

ACTUAL PROBLEMS OF PHYSICAL REHABILITATION OF STUDENTS WITH SPINAL PATHOLOGY

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Annotation. *Purpose:* to analyze integrative rehabilitation approaches to solving the problem of physical rehabilitation of students with spinal pathology. *Material:* analyzed more than 50 references. The analysis of the results of a comprehensive physical rehabilitation 67 students 19-20 years old with neurological manifestations of vertebral osteochondrosis of 1 degree. *Results:* actual problems of students with physical rehabilitation spinal pathology, analyzes the main aspects and rehabilitation approaches to solving these problems. Application integrative model of physical rehabilitation 20.7% increased its efficiency by general indicators of clinical research, valeology literacy, health and quality of life, stability of the results of rehabilitation. *Conclusions:* proven effective integrative rehabilitation system based on the integrated use of pedagogical, psychological treatment and physical rehabilitation in higher educational institutions.

Keywords: physical rehabilitation, vertebral osteochondrosis, spinal pathology, youth health.

Introduction

To day health of Ukrainian students is not only important social economic and medical problem but also a factor that determines steady development of country in the third millennium [6; 13].

Unfortunately chronic diseases, hypertension, neurosis, dorsopathy, obesity, in-born defects are quickly progressing among students. For example, in Ukraine, in average, only 6.0–10.0% of higher educational establishments' applicants can be considered to be healthy, 36.0-40.0% suffer from chronic diseases [8]. For period of studying at HEEs morbidity indicators practically of all nosologies grow several times.

Especially troublesome are backbone diseases. For example at the moment of entering HEE 70–80% of boys have pathological postures, 20% - have different backbone deformations [4; 8]. During first three years of studying at higher educational establishments quantity of healthy students reduces two times [6]. After graduation from educational establishments mist of young specialists' functional disorders of backbone transform into degenerative-dystrophic diseases of backbone, which are accompanied by pain syndromes of vertbragenous character [20]. By quantitative indicators these syndromes reached dimensions of non-infectious epidemic, causing numerous moral, physical and material losses in society [1; 4; 17; 19]. Alongside with it rejuvenation of dorsopathies (pain syndromes in part of torso and limbs of non-visceral etiology and connected with degenerative diseases of backbone).

That is why, in conditions of influence of unfavorable environmental factors, social-economic problems, weakening of moral values' role, which deepen the trend to decreasing of children's and youth's health, special role in training of physical and mentally healthy, socially and professionally competent, creative, responsible and tolerant personality shall be played just by physical education of youth.

As on to day, in Ukraine there exist legal and normative documents, which determine requirements to physical education trainings, to preservation and strengthening of youth's health. With it, it is stressed that the purpose of these trainings is creation of conditions for ensuring of optimal motion functioning of every person during all life, facilitating welfare, improvement of health state, prophylaxis of morbidity and physical rehabilitation. (National doctrine of development of physical culture and sports (Order of Presidents of Ukraine № 1148/2004, dt. 28.08.2004). However, measures, which are worked out on governmental level for improvement of students' health and physical condition, can not ensure positive changes without using of health related potential of physical rehabilitation at higher educational establishments [8].

The work has been fulfilled as per "Combined plan of S&RW in sphere of physical culture and sports for 2011-2015" by topic 4.6.3.1: "Theoretical-methodic principles of physical education and sports for all in formation of healthy life style" and by topic 3.5.2: "Programming and methodic of physical rehabilitation of persons of different nosological and age groups".

Purpose, tasks of the work, material and methods

The purpose of the work is to analyze urgent problems of rehabilitation of students with backbone pathology and to work out integrative rehabilitation approaches to their solution.

The tasks of the work:

- 1) Analysis of urgent problems of rehabilitation of students with backbone pathology;
- 2) Determination of main aspects of physical rehabilitation process and rehabilitation approaches to solution of these problems;
- 3) Analysis of effectiveness of integrative rehabilitation system, which is based on complex application of pedagogic, psychological correction and physical rehabilitation at higher educational establishments.

Organization and materials of research. At first stage we analyzed more than 50 literature sources, devoted to the subject of the research. We also systemized problems of youth's physical rehabilitation by main directions as well as ways of their solution. At the second stage we studied integrative rehabilitation approach to physical rehabilitation of

students with backbone pathology as the most rational variant of this problem's solution. On the base of laboratory of health related-rehabilitation technologies of Sumy state pedagogic university, named after A.S. Makarenko we tested 67 students (52 women, 77.6% of 19-20 years old age with neurologic symptoms of osteochondrosis of 1st degree. We also present results of complex application of pedagogic, psychological correction and physical rehabilitation of students at higher educational establishments as example of effective integrative approach.

