

## MODEL OF THE PROFESSIONAL AND APPLIED PHYSICAL TRAINING OF NURSES

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### ARTICLE INFO

#### Article history:

Received: 10.11. 2021

Received in revised form: 23.11.2021

Accepted: 30.11. 2021

#### Keywords:

Nurses

Model

Professional training

Physical qualities

Physical education

### Abstract:

**Objective.** The article examines requirements for the professional training of nurses. The analysis of features and modern aspects of professional and applied physical training (hereinafter – the PAPT) of nurses is carried out. A model of the PAPT process of nurses has been developed, its components (goals, objectives, principles, approaches, forms, methods, training tools) have been identified. **Methods.** The research was conducted on the basis of theoretical analysis and generalization of data from special scientific and methodological literature. **Results.** A model of the PAPT process of nurses has been developed, its components have been determined: target, theoretical and methodological, content-procedural and criterion-effective. The applied physical qualities of nurses that they need in their professional activities are determined: general and special endurance, strength, speed, agility. To develop the applied physical qualities of nurses, it was proposed to use during practical training sessions in the process of professional and applied physical training in an educational institution such sports as: athletics, skiing, swimming, cycling, sports games, gymnastics, Nordic walking, simulation exercise, fitness, Pilates, stretching. Tests to determine the level of development of applied physical qualities of nurses are proposed. **Conclusions.** Modern requirements for the quality of training of future medical workers, in particular nurses, presuppose their corresponding professional and applied physical training. Professional and applied physical training of nurses should be aimed at developing and maintaining at the optimal level their professionally important physical and mental qualities. It is necessary at the state level to pay attention to the creation of appropriate conditions for people to en-

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*gauge physical exercises throughout their lives: training of highly qualified personnel in physical education and sports, sufficient funding, involvement, promotion of a healthy lifestyle, a ban on advertising of alcohol and tobacco products.*

## 1 Introduction

Modern work requires a significant amount of mental, psychic and physical strength, increased coordination of workers' movements in any field. Each profession dictates its own level of development of psychophysical qualities, its own list of professionally applied skills and abilities [1]. The work of medical workers is one of the most difficult, stressful and responsible types of human activity. It is characterized by great mental stress, requires attention, high efficiency and always significant physical effort and endurance [2].

Studies of modern scientists has shown that non-verbal communication in intercourse is very important for the professional activity of nurses (according to some estimates up to 93% [3], according to others – from 60 to 90% [4]). Moreover, scientists have described various ways of non-verbal communication, including artifacts (presence of physical and environmental objects), chronicle (use and time perception), haptic (use of touch), kinesics (interpretation of body motion), physical appearance (body type and clothing), proxemics (use of space and distance), vocals (aspects of voice) [3, 5-8]. The development of moral competencies and the formation of professional identity (a set of values and beliefs that a person has in his work) in nursing students occurs mainly during the years of college. According to scientists, they are important qualities of modern nurses and have a close relationship [9]. The results of modern research show that nurses' moral courage can be increased by strengthening their psychological capabilities, which will increase patients' satisfaction and quality care [10]. The results of research by scientists convince us that modern medical workers must constantly improve their professional knowledge, skills and abilities in the process of continuous professional development [11], [12, 13]. Motivation for mastering new professional knowledge will provide an opportunity for their career growth [14].

The clinical competence of nurses, according to scientists, consists of: direct clinical practice,

professional development, moral decision-making, clinical leadership, collaboration and consultation, critical thinking. Clinical competence is vital to providing safe and quality care, and continuous assessment of nurses' clinical competence is an important component of their training [15, 16]. Studies have shown that the multiculturalism of modern society requires nursing schools to ensure their cultural competence in the process of training nurses [17]. Nursing is an emotionally demanding profession, and the quality of patient's care depends on her mental well-being [18]. Scientists have established a link between endurance and professional burnout of nurses, which is manifested by a high level of emotional exhaustion, cynicism, and a low level of professional efficiency [19]. The stressful work environment of nurses, according to scientists, increases the risk of non-communicable diseases, together with a high prevalence of obesity, poor eating habits and lack physical activity [20, 21]. Studies have shown that the acquisition of psychomotor clinical skills improves the quality of service provided to clients in the provision of health care [22].

Most health education institutions teach nurses the basics of health, as they serve as model for healthy lifestyles and behavior. According to research, the most common risk factors for chronic diseases of nurses were insufficient amount of vegetables (92.6%) and fruits (80.1%) in the daily diet, overweight, obesity (44.0%) and excessive alcohol intake (34.7%) [23]. Adopting a healthy lifestyle is considered to be the most important component of nursing education [24]. Physical culture and sports are one of the means to increase professional efficiency, labor productivity, and the success of professional activity [25]. Physical education has always been one of the means of preparing a person for work and adaptation to the social environment. The mechanism of the influence of physical exercises on the success of professional activity is based on the phenomenon of the transfer of skills and abilities formed in one area of human activity to the results of mastering skills and abilities in new areas

[26]. In our opinion, at the moment, the process of professional and applied physical training of nurses has not yet been sufficiently studied, the model and its components have not been developed.

