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Organization of experimental study on forming a health culture of future doctors by means of health-supporting technologies

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Summary

The article describes the progress of the experimental study of a health culture formation in future doctors by means of health promotion technologies. We have shown the positive impact of integrative links between the disciplines "Human Anatomy" and "Physical Education" in the example of studying the human skeleton and positive impact of exercises on its formation and functioning. It is expected that the proposed organization of experimental study will contribute to improvement a health culture in the future physicians.

Keywords: health culture, future doctors, health-supporting technologies, organization of experimental.

Background. To implement the major professional functions (diagnostics, treatment and prevention of diseases) in addition to basic medical training, solid professional knowledge, and good experience, future doctor needs an adequate level of preparedness to provide health promotion activities based on health beliefs [5].

This is because the professional activities of health professionals take a lot of physical and mental exertions, concentration of memory and attentiveness.

Analysis of recent research and publications suggests that researchers commonly use a variety of research areas related to health promotion problems. In particular, Y. Palichuk researched method of technology implementation and pedagogical conditions for health promotion in the educational environment of economical universities [3]; D. Voronin has developed the experimental program to study health promotion competence formation in university students by means of physical education [1]; B. Gorashchuk has improved the content of subjects which form the health culture of students of different ages [2]; B. Shiyan and A. Vatsiba has highlighted theory and methodology of scientific research in physical education and sport [4]. However, experimental studies on a health culture formation of future doctors with the use of health promotion technologies have not been given due attention.

The aim of the article is to highlight the organization of experimental studies on a health culture formation of future doctors with the use of health promotion technologies.

Discussion of the study results. Experimental study was divided into several stages. The commencement stage of the experimental study lasted during 2011-2012 academic year, prior to the commencement the following was made:

- we have clarified the peculiarities of students' training to health promotion activity and specificity of a health culture formation of future doctors by means of health promotion technologies;

- we have analyzed the scientific literary sources on the problems of health beliefs and culture, healthy lifestyle, and health promotion among students;

- the practice of applying pedagogical innovations in formation of a health culture to promote a healthy way of life and personal health was analyzed;

- special complexes of vocational and applied exercises for physical education were compiled;

– the subjects were identified, based on which the forming stage of experimental study will be held. These subjects were "Human Anatomy" and "Physical Education";

– program of pedagogical experiment was formed;

– a model was designed and pedagogical conditions of a health culture formation of future doctors by means of health promotion technologies were identified and justified;

– we have established criteria and indicators of efficiency of the abovementioned pedagogical conditions on which the determination of high, medium, basic and low levels of health culture formation of future doctors is based;

– changes and amendments were made to programs in the disciplines of "Human Anatomy" and "Physical Education" for more efficient formation of students' health culture by means of health promotion technologies;

– special complexes of vocational and applied exercises for physical training of future physicians were improved and methodological instructions and recommendations for sets of exercises for vocational and applied physical training based on discipline "Physical Education" were prepared.

At the commencement stage of the experimental study the first-year students (361 students), who began study at the Medical University, were distributed into control (CG) and experimental groups (EG). In the control groups (total of 13 groups) 180 students were trained according to traditional methods. In experimental groups (13 groups as well), which enrolled 181 students, a culture of health formation was conducted by the experimental methods. During the distribution of students into CG and EG it was taken into account that the number of students in groups of both categories, and the initial level of all components of health culture (HC) in the future doctors at the entrance control (EC) should be similar that is reflected in the table 1.

Table 1

Digital data of the entrance control results that confirm an equal entry level of CG and EG students into experimental study

Components of HC	Groups and amount of students	Levels of health culture formation of future doctors								Average index (AI)
		High		Medium		Basic		Low		
		HC	%	HC	%	HC	%	HC	%	
Motivational-values	CG – 180	38	21.11	44	24.44	70	38.89	28	15.56	3.51
	EG – 181	38	20.99	42	23.20	75	41.44	26	14.37	3.51
Cognitive	CG –180	35	19.44	41	22.78	73	40.56	31	17.22	3.44
	EG – 181	35	19.34	39	21.55	78	43.09	29	16.02	3.44
Practically active	CG – 180	36	20.0	42	23.33	72	40.0	30	16.67	3.47
	EG – 181	35	19.34	42	23.20	75	41.44	29	16.02	3.46
Personality-developmental	CG –180	32	17.78	39	21.66	75	41.67	34	18.89	3.38
	EG – 181	31	17.13	37	20.44	80	44.20	33	18.23	3.37
The total value of HC	CG –180	35	19.44	42	23.33	72	40.0	31	17.22	3.45
	EG – 181	34	18.78	40	22.10	77	42.54	30	16.58	3.43

The control and experimental groups were formed so that they were almost equal in the number of students. The initial level of formation of students' health culture was also almost identical. Analysis of the commencement stage results shows that for the measurable indicators of all components of health culture and its total value students from the control groups entered the experimental study even somewhat better than EG students.

Forming of the culture health of future doctors was carried out by integrating knowledge from disciplines "Human Anatomy" and "Physical Education". At the beginning of experimental study we organized a joint faculty meeting of the departments "Human Anatomy" and "Physical Education" to review and discuss the effective implementation of the author's program that implies forming a health culture of future doctors. At some classes on "Anatomy" teachers received tests for students, which included health promotion content and were directly related to the subject "Physical Education". It should be noted that all sets of exercises that were studied in the practical classes on "Anatomy" and "Physical Education" motivated students for independent study.