The methods of the research: theoretical analysis and generalization of scientific-methodic literature's data, mathematical-statistic processing of results of the research.

Results of the research

In our opinion problem of rehabilitation of students with vertebrogenous pathology implies analysis of three its main aspects:

- 1) Organizational methodic;
- 2) Health-related or valuelogic;
- 3) Medical-prophylactic;

Now, below – more detail description is presented.

Organizational-methodic aspect of the problem.

Reformation of education in Ukraine is accompanied by intensification of educational process, stress overloads, which in their turn, acute contradictions between such value of priority as health and conditions, required for its preservation at HEE, where there exist substantial problems in physical education of youth.

System of rehabilitation measures at higher educational establishments, which is oriented on improvement of youth's health, has a number of problems that require urgent solution. The main problems are: insufficient state of material base and equipment, insufficient financing, low health related effectiveness of physical education and medical control over students' health, absence of specialists in physical trainings of students with chronic diseases and functional disorders at higher educational establishments, absence of single complex rehabilitation program at HEE.

Formation of physical rehabilitation as separate branch of vocational training of specialists started at higher educational establishments of physical culture profile in Ukraine, Poland, Russia, Byelorussia, Lithuania in 90-s of last century [8]. During this period there were opened specialties and created or re-organized (from departments of therapeutic physical culture) departments for preparation of physical rehabilitation specialists at HEEs of 3rd – 4th levels of accreditation.

In Ukraine, in 2001 new specialty "Physical rehabilitation" was introduced in classificatory of professions under code 3226. In 2005, there was approved new scientific degree, according to which thesis on problems of physical rehabilitation are related to scientific code 24.00.03 – physical rehabilitation, which envisages awarding of scientific degree of candidate of science in physical education and sports. To-day, at many higher educational establishments there have already happened several graduations of specialists in physical rehabilitation, but appropriate posts in typical staff schedules of educational establishments for their employment have still been absent. Though, it is quite possible that just these specialists, empowered with knowledge in valuelogy, pedagogic, physical and medical rehabilitation shall, deal with complex rehabilitation of students at higher educational establishments.

Thus, rehabilitation of students with dorsopathies shall include also solution of many organizational-methodic problems, among which problem of personnel is far from the last place.

2. *Health related or valuelogic aspect of students' physical rehabilitation.*

Since ancient times medical doctors in the whole world have known the truth: it is easier to prevent from any disease than to cure it. As per the data of modern researches, conducted by the most authorized scientific centers of different countries, human health depends approximately by 8–10% on medicine, by 15–20% – on state of environment (ecological factor), by 18–20% – on biological factors (heredity). Though decisive factor is human style of life (50–58%) [2; 14].

So, just style of life is the most powerful factor, which determines human health. According to numerous researches, conducted in different countries, distribution of different factors of life style and some other reasons by degree of influence on morbidity and span of life is approximately the following: eating – 25%, smoking – 25%, motion functioning – 22%, excessive alcohol drinking – 10%, infectious diseases – 7%, influence of toxic substances, ungrounded and excessive using of medicine – 6%, venereal diseases – 2,5%, transport traumatism – 1,5%, fire arms – 1% [13; 15].

Immobile way of life, incorrect eating, emotional imbalance, excessive weight, excessive using of medicine, harmful habits, unfavorable ecological factors, conditions of labor and etc. force organism to use more and more adaptation-compensating mechanisms, lowing with it vital forces, weakening functional potential [14].

It is often proposed to solve the problem of preservation and strengthening of health by mean of application of on certain method (certain kind of motion functioning, special diet, psychological training, different methodic of organism's cleansing). Attempts of determination of dominating factor and taking it as the base of ensuring of health have been realizing already for long time. Though any of such factors, used separately, can not embrace all varieties of processes, which take place in human organism in its interaction with nature, social environment and all that determine life activity and condition health.

That is why, with solving of health related tasks complex approach is the most effective; it requires first of all high level of student's valuelogic knowledge [13]. It means that more attention shall be paid to just valuelogic education of youth, constantly propogandizing healthy life style and following principle of medical prophylaxis.

