the work, material and methods

*The purpose of the work* is to select a complex of special exercises with gymnastic stick and elements of stretching for development of flexibility during final part of health improving aerobics' training. Besides, it was necessary to carry out comparative analysis before and after pedagogical experiment, using testing results of girl students' group. Also we researched dynamics of flexibility indicators' of girl students, who practice health improving aerobics.

*Organization of the research.* The research covered 20 girls of 17-18 years old, the first year students, who systematically attended health improving aerobics' trainings during one year, twice a week.

### Results of the research

Flexibility – is a motion quality that ensures execution of movements with big amplitude [2, 9]. The amplitude of movements is measured in linear units.

At aerobics trainings girl students fulfill elements of dances, which require significant amplitude of movements. I

The research covered 20 girls of 17-18 years old, the first year students, who systematically attended health improving aerobics' trainings during one year, twice a week. Duration of each training was two academic hours. For rising of flexibility indicators, at final part of every training special complex of special exercises with gymnastic stick and elements of stretching was fulfilled just after loading with aerobic exercises (see table 1).

Exercises with gymnastic stick and stretching elements at final part of training facilitate strengthening of arms' and shoulder girdle's muscles as well as increasing of movements' amplitude with bents and turns of torso, helps muscles to rehabilitate by turning them from contracted state to normal length.

Table 1

*Complex of special exercises with gymnastic stick for flexibility*

	Description of exercise	Dose	Methodic instructions
1	I.P.- Feet at the width of shoulders. Stick in horizontal position below, is held at the width wider than shoulders: 1) at count 1-2 – smoothly raise arms with stick upward; 2) at 3-4 – twist arms with stick backward; 3) at 5-6 – twist arms with stick upward; 4) at 7-8 – take I.P.	8-12 times	Gradually reduce the width of stick's hold
2	I.P.- Feet at the width of shoulders. Stick in horizontal position over the head, is held at the width wider than shoulders: 1) at count 1-8 – springing bents to the left, touching floor with stick; 2) at count 1-8 – springing bents to the right;	8-12 times	Maximal bents to the right and to the left
3	I.P.- Feet at the width of shoulders. Stick in horizontal position over the head, is held at the width wider than shoulders: 1) at count 1-8 – springing turns to the left, touching floor with stick; 2) at count 1-8 – springing turns to the right;	8-12 times	Maximal turns to the right and to the left
4	I.P.- Wide stand. Arms are twisted backward, stick in horizontal position, is held at width wider than shoulders: at count 1-8 – spring bents forward with twisting arms upward.	8-12 times	Gradually reduce the width of stick's hold
5	I.P.- Wide stand. Stick in horizontal position below, is held at width wider than shoulders: 1) at count 1- raise stick vertically to the right; 2) at 2 – twist arms backward (stick in horizontal position) 3) at 3 – with reverse movement raise stick vertically to the left) at 4 – take I.P.	8-12 times	Gradually reduce the width of stick's hold
6	I.P. - Wide stand. Stick in horizontal position behind back, is held from above: 1) at count 1 – forward bent; 2) at count – backward bent.	8-12 times	Maximal bent forward and backward
7	I.P.- bent forward with arching in wide stand, stick in horizontal position behind back, hold from above: 1) at 1-8 – springing turns to the left; 2) at count 1-8 – turns to the right.	8-12 times	Maximal turns to the right and to the left
8	I.P. Feet are close to each other, stick is in horizontal position in front of chest, hold from above: 1) bent forward and, stretching arms, touch tiptoes with stick, turn in I.P.; 2) bend forward, bring stick behind feet; 3) not changing position, maximally bend forward, touch knees with chin; 4) turn back to I.P.	8-12 times	Maximal bent forward
9	I.P. Sitting on floor, legs are parted. Take legs with both hands and try to touch floor with chest.	Keep position 10-12 seconds	Straight back

The complex of exercises shall be executed by method of static stretching. For this purpose it is first necessary to relax and then fulfill exercise, maintaining final position from 10-15 seconds to several minutes.

As far as in aerobics, in static positions, movements, demonstrating flexibility, are prohibited (i.e. maximal bent backward, arch, etc.) [3, 8], then, for determination of flexibility level we used the following tests- torso forward bent from position sitting on floor <sup>1</sup> and bringing gymnastic stick behind back <sup>2</sup>.

Initial and final indicators of girl students' flexibility by the results of tests are given in table 2.

