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**OPTIMIZATION OF THE
EDUCATION OF MEDICAL
STUDENTS THROUGH THE
INTRODUCTION OF
PROFESSIONAL APPLIED
PHYSICAL TRAINING**

In this article it is studied and proved by means of professiographic estimation that to the main professional requirements of speciality «Nursing» belong an ability to carry out the coordinated movements with both hands, make right decision in case of sudden appearance of difficult situations, quickly find and correct the mistakes, keep a high capacity. It is set that professionally meaningful psychophysiological quality of providing activity of medical sisters are coordination of hands and eyes, force and mobility of the nervous system, concentration, stability and volume of attention. The main elements of the professionally-applied physical preparations of medical students are developed and introduced at the studies of athletics, swimming, gymnastics, sport games, step aerobics, stretching, shaping and callanetics.

Key words: *students, professional applied training, physical education, training, health, medical student*

Introduction. The main objective concerning the improvement

of the professional training of medical specialists is to perfect the educational process in higher education institutions of the 1st and 2nd accreditation levels. Full-value use of the special knowledge and skills is possible only while maintaining a good health level and high efficiency of the specialists during physical education classes [1]. Because just the nursing is the most important part of the health care system, which has considerable human resources and potential for satisfaction of the people's needs for available and quality medical care. An important role in providing the quality of health services and solving the tasks of health and social care is inherent to nursing specialists. In order to improve the efficiency potential of nursing staff it is constantly necessary to evaluate their quality characteristics. The main goal of the nursing staff assessment is to match quality characteristics of nurses with the requirements for their positions for making professional activity diagram [2].

An educational process is characterized by high mental and psychical tension of students. A rational interchange of the mental and physical loading can help to avoid its negative consequences. During the educational process students get into the terms of the insufficient traction mode: they remain in educational audiences sitting at the desks for a long time. As a result we can observe a posture abnormality and disturbance of blood circulation process. All this leads to the onset of edema in lower limbs and in pelvis area, which negatively influence on a health and functional abilities and, as a result, on readiness of organism for the professional labour.

For warning and overcoming these undesirable consequences an essential role is assigned to physical exercises, especially to those ones, which are of a professionally-applied importance. Among the unfavorable factors of environment, which can influence on development and health level of growing organism we should note the insufficient or excessive motion activity, irregularity of daily regime and educational process, violation of hygienic requirements as to the terms of educational and labor activity, defects in organization of feeding, absence of hygienic skills, bad habits, unfavorable psychological climate in family and collective [3].

Physical culture as a part of general culture has a large influence on education of people, on their preparation for life and activity. Physical culture today is a great means of improvement of man's health, a substantial reserve of labour productivity growth, and an important social factor of man's education. Physical training and sport have a salutary influence on health and mood of man [4].

The aim of the research was development and implementation of the professionally-applied physical preparation for the optimization of students' education in higher medical educational institutions of the 1st and 2nd accreditation levels by determination of grades of meaningfulness of the professional requirements and professionally meaningful psychophysiological qualities for providing the fulfillment of nurses' activity.

Object and methods of the research. Determination of the basic

professional requirements of speciality "Nursing" for the psychophysiological features of workers was carried out by questionnaire of 10 specialists-experts. High-qualified specialists with different periods of work experience in this speciality (but no less than 10 years), and also teachers of the special disciplines of medical school were attracted as experts. Participants of the questionnaire had to estimate the necessity degree of the concrete qualities marked in a questionnaire in order to gain proficiency in chosen speciality and to make a mark opposite that degree of the concrete quality which is needed for a good work exactly in this speciality.

After the conducted questionnaire and verification of correctness of questionnaire filling processing and analysis of research results were carried out. Variants of the answers were scaled as follows: 2 points - "extremely necessary quality", 1 point - "necessary quality", 0 points - "no necessity". After it results were added to the final table [5].

On the basis of the defined professionally meaningful psychophysiological qualities the complex of the professionally-applied physical training (PAPT) for students of medical schools was devised.

Results of the research and its discussion.