In the practical classes on "Human Anatomy" students realized that one of the most important properties of a living organism is a movement in space. This function is performed by the human musculoskeletal system, consisting of two parts: passive and active. Bones that are interconnected refer to the passive part, and the muscles are the active one. That is why the subject "Human Anatomy" students begin to study from the structure of human skeleton and bones, and only later learn the muscular system. Therefore, we present integration links between the subjects "Human Anatomy" and "Physical Education" on the example of the human skeleton and the positive impact of exercise on its formation and functioning.

A science, a subdivision of anatomy, studying the structure and function of bones and related structures, is called osteology. There are general osteology, which studies the development and structure of the human skeleton in general, partial osteology that studies separate bones, comparative and age osteology.

At the first lesson in anatomy the basic study material concerned the axes and planes of the human body, axial skeleton, the structure of vertebra and spine as a whole. In this lesson, the teacher provided information about the positive influence of normal spinal column functioning on general health, musculoskeletal system and functioning of all organs and body in a whole. The information was as follows: the spine takes the main bearing and spring function in human organism. Different shakings that occur when walking, running, jumping are amortized as by cancelling of the load by intervertebral discs as well as by corresponding bending of the spine. As a result of shock absorbing the brain, heart, liver, and all other organs located within the chest and abdomen, avoid damage. In addition, the spine is directly involved in all major motor acts.

Students learn that in order to better perform its spring function, a spine has four curves: the upper – cervical, which convexity is directed forward (lordosis); the second – thoracic kyphosis, which convexity is directed backward (kyphosis); the third curve – lumbar lordosis; the fourth curve is formed by a lumbosacral spine and coccyx (kyphosis). Normally shaped curves of the spine affect the human posture, making it physiologically useful for walking upright.

In parallel, at the lesson of physical education students were shortly interviewed on the mentioned topic. For example: 1. What parts of the spine do you know? 2. List the functions of the spine. 3. What is the total number of vertebrae in the spine? 4. How many vertebrae are there in each part of the spine? 5. What are the parts of each vertebra? etc.

It should be noted that such surveys are conducted at each lesson on physical education. They gave the opportunity to check the quality of residual knowledge of anatomy.

Often this testing of knowledge was of competitive or game-like character. For instance: students are placed in one rank at a distance of one meter apart. Once the question sounded, students, who first correctly answered, did a big step forward. After the end of game-survey those students, who advanced the furthest, were determined as winners. To increase the interest the rules were periodically changed, instead of steps after the correct answer students did jump ahead from place on both legs, or jump ahead of alternately left and right foot. It is important that to win in this game, the students should have not only a good knowledge of human anatomy, but also have excellent physical form.

Then, with an accompanying explanation students performed simple exercises and repeated the names of anatomical planes and axes learning their practical use in motor activity. Such accompanying repetition of the studied material carried positive vocational and applied character since helped students better understand the specific movements of the human body.

Also, students repeated the information about the spine as one of the most important organs of the human body, which greatly affects human health.

Based on this knowledge, students learned simple to remember and perform physical exercises that enhance mobility and prevent stagnation in different parts of the spine:

– cervical spine: head tilting forward, backward, left, right; head turning left, right; circular head turns right, left;

– thoracic spine: chest movements forward and back; left and right; diagonally forward and to the right, diagonally forward and to the left; diagonally back and to the right, diagonally back and to the left. It is noteworthy that these exercises also contributed to the development and mobility of the chest;

– lumbar and sacral parts of the spine: circular turns with hips left and right, pendulous movements by pelvis forward-up and back-up; pendulous movements by hips from side to side. For complexity and coordination development, these exercises were used in various combinations, accompanied by voice account, music or metronome beats. Students were emphasized that regularly performing of these exercises has a positive effect on the human muscular system, particularly on the muscles of neck, back, chest, abdomen and pelvis as well.

At the classes of "Anatomy" while studying bones, joints and muscles of the shoulder girdle, students have learned the training complex of vocational and applied exercises for coordination of hands and fingers flanks. This complex involved virtually all bones, joints and muscles of the hand. As this complex has great vocational and practical importance and does not require considerable effort and space to be performed, so the students systematically repeated it periodically adding new exercises and changing the sequence of their execution.

Besides this at the lesson on anatomy students were given information about adaptive changes in the skeletal system under the influence of physical activity, in particular that the morphological changes in the skeletal system of a person, who is engaged in physical culture and sports, are at different levels of organization: molecular, subcellular, organ and system.

At the same time at the practical classes of "Physical Education" students practiced a set of exercises to develop static and dynamic muscle strength in arms and chest, which involved almost all the bones and muscles of the shoulder girdle and upper limb.

By the same principle integration links were formed for teaching all the material for the first and second year courses on "Human Anatomy" and "Physical Education".

Conclusions and Perspectives of Further Research. In view of the relevance of the investigated problem, it should be noted that the proposed organization of experimental study will contribute to the better formation of health culture in students. Perspectives for further research we see in continuing to improve the methods of experimental study on formation of a health culture of future physicians by means of health promotion at the senior courses.

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