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## PEDAGOGICAL MANAGEMENT OF STUDENTS' PHYSICAL POTENTIAL IN MODERN CONDITIONS

*At the beginning of the 21st century, the importance of pedagogical management as an important component of the educational process in the system of physical education of non-physical education profiles of higher educational institutions has significantly increased, which in turn contributes to achieving the desired result and to a certain extent guarantees its success.*

*Starting from the second half of the 20th century, the role of health-improving physical activity has been increasing, which is due to the following factors: the need to implement effective mechanisms for the prevention of chronic non-communicable diseases, which have become the main cause of premature mortality of people; increasing the negative impact on human health due to a decrease in the volume and intensity of physical activity due to the introduction of automated production, an increase in the share of mental labor in the structure of labor activity, and also due to increased comfort of vehicles, improvement of household appliances, development of the sphere of public services, etc.; low level of involvement of people in specially organized physical activity (until the second half of the 20th century, sports were mostly practiced only by young men and boys, while women, disabled people, pensioners, and socially vulnerable citizens were deprived of such an opportunity, which contradicted the general trends in the development of civilization and did not comply with the basic provisions of the Universal Declaration of Human Rights); the availability of scientific research results that substantiate the effectiveness of using motor activity to increase functional and physical indicators and prevent a number of diseases in people.*

*The modern system of physical education is characterized by the continuity of the process, has a health-oriented orientation and thus determines the "final" result of pedagogical management at each stage of physical education of school and student youth, – achieving optimal physical condition as a criterion for the effectiveness of solving health-improving tasks.*

*Another component of pedagogical management is the physical condition, which is characterized by low indicators of schoolchildren and a tendency to even greater deterioration is observed: currently only about 7.0% of graduates of secondary schools are conditionally healthy, the rest have various nosologies of the disease.*

***Key words:*** *body condition, students, physical exercise, potential, performance, intelligence.*

***Добровольський Володимир, Михайленко Вадим, Сога Сергій. Педагогічне управління фізичним потенціалом студентів в умовах сучасності.*** *На початку XXI століття у системі фізичного виховання нефізичних профілів вищих навчальних закладів значно зросло значення педагогічного менеджменту як важливої складової навчально-виховного процесу, що в свою чергу сприяє досягненню бажаного результату. і певною мірою гарантує його успіх.*

*Починаючи з другої половини XX ст., роль оздоровчої рухової активності зростає, що зумовлено такими факторами: необхідністю впровадження ефективних механізмів профілактики хронічних неінфекційних захворювань, які стали основна причина передчасної смертності людей; збільшення негативного впливу на здоров'я людини за рахунок зменшення обсягу та інтенсивності фізичних навантажень за рахунок впровадження автоматизованого виробництва, збільшення частки розумової праці в структурі трудової діяльності, а також за рахунок підвищення комфортності транспортних засобів , удосконалення побутової техніки, розвиток сфери побутових послуг тощо; низький рівень залученості людей до спеціально організованої фізичної активності (до другої половини XX ст. спортом займалися переважно юнаки та хлопці, а жінки, інваліди, пенсіонери та соціально незахищені верстви населення були позбавлені такої можливості). , що суперечило загальним тенденціям розвитку цивілізації та не відповідало основним положенням Загальної декларації прав людини); наявність результатів наукових досліджень, які обґрунтовують ефективність використання рухової активності для підвищення функціональних і фізичних показників та профілактики ряду захворювань у людей.*

*Сучасна система фізичного виховання характеризується безперервністю процесу, має оздоровчу спрямованість і тим самим визначає «кінцевий» результат педагогічного управління на кожному етапі фізичного виховання учнівської та студентської молоді – досягнення оптимального фізичного стану як критерій ефективності вирішення оздоровчих завдань.*

*Інша складова педагогічного управління – це фізичний стан, що характеризується низькими показниками школярів і спостерігається тенденція до ще більшого погіршення: нині лише біля 7,0 % випускників загальноосвітніх шкіл є умовно здоровими, решта мають ті або інші різні нозології захворювання.*

***Ключові слова:*** *стан організму, студенти, фізичні вправи, потенціал, працездатність, інтелектуальність.*

**Formulation of the problem.**

It is necessary to urgently take adequate measures to improve the results of management decisions and provides, among other tasks, increasing the physical potential of school and student youth and is part of the third component of pedagogical management. This component is significantly important, because only the correctness of management decisions depends on the success in achieving the final result, and therefore the goal of physical education in particular.

**Analysis of literary sources.** Data from a number of authors: prove the health-improving effectiveness of targeted pedagogical action on those components of motor skills that have a topologically determined nature of manifestation in ontogenesis: the effectiveness of a complex impact on all basic physical qualities is only 1.0 conditional points of assessment, the impact on "lagging" - 2.15; on "lagging" muscle groups - 1.16 and "ahead" - 2.39 conditional points of assessment of the effectiveness of pedagogical impact: Platonov V.N [1], Plakhitny, N. S. Slavina, S. I. Darchuk, V. U. Dorosh [2], Sergienko L.P. [3], Shashlov M.I. [4].