Part of such measures has already been implemented by Ministry of education and health protection. There are annual medical prophylactic examinations of students, certain physical load has been envisaged by academic program on physical education; if required special health groups function; sport circles are available at higher educational establishments; innovative technologies of prophylaxis and treatment of scoliosis are implemented; valuelogic disciplines both in schools (as discipline of health protection) and in higher educational establishments is unified.

Alongside with it, it is necessary to realize searching of new forms of rehabilitation measures, to wider use means of physical rehabilitation for improvement of students' health, to pay more attention to medical-prophylactic aspect of rehabilitation measures.

3. Medical prophylactic aspect

Especially many problems appear in such young but very important branch as physical rehabilitation. Specialists in this sphere achieved significant success in grounding of physical factors' influence on state of supporting-motor system, on creation of new rehabilitation methodic. Though in modern rehabilitation of people with vertebral pathology there are some unsolved problems. For example system of recreational treatment of patients with clinical symptoms of such diseases shall be improved; insufficient attention is paid to psycho-somatic aspect of rehabilitation of patients with vertebral pathology; unified principles of manipulative backbone treatment shall be perfected; not always influence of ecological and social factors on progressing of a disease is considered [9; 11].

Only analyzing all complex of these problems it is possible to adequately create rehabilitation system for providing aid to population; system of prophylaxis and medical aid to patients with backbone problems.

In spite of the fact that min physical rehabilitation methods – therapeutic massage and therapeutic physical culture – have been applying for treatment of vertebrogenous pathology since ancient times, though as on to-day there is no such classification of backbone pathologies, which would permit to differentiate massage manipulations and carry out them individually and, thus, would satisfy demands of modern rehabilitation. Besides, there exist some disadvantages in application of manipulation techniques on vertebra-mobile segments in therapeutic massage.

By different data there are from fifteen to seventy rehabilitation methodic [12], oriented on work with patient's body, with it principles of rehabilitation work with patient are interpreted rather ambiguously. First of all it concerns psychological preparation of patient for physical rehabilitation. This part of rehabilitation specialist's work is very important. Because we know that 95% of diseases (statistic of WHPO) are connected with stresses [5; 9; 21, 22]; besides, pathology of supporting motor system is sill oftener admitted as adaptation syndrome. So, first psychological problem appears and only after it degenerative - destructive changes in vertebra-mobile segments start progressing.

Nowadays, both in medicine and in rehabilitation this problem is solved by prescribing of consultations with different profile specialists. It is undoubtedly that qualified recommendation is extremely important sometimes, but it could be maximally effective only if rehabilitation specialist has knowledge and practical experience in different branches of rehabilitation. He shall be not only aware of main means of physical rehabilitation (therapeutic physical culture, therapeutic massage, physic-therapy, mechanical therapy, labor therapy) but be skillful in psycho-correction and some psycho-therapeutic methodic. Psycho-correction, in our opinion, shall be carried out both on stage of psychological preparation for physical rehabilitation and directly at the stage of rehabilitation process with degenerative-destructive damages of backbone [9].

So, in physical rehabilitation integrative approach to personality shall be used, when first patient's psychological problem is solved and then functional disorders of backbone are corrected with the help of medical rehabilitation's physical factors. And only with insufficient effect medical therapy shall be used, because long-term and sometimes uncontrolled using of medicine can result in medical allergy and other adverse responses [5; 15; 21]. Only with integrative approach (with compulsory consideration of psycho-somatic factor) rehabilitation can be considered full-fledged.

Psycho-correction, in our opinion, shall be carried out both on stage of psychological preparation and directly in rehabilitation process. Also studying of new psycho-technologies (methodic of trans-personal psychology and so on) should be paid attention to.

Prophylaxis of neurological complications, conditioned by manipulations on backbone is very important. Analyzing reasons of complication we came to conclusion that significant quantity of them is connected with rough one-plane techniques of some kinds of massage and manual therapy (especially it concerns such techniques as tosses, strike methods) [3; 18]. From our point of view spiral-like movements in therapeutic massage and in manual therapy is the most physiological and shall be one of main acting factors of therapeutic process. Methodic of body-oriented therapy techniques of manual soft techniques (for example occipital release, cranio-sacral therapy), techniques of fine manual therapy shall be wider used. So, modern physical rehabilitation of students requires permanent searching of new forms of rehabilitation measures in case of backbone pathology. That is why rehabilitation science faces problems of development and implementation of system of measures, which would be capable to solve these problems on several levels.