**The purpose.** Analysis of literature on modern aspects of professional and applied physical training of nurses, development of a process model, determination of its components, forms, methods and means of training.

## 2 Experimental details

### 2.1 Methodology and methods

Theoretical analysis and generalization of data of special scientific and methodical literature.

## 3 Results and discussion

In the theory and practice of physical education, the special training of a student for future professional activity is called “Professional and applied physical training” (hereinafter – the PAPT). In the works of V. Ilyinich, the PAPT is considered as a specially directed and selective use of physical culture and sports means to prepare a person for a certain professional activity. Its main purpose is the directed development and maintenance at the optimal level of those mental and physical qualities of a person, to which the specific professional activity makes increased requirements, the development of the body's functional resistance to conditions of this activity and formation of applied skills and abilities, mainly necessary in connection with special external labor conditions [27]. The term “applied” emphasizes the purely utilitarian profiling of a part of physical culture in relation to the main activity in the life of an individual and society – to professional work. Developing the proposed model of professional and applied physical training of nurses, we proceeded from the fact that a model (in French “modèle”, in Latin “modulus – measure”) is a sample, a copy of something; reduced reproduction of some structure, mechanism; scheme for explaining any phenomenon or process [28]. Thus, a model is understood as a material or mental (symbolic, conceptual) system that indirectly reflects a set of factors that imitate the reproducing object at different

levels of its organization, self-organization and development.

The model of the process of professional-applied physical training of nurses developed by us has the following components: target, theoretical and methodological, content-procedural and criterion-effective (Fig. 1).

The purpose of the process of professional and applied physical training of nurses is to achieve their psychophysical readiness for successful professional activity and reduce the time of professional adaptation.

The theoretical and methodological component of the model of the professional-applied physical training process of nurses includes the principles of training, methodological approaches and tasks of the process of physical education.

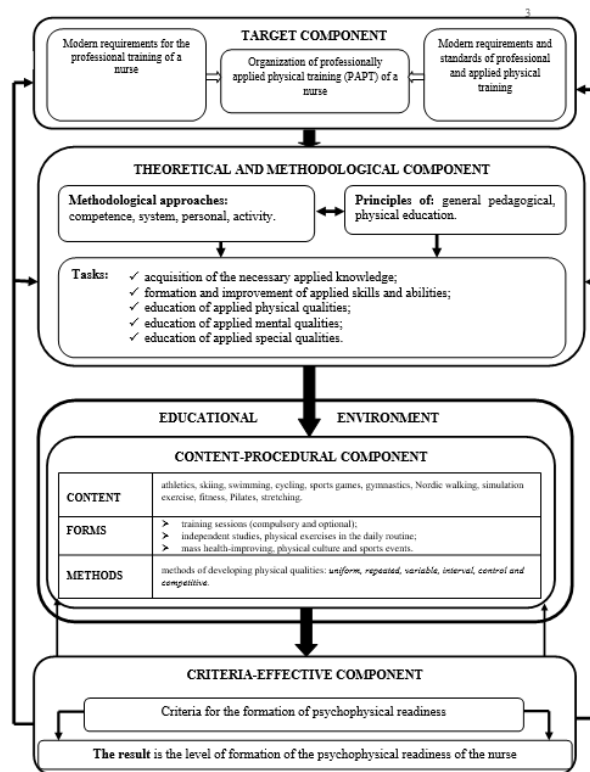


Fig. 1. Process model of professional and applied physical training of a nurse

Under “principles” (in Latin “principium – the basis”) in the theory of physical education is understood, as noted T. Krucevich, the most general theoretical provisions, objectively reflect the essence and fundamental laws of training, education and all-round development of personality [26]. Professional and applied physical training of nurses is based on

the system of general pedagogical principles and principles of physical education.