Analysis of the state of the issue of the availability of effective systems of pedagogical management of the physical potential of students of non-physical education higher educational institutions proves that modern general and sports pedagogy, psychology, related medical and biological disciplines have accumulated significant material from many sides of this problem. However, the organizational and methodological foundations of pedagogical management of the physical potential of students require improvement, since the correct organizational schemes and effective methods of managing individual components of the potential, at first glance, have not yet formed a complete system for achieving the necessary physical condition as a whole. Therefore, further development of principles, methods and methodological techniques is necessary for the formation of algorithms for organizational and methodological management decisions that would allow providing the optimal in magnitude and maximum in efficiency pedagogical impact on the physical potential of student youth, as well as algorithms for implementing such decisions in the process of health-training classes in physical education and independent classes in physical culture and sports by students in their free time [3].

Also important are the issues related to the development of quantitative and qualitative initial and final indicators of students, as well as intermediate assessments of physical potential, as a criterion for the effectiveness of management decisions at each stage of the pedagogical process. Thus, the further development of effective health and training technologies for pedagogical management of students' physical condition requires the solution of certain scientific problems that are currently attracting the attention of many scientists. One of the important problems of today in the field of physical education of students is the organizational foundations of managing their physical potential. It is known that pedagogical management of the physical potential of students of non-physical education higher educational institutions is carried out in the form of various forms of physical activity. For many decades, a classic physical education lesson has provided up to 15.0-20.0% of the required weekly physical activity load for students. In the vast majority of curriculums of higher educational institutions of Ukraine provide for 2 hours per week, but there are not infrequent cases when the university curriculum provides for 2 hours of physical education classes for two weeks.

Therefore, the only mandatory form of organizing physical exercises is a practical class, which at best contributes to partial training of students in certain types of movements. At the same time, the level of physical fitness practically does not change or improves so insignificantly that it does not allow us to claim that a health-improving effect has been achieved [4].

The Ministry of Education and Science of Ukraine sees the solution to the problem of increasing the effectiveness of physical culture work and sports in higher educational institutions among students in the introduction of optional physical education classes in universities and the creation of sports clubs. Therefore, classes in sports or general physical training sections are not mandatory, and therefore the participation of students in such forms of physical culture and sports classes, in mass physical culture and sports events depends on the presence of students' already formed positive attitude towards physical culture, a realized need for systematic health classes, which is currently no more than a theoretical than a practical postulate.

At the same time, a number of specialists in the field of physical education [2] believe that the classical form of conducting physical education classes in higher educational institutions has not yet exhausted all its possibilities, but in modern conditions it should acquire new, more qualitative features, fundamentally new approaches to its organization. Based on numerous theoretical and methodological provisions that continue to develop in Ukraine and abroad [3], it is recognized that the way out of the situation in higher educational institutions is seen in the organization of the educational process in physical education based on the concept of training - which is not yet the only justified concept of pedagogical management of the physical potential of student youth. But it is necessary to understand that health training is a change in the state of the human organism and reflects its fundamental property - the ability to change, develop; it is impossible to influence the development of the physical potential of students in any other ways and means except health training. Solving other tasks of physical education and, in particular, teaching motor actions, forming skills and abilities, motivation for independent motor activity should be subordinated to the health-training content of the pedagogical process. Thus, the mandatory nature of the lesson as the main form of physical education classes, their conduct under the guidance of a scientific and pedagogical worker, the systematic nature of the curricula of a higher educational institution, a constant and sufficient duration throughout the entire period of students' education at the university - all this already creates positive organizational prerequisites for managing the physical potential of student youth.

The substantive foundations of managing the physical potential of students of a higher educational institution, in our opinion, are: 1. Solving health-improving and physical education and related tasks requires the implementation of certain principles of the general concept of direct physical education, which include: humanization and democratization; differentiation and individualization; activity approach and integrity of the pedagogical process.

Currently, the practical implementation of the above principles by specialists is seen in the context of the theory of integral individuality of a person [1]. Such integrity is characterized by the individual characteristics of an individual, all of which can be combined into group characteristics that are implemented within a certain structural and functional level [3]: the type of the nervous system - within the neurodynamic, the type of temperament - psychodynamic, the somatic type - within the morpho-physiological level. It is the unification of students into groups that are homogeneous in terms of typological properties (and not only in terms of calendar age and gender) that is a necessary prerequisite for the practical solution of the principles of differentiation and individualization, taking into account the interests and inclinations of students, and therefore the first component of the content foundations of pedagogical management of students' physical potential. 2. The orientation of health-improving and training loads. Health-improving training involves a targeted pedagogical impact on the motor sphere of students. Currently, the assertion that there are biologically determined periods of ontogenetic changes in motor skills - sensitive periods of the development of its individual components - has been proven. V. K. Balsevich [1] draws attention to the fact that targeted pedagogical impact on the components of motor skills that are in a sensitive period of their development allows you to optimize the naturally determined process of its formation and best contribute to the achievement of the goal. The results of this study conducted on animals, extrapolation of the obtained results with subsequent verification on preschoolers and schoolchildren [1] allow us to conclude that the course of development of physical potential is to some extent genetically determined; in the case of intensive pedagogical influence, changing individual components does not disrupt the general natural development of motor skills, only partially shifts this development to an earlier age period [4]. Therefore, in the process of determining the direction of health-improving and training loads, it is necessary to pay attention mainly to physical qualities, which, in addition to being in a sensitive period, are also characterized by the highest growth rates in a group of students of a certain typology. 3. Health-improving and training loads are based on determining the optimal volumes and a set of organizational and methodological conditions for both a separate lesson and a series of educational modules.