The detailed professional graphic examination of work kind of specialist in nursing allowed to establish (table) that the most meaningful professional requirements are: ability to do the coordinated movements both hands and eyes and hands (meaningfulness grade is to 1,9 and 1,2 points respectively); ability to

accept right decisions in case of sudden appearance of difficult situations at work (1,9 points); ability to adapt quickly to the change of working objects or situations (1,8 points); ability to find quickly and correct one's mistakes (1,8 points); ability to keep a high efficiency of work in spite of presence of other people, unexpected impressions, unwanted sounds (1,7, 1,6 and 1,5 points respectively); ability to distinguish smells (1,6 points); ability to do agile hand and finger movements (1,6 and 1,5 points respectively); ability to pass easily from rest to energetic activity and vice versa (1,5 points); hearing acuity (1,5 points). Besides we can note other also highly meaningful requirements such as: ability to do monotonous work well for a long time; ability to memorize quickly comprehended data; ability to keep attention on the same working operation for a long time; ability to master quickly difficult motor skills; ability to determine size and amount of objects, distance between objects, size of the corners and direction of the object movement by sight; ability to do quick hand and finger movements; ability to memorize verbal reports and text which were heard or seen once or rarely; ability to do powerful hand and finger movements; ability to distinguish tastes; ability to keep rapid work speed for a long time; ability to estimate smoothness of the surface and thickness of the object by touch.

Realization of the labour activity for specialist in nursing is possible only at the sufficient level of development of such professionally meaningful qualities as coordination of hands and eyes, strength and mobility of the nervous system, concentration, stability

and volume of attention, color discrimination, sensitiveness of olfactory, auditory, taste and tactile analyzers, long-term numerical and logical memory, short-term numerical and logical memory in auditory and visual modality.

Thus, the meanings of certain professional requirements detected by subjective estimation are the meaningfulness grade in the structure of the functional system of work providing of nurse's physiological and psychophysiological functions, which provide the fulfillment of the noted requirements.

The role of physical education and, first of all, professionally-applied physical training in formation of professional adaptation of boys and girls to different professions is well-known. In particular, it is also topical during the training of banking specialists and for radiotechnical and transport specialities, etc [6, 7, 8]. The most advantageous and effective ways of preventive health care, growth of functional possibilities, level of physical and motive training of young people and solving their social problems are development and generalization of new ways, methods and forms of conducting of physical training lessons [9].

Exactly the ways of the professionally-applied physical training are directed at the providing of the effective adaptation of organism to the difficult factors of labour activity, increasing of firmness to the microclimatic conditions of production, expansion of the arsenal of the applied motive coordinations, etc. Such ways include the applied physical exercises and separate elements of the different

sport types, health-improving forces of nature and hygienic factors [10].

Table

Physiological and hygienic characteristics of the work of specialist nursing

Professional requirements	Meaningfulness grade, points respectively	Professionally significant physiological quality to ensure that the activities
Ability to do the coordinated movements both hands and eyes and hands	1,9 1,2	Coordination of hands and eyes
Ability to accept right decisions in case of sudden appearance of difficult situations at work	1,9	Strength of the nervous system
Ability to adapt quickly to the change of working objects or situations	1,8	Mobility of the nervous system
Ability to find quickly and correct one's mistakes	1,8	Strength of the nervous system Concentration
Ability to keep a high efficiency of work in spite of presence of other people, unexpected impressions, unwanted sounds	1,7 1,6 1,5	Strength of the nervous system Stability and volume of attention
Ability to distinguish smells	1,6	Sensitiveness of olfactory
Ability to do agile hand and finger movements	1,6 1,5	Accuracy of movement of hands and fingers
Ability to pass easily from rest to energetic activity and vice versa	1,5	The mobility of nervous processes
Hearing acuity	1,5	Sensitiveness of auditory,

With the help of the conducted researches in order to solve the assigned problems of optimization of medical students education we worked out a complex of the professionally oriented exercises both during the specially organized lessons and off-hour individual ones, and introduced it into the system of physical education.

For the development of high level of dynamic efficiency, functioning and reliability of cardiovascular and respiratory systems,

general adaptation ability, general stamina, firmness to the hypodynamia, development of purposefulness, discipline and persistence exercises in track and field athletics are recommended, such as: middle-distance running (1,5 km) at a slow pace; long-term running which alternates with race walking; fast walking for 3-5 km. Classes must be conducted after the method of regulated exercises with the balancing of physical stress on the organism.

During the swimming lessons the improvement of general stamina, emotional firmness and cardiorespiratory system is observed. Slow swimming for 1 km distance, fast heats for 25-50 m with rest periods in water and diving for a 10-25 m are reasonable. Exercises in natural water reservoirs and in swimming-pools in low water like step-touch walking with the back forward, running forward; standing jumps; diving with further pushing away by feet and sliding on the water surface; somersaults back and forth.

Gymnastics exercises such as bending of body back and forth and sideways (slowly and quickly), walking with symmetric motion of hands sideways, upwards, forward and back to each step; rotation of a ball round oneself to the right and to the left standing on a balance beam; acrobatic somersaults back and forth increase muscle strength and adroitness, form the body relief, courage and resoluteness.

Regular basket-ball, volley-ball, hand ball, tennis, hockey and football classes form the skills of operative and collective actions, high level of functioning of visual, auditory and tactile analyzers. Training elements from sport games have to include exercises of motion to sound or visual signals; passing the ball from the breast with one or two hands from above, from below, from one side in different directions.

During the off-hour time such forms of students' physical training as morning gymnastics, individual lessons in the form of sports pauses, mass health-care, sectional and sport activities on step aerobics, stretching,

shaping, callanetics and others are used.

Conclusions.

1. For the first time on the basis of professional graphic research, conducted among highly qualified specialists that the basic professional requirements of the speciality "Nursing" are: ability to do the coordinated movements both hands and eyes and hands; ability to accept right decisions in case of sudden appearance of difficult situations at work; ability to find quickly and correct one's mistakes; ability to keep a high efficiency of work in spite of presence of other people, unexpected impressions, unwanted sounds; ability to switch over from one work situation to another; ability to distinguish colors.

2. It was also revealed that the meaningful psychophysiological qualities which provide realization of the labour activity for specialist in nursing are the following: coordination of hands and eyes, strength and mobility of the nervous processes, concentration, stability and volume of attention, color discrimination, exactness of finger and hand motions, numerical and logical memory.

3. Hygienic optimization of educational conditions of medical students must be realized by introduction of elements of the professionally-applied physical training during classes in track and field athletics, swimming, gymnastics, sport games and innovational technologies (step aerobics, stretching, shaping, callanetics, etc) for decreasing of professional harmfulness, increasing and forming of the optimal level of

physical and mental efficiency, rehabilitation, etc.

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Харківська медична академія

післядипломної освіти

Артемівське медичне училище

**ОПТИМІЗАЦІЯ НАВЧАННЯ
СТУДЕНТІВ-МЕДИКІВ
ШЛЯХОМ ВПРОВАДЖЕННЯ
ПРОФЕСІЙНО-ПРИКЛАДНОЇ
ФІЗИЧНОЇ ПІДГОТОВКИ**

В статті за допомогою професіографічної оцінки вивчено та доведено, що до основних професійних вимог спеціальності «Сестринська справа» відносяться здатність виконувати координовані рухи обома руками, приймати правильні рішення при раптовому виникненні складних робочих ситуацій, швидко знаходити і виправляти свої помилки, зберігати високу працездатність. Встановлено, що професійно значущими психофізіологічними якостями забезпечення діяльності медичних сестер є координація рук і очей, сила і рухливість нервової системи, концентрація, сталість і об'єм уваги. Розроблено основні елементи професійно-прикладної фізичної підготовки студентів-медиків, які впроваджено на заняттях з легкої атлетики, плавання, гімнастики, спортивних ігор, степ-аеробіки, стретчингу, шейпінгу та каланетики.

Ключові слова: *студенти, професійно-прикладна фізична підготовка, фізичне виховання, навчання, здоров'я, медики.*

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Харьковская медицинская академия

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**ОПТИМИЗАЦИЯ ОБУЧЕНИЯ
СТУДЕНТОВ-МЕДИКОВ
ПУТЕМ ВНЕДРЕНИЯ
ПРОФЕССИОНАЛЬНО-
ПРИКЛАДНОЙ ФИЗИЧЕСКОЙ
ПОДГОТОВКИ**

В статье с помощью профессиографической оценки изучено и доказано, что к основным профессиональным требованиям специальности "Сестринское дело" относятся способность выполнять координированные движения обеими руками, принимать правильные решения при внезапном возникновении сложных рабочих ситуаций, быстро находить и исправлять свои ошибки, хранить высокую работоспособность. Установлено, что профессионально значимым психофизиологическим качеством обеспечения деятельности медицинских сестер относятся координация рук и глаз, сила и подвижность нервной системы, концентрация, устойчивость и объем внимания. Разработаны основные элементы профессионально-прикладной физической подготовки студентов-медиков, которые внедрены на занятиях по легкой атлетике, плаванию, гимнастике, спортивным играм, степ-аэробике, стретчингу, шейпінгу и каланетике.

Ключевые слова: *студенты, профессионально-прикладная физическая подготовка, физическое*

воспитание, обучение, здоровье, медицины.

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