The general pedagogical principles include: scientific character; sequences; accessibility; systematic; purposefulness; humanization of education; creative orientation of the educational process; individual approach; connection of training with practical activity; national education; independence in learning; motivational support of the educational process [29]. The principles of physical education include the principle of comprehensive, harmonious development of the individual; connection with vital activity; health-improving, therapeutic and adaptive orientation; accessibility and customization; systematic; age-appropriate physical activity; gradual increase in physical activity; alternation of load and rest [30]. In our opinion, it is possible to implement the process of professional and applied physical training of nurses using such basic methodological approaches as [31]: competence, systemic, personal, and activity-based. The competence-based approach focuses on the results of education, and the result of education is not considered as the sum of acquired information, but a person's ability to act in various problem situations. The systemic approach considers a person and society, as well as individual processes and qualities that ensure their progressive development as interacting systems and move towards an optimal state. The personal approach allows to take into account the social, cultural, personal determinants of a person's real state for the purpose to organize the educational process, achieve personal, professional development, self-development, and self-improvement of the individual. The activity approach allows analyzing the process of professional and applied physical training of nurses from the point of view of active human activity as a self-organizing, self-regulating system. Thus, to achieve the goal of professional-applied physical training of nurses, it is necessary to solve the following tasks: acquisition of the necessary applied knowledge; formation and improvement of applied skills and abilities; education of applied physical qualities; education of applied mental qualities; education of applied special qualities.

One of the most important conditions for the formation of a future specialist in the process of professional-applied physical training, in our opinion, is the educational environment of a higher educational institution as a set of conditions affecting the purposeful interaction of educational subjects

and ensuring the effective functioning of forms, methods and tools of the educational process to achieve their goals.

According to A. Chuvakin [32], the environment of physical education of a professionally applied orientation created in the conditions of an educational institution of secondary medical professional education makes it possible to effectively form the objective and subjective qualities of the personality of nurses, which form the basis of general and professional-applied physical culture of the individual.

The content-procedural component of the developed model of the process of professional-applied physical training of nurses is the content of the educational process, forms and methods of education of applied physical qualities.

The main factors that determine the specific content of professional-applied physical training for future work are [33]: forms (types) of specialists' work in this field; conditions and nature of work; work and rest regime; features of the dynamics of the working capacity of specialists in the labor process and the specifics of their professional fatigue and morbidity.

Practical educational and training sessions in the process of professional and applied physical training of nurses in an educational institution, in our opinion, should include: athletics, skiing, swimming, cycling, sports games, gymnastics, Nordic walking, simulation exercise, fitness, Pilates, stretching. Self-study should be conducted in extracurricular time according to the tasks of the teacher or an individually developed plan with the methodological guidance of teachers of the Department of Physical Education. For extracurricular activities, we recommend using the following forms of physical education of nurses: physical jerks, physical exercises during the day, special independent training sessions according to the program of professional and applied physical training, independent and amateur classes in specialized sports, independent training sessions that have a sports orientation with elements of PAPT, mass health-improving, physical culture and sports events.

According to Kochetkov, a specific of the PAPT of future nurses' students is the orientation of the set of physical exercises, which should ensure a high level of functioning of the CVS, mechanisms of external and internal respiration, and the vestibular apparatus; development of general endurance,

speed and accuracy of movements, dexterity of hands, fingers; development of volume, distribution, switching, concentration and stability of attention, operational thinking, emotional stability [34].

In the profession “Nurse”, according to Romanova, the dominant way of thinking is the “application-procedure” method, in which a person quickly, accurately and punctually performs well-known procedures to solve the task, and the qualities that ensure the success of professional activities are the following abilities: developed switching, concentration and distribution of attention (the ability to quickly switch attention from one type of activity, subject to another, the ability to focus on one object or type of activity, distracting from others, and the ability to keep in focus several subjects at the same time or perform several types of activity in parallel); a high level of analytical thinking development: fine visual, auditory and tactile sensitivity; ability to react quickly to a situation; ability to work in stressful conditions (night work, military field work conditions, etc.); ability to self-control; ability to endure heavy physical activity; manual dexterity during various medical procedures; as well as personal qualities, interests and inclinations: patience and mellowness; benevolence and friendliness; responsibility; accuracy; tact; sensitivity; attentiveness; honesty [35]. Modern researchers identify the following professionally important qualities of the nurse's personality: 1) moral: mercy; goodwill; hard work; optimism; determination; 2) aesthetic: accuracy; cleanliness; attraction to festivity; 3) intellectual: erudition, observation, consistency [4].

Thus, as the results of our research have shown, the applied physical qualities of nurses that they need in their professional activities are general and special endurance, strength, speed, agility.

I. Grebenkina, V. Aksenov in their research showed that if the proportion of PAPT is increased to 35-50% of the total number of hours devoted to the discipline “Physical culture”, the level of professionally important motor skills of medical college students will increase, and the degree of formation of other motor qualities will not deteriorate [36]. In the process of professional and applied physical training of nurses in an educational institution, in the upbringing of applied physical qualities, such methods should be used: uniform, repeated, variable, interval, control and competitive.

The early accentuated formation of applied qualities in the process of physical education up to

the required professional level allows to indirectly influencing the education of applied mental and psychophysical qualities of nurses (Table 1).