According to modern ideas about the health-improving effect of physical exercises, the volume of health-improving and training loads - volume and intensity, should be determined according to the principle of adequacy. This makes it possible to accurately dose the value of health-improving and training loads for each student. It has been proven that within a separate training session, the maximum dosage rate of each physical activity is the body's reaction, characterized by the maximum heart rate (160-170 beats per minute), and the minimum duration of the session itself is 30-35 minutes.

The pulse values at which physical exercises are performed for individual components of physical potential should be as follows [2]: exercises for developing speed – 150-160 beats/min.; exercises for developing strength qualities – 13-140 beats/min.; exercises for developing general endurance – 130-140 beats/min.; exercises for developing speed-strength, speed and speed-strength endurance – 170-190 beats/min.; exercises for developing coordination abilities – 140 beats/min..

Planning a series of health-training loads involves the use of specially selected sets of physical exercises for each session. Organizational and methodological conditions for managing physical potential should be based on the physiological law of adaptation and the corresponding methodological principles. Based on this, the specified parameters of physical activity within a separate session are planned on the basis of an urgent adaptation effect, taking into account the following methodological requirements: minimum time; conditions for performing physical exercises and rest. These requirements are necessary to obtain an urgent effect. The results of studies by a number of authors [4] indicate that to obtain positive changes in the development of strength qualities, exercises should be performed for 50.0% of the session time, speed-strength qualities - up to 70.0%, speed qualities and coordination abilities - at least 50.0% of the total session time. The main condition for performing exercises to develop flexibility is a large number of repetitions (20-40 times) of each exercise at a slow or medium pace, for at least 10 minutes. To improve overall endurance, it is necessary to allocate at least 10 minutes of training with a gradual increase in time for performing exercises.

The definition of a series of health-improving and training loads is based on the long-term adaptation of the students' body: uniformity of health-improving and training effects - specially selected physical exercises with the same load parameters are used until the adaptation effect decreases; comprehensiveness of health-improving and training means - after the adaptation effect decreases, the physical exercises used in the previous series of classes are replaced by other exercises with appropriate values of health-improving and training loads; correspondence of the means to the educational material - selection as physical exercises of such motor actions that, in terms of their biomechanical structure, would most closely correspond to those offered by the educational program for assimilation; correction of individual parameters of health-improving and training loads.

**Conclusions.**

1. The organizational aspect of management should be based on the concept of health training with a focus on the development of physical qualities and its implementation, primarily during physical education classes, as well as the formation of students' motivation for independent physical education and sports.

2. The content bases should be based on the general principles of health training.

3. Teaching motor actions should be carried out by subordinating them as much as possible to the main, health training task of the lesson. For this, exercise complexes should be selected from the number of motor actions that are being studied or were studied in the previous lesson.

4. Planning physical education classes based on the concept of the health training process will contribute to a significant increase in the physical potential of students, and thus improve their physical condition, strengthen their health and increase their mental performance.

**Reference**

1. Platonov V.N (1997). General theory of sportsmen training in Olympic sport / VN Platonov. - K.: Olympic literature, 1997. - 583 p.

2.Plakhitny N. S. Slavina, S. I. Darchuk, V. U. Dorosh (2004). About health and a healthy lifestyle / D. P.: Kamyanets - Podilsky - 224 p.

3.Serqienko L.P. (2001). Testinq of motor abilities of schoolchildren / L.P. Serqienko. - K.: Olympic literature - 438 p.

4.Shashlov M.I. (2017). Physical education of university students as akey to a healthy lifestyle. Scientific journal of the NPU named after M.P. Drahomanova Issue 3 (84) 2017-117 p.

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## INNOVATIVE FORMS, MEANS AND TECHNOLOGIES IN PHYSICAL EDUCATION OF STUDENTS

*Higher educational institutions of our country are called upon to graduate not only competitive, highly qualified specialists, but also spiritually and physically developed people, healthy and seasoned, capable of fruitful work and defending the Motherland. Strong health and good physical fitness of young people are one of the most important criteria for the development potential of modern society and indicators of the level of the cultural appearance of an individual. Education and comprehensive training of new quality specialists is possible only with the help of modern methods based on the latest achievements of information technology. The most pressing problem in physical education is the low