Table 2

*Indicators of girl students' flexibility*

Girl students	Indicators of flexibility, cm				Increment, %	
	Initial		Final		1	2
	1	2	1	2		
A.	10	86	12	84	20.	2. 33
B.	7	107	7	10	0. 00	0. 93
C.	20	85	21	83	5. 00	2. 35
D.	13	99	15	96	15.	3. 03
E.	12	98	13	95	8. 33	3. 06
F.	11	96	12	94	9. 09	2. 08
G.	4	88	6	88	50.	0

H.	20	80	20	78	0.00	2.5
I.	19	81	21	79	10.	2.47
J.	17	98	18	95	5.88	3.06
K.	12	94	14	91	16.	3.19
L.	11	92	12	90	9.09	2.17
M.	13	94	14	91	7.69	3.19
N.	5	107	7	10	40.	2.8
O.	8	97	9	95	12.	2.06
P.	11	92	12	91	9.09	1.09
Q.	7	99	9	96	28.	3.03
R.	13	84	14	82	7.69	2.38
S.	15	86	16	85	6.67	1.16
T.	18	79	19	77	5.56	2.53
Average indicator	12,	92,	13,	90	10.	2.28

<sup>1</sup> – torso forward bent from sitting position, cm

<sup>2</sup> – bringing of gymnastic stick behind back, cm

With fulfillment of test –“forward torso bent from sitting on the floor position” girl students smoothly bend forward and, without bending leg, try to reach as far as possible. The position of maximal bent shall be kept for 2 seconds, fixing fingers on mark. Mark on perpendicular centimeters’ rule, which the tested touched by tips of fingers, is the result of test.

Bringing of gymnastic stick behind back is fulfilled from initial position – gymnastic stick is held by two hands from above below in front of body. With arches forward-upward stick is brought over head backward and then downward. Arms shall be straight in elbows. The exercise first is fulfilled with wide hold of hands, then, gradually, width of hold id reduced to minimally possible. The level of shoulder joints mobility is evaluated by distance in centimeters between thumbs of left and right hands in hold. The less is this distance, the higher is level of shoulder joints flexibility and vice versa. The dynamics of results’ increment is presented in fig.1.

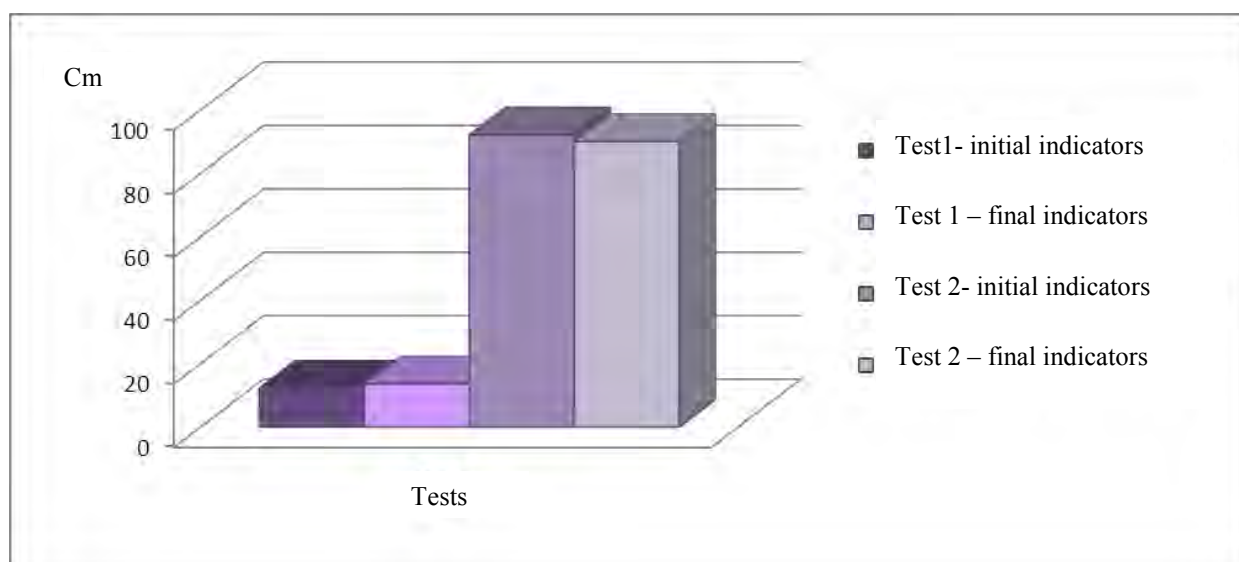


Fig.1. Dynamics of flexibility indicators

Average increment of indicators was 10. 16%, for torso bending from sitting position 2. 28% of bringing gymnastic stick behind back.

The selected complex of special exercises with gymnastic stick and stretching elements for development of flexibility at trainings of health improving aerobic positively influences on increasing of flexibility indicators.

#### Summary

Increasing of flexibility indicators under influence of the offered complex of exercises has been experimentally proved. Complex of exercises, used at final part of trainings, increases amplitude of movements with fulfilling of torso bents and raises shoulder joints’ mobility.

Confident increasing of results was in test No.1 – torso forward bent, which characterizes increase of backbone flexibility. Results, which were obtained in test No.2 – bringing of gymnastic stick behind back- witness about increasing of shoulder joints' mobility.

It is envisaged to carry out further researches in direction of determination of health improving aerobics' influence on development of power qualities of girl students of economic university.

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