Scientific researches, dealing with these problems, belong to different scientific branches. Researches in branch of valuelogy and correcting pedagogic are more oriented on educational element of physical culture and sports and physical rehabilitation, on working out of combined innovative technologies of training. This scientific direction is comparatively young but it has great potential. Researches in human physiology, physical and medical rehabilitation pay greater attention to grounding of physical factors' influence on supporting motor system, to creation of rehabilitation methodic [7; 9; 10; 16; 17]. Alongside with it in these branches there exist some unsolved problems.

Insufficient attention is paid to psycho-somatic aspect of rehabilitation; there are no unified principles of manipulation techniques' application on vertebra-mobile segments in therapeutic massage.

The mentioned problems in their complex can be solved only owing to integrative approaches to rehabilitation in general, which would consider both preventive direction of modern rehabilitation science and complex patho-genetic approach to treatment of different diseases and necessity to wider implement non-medical methods of diagnostics and therapy. Just the presence of these problems conditions need in searching of new integrative approach to rehabilitation and development of integrative model of not medical rehabilitation.

For example on the base of health-related rehabilitation technologies' laboratory at Institute of physical culture of Sumy pedagogic university, named after A.S. Makarenko we created peculiar health center, where we implemented in practice program of complex physical rehabilitation of higher educational establishments' students with pathologies of backbone [8]. We have developed and grounded complex program of pedagogic correction and physical rehabilitation of students with backbone pathology, which, correcting students' intellectual sphere and psycho-somatic state, also improves their health's state, increase effectiveness of recreational treatment of such backbone pathologies, rises level of valuelogy knowledge, students' life quality. In this program we for the first time have offered structural model of students' valuelogic training and fulfillment of rehabilitation measures; we have developed algorithm of differentiated application of pedagogic correction, psycho-correction, therapeutic massage, manual therapy and therapeutic physical culture depending on certain psychological characteristics and specificities of nervous system; we have applied improved methodic of psycho-correction in the process of students' physical rehabilitation. The laboratory was equipped with modern medical diagnostic instrumentation, with specially worked out computer programs of diagnostic of students psycho-somatic state with highly qualified staff. It permitted rather quickly to rearrange psycho-diagnostic, early diagnostic of supporting-motor system's diseases and visceral pathologies, to scientifically ground purposefulness of application of improved rehabilitation methodic of complex rehabilitation system during medical examination of 67 students of 19-20 years old age, who had neurological symptoms of osteochondrosis of 1st degree. For example with 29 (87.8%) of patients from main group, to whom innovative rehabilitation system was applied, there was registered high effectiveness of rehabilitation by integral indicators, which included complete clinical recovery, high indicators of valuelogical knowledge, level of health and life quality; besides, we registered steady positive results of rehabilitation. In control group, in which we used traditional therapeutic massage without complex program of physical rehabilitation for students with backbone pathology, we registered the same positive results only with 22 students (64.7%) and it is by 23.1% lower than results of main group (statistically significant difference, $p < 0.05$).

Analysis of urgent problems of physical rehabilitation resulted in certain conclusions.

Conclusions:

1. Analysis of urgent problems of physical rehabilitation of students with vertebrogenous pathology permitted to mark out three main aspects of this problem: organizational-methodic; health related or valuelogic; medical – preventive. Just such classification of aspects permits to determine main parts of rehabilitation systems, oriented on youth's health improvement.
2. The most optimal way to solution of these problems is searching of new integrative approaches to rehabilitation and working out of integrative model of non medical rehabilitation.
3. Development and implementation of integrative rehabilitation programs facilitate optimization of health-related rehabilitation technologies in process of complex physical rehabilitation at higher educational establishments.

For example, combined application of pedagogic and psychological correction methods as well as means of students' physical rehabilitation shall increase effectiveness of rehabilitation measures (on example of program of complex physical rehabilitation of students with backbone pathologies at SSPU, named after A.S. Makarenko).

The prospects of further researches implies development of integrative rehabilitation systems, which would influence simultaneously on psychological sphere and backbone's functional state and other factors of its diseases' progressing. Considering analyzed above aspects of physical rehabilitation (organizational-methodic, health-related or valuelogic, medical preventive), in our opinion, this topic has scientific foundation, ensures improvement of rehabilitation methodic effectiveness and is rather promising for physical rehabilitation of all population strata.

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