Table 1 Professionally important qualities of a nurse

Physical	Psychophysical	Mental
Endurance (general, special), strength, speed, agility, coordination.	Attention, vestibular stability, spatial and temporal orientation.	Memory, attention, operational thinking, communication, determination, emotional stability.

The criterion-effective component of model of the process of professional and applied physical training of nurses includes a battery of tests [37] to determine and assess the level of development of physical qualities in order to control and, if necessary, correct the process of physical education in an educational institution (Table 2).

Table 2 Tests to determine the level of development of physical qualities in the process of professional and applied physical training of nurses

Physical Quality	Tests
Overall endurance	Running the 500 m (min., Sec), running the 1000 m (min., Sec), jumping rope for 1 min. (number of times).
Special endurance	Bending of the trunk back (number of times), one-legged squats (number of times on each).
Power	Flexion and extension of the arms in the lying position (number of times), flexion and extension of the arms in the hanging position (number of times), squats (number of times).
Speed (speed-strength readiness)	Running the 30 m (sec), running the 60 m (sec), and standing long jump (cm).
Coordination, precision of movements and muscular efforts	Throwing a tennis ball into the goal (10 throws), basketball complex exercise (sec), shuttle run the 3x10 m (sec), shuttle run the 10x5 m (sec).
Vital skills and abilities	Cross-country skiing the 3 km (min, sec), cross-country skiing the 5 km (min, sec), swimming the 50 m freestyle (min, sec), and swimming the 100 m freestyle (min, sec).

The level of development of applied mental qualities in the process of professional and applied physical training of nurses can be determined using standard psychological tests, which are used depending on the purpose, stage of the development process, the contingent of those involved [38].

In today's market economy, taking into account the influence of environmental factors and the negative consequences of certain industries on human health, the requirements for the quality of training of future medical workers, in particular nurses, are growing, whose professionalism directly affects the future of a healthy nation, which is the key to a strong society and successful development of the state. According to research by modern scientists, the professional activity of a nurse requires the exertion of mental, psychic and physical strength [2, 10, 18]. The professional activity of a nurse requires graduates of medical educational institutions of clinical [15, 16], moral [9], communicative [3-8], cultural competence [17], motivation for continuous professional development [11-14], knowledge of healthy lifestyle [23, 24], prevention of stress, emotional burnout, occupational diseases, improving performance [19-21].

The results of our research have shown that the PAPT of nurses is aimed at developing and maintaining the physical and mental qualities of a person at an optimal level, the formation of applied skills and abilities, to which their professional activity makes increased demands.

We share the opinion of scientists [36, 39], who argue that insufficient attention is paid to the problems of the formation of physical culture of students of medical colleges, which is confirmed by the minimum requirements for the amount of knowledge, skills and competencies needed for mastering the discipline "Physical culture" in comparison with requirements for disciplines in other subjects. This is one of the reasons that do not allow to achieve a sufficient level of development of students' physical potential. In our opinion, the current standards and curricula do not contribute to the development of professionally important applied physical and mental qualities of nurses. The reason for this, in our opinion, is the lack in these documents of a list of professional and applied components that contribute to the effective and efficient performance of professional duties; lack of differentiation of control and accounting standards for general and professional-applied training; lack of proper material

and technical base and appropriate sports equipment.

Thus, in our opinion, the problem of high-quality professional and applied physical training of specialists, including nurses, should be solved at the state level with the involvement of leading specialists in physical education and sports. Appropriate conditions should be created for physical exercises during a person's life (kindergarten, school, secondary and higher educational institutions, sports clubs, sports sections, etc.): training of highly qualified personnel in physical education and sports, sufficient funding (material and technical base, salary fee), promotion, involvement, encouragement of children and youth to lead a healthy lifestyle, a ban on advertising of alcohol and tobacco products. As a result of the above, students, including those of medical schools, will have sufficient motor experience, knowledge and motivation to regularly engage in physical exercises, both during school time and independently throughout their lives.

#### 4 Conclusions

Summing up, we can say that the process of professional and applied physical training of nurses forms professionally important physical and mental qualities, applied skills and abilities that: allow to achieve highly productive work in the chosen profession; prevent occupational diseases and injuries, ensure occupational longevity; allow to use the means of physical education and sports for active rest and restoration of general and professional working capacity in working and free time.

The professionally important applied physical qualities of nurses are general and special endurance, strength, quickness and agility. For their development in the process of practical educational and training sessions, professionally applied physical training of nurses should include such sports as athletics, skiing, swimming, cycling, sports games, gymnastics, Nordic walking, simulation exercise, fitness, Pilates, stretching. The problem of organizing the process of PAPT in educational institutions, in our opinion, should be solved at the state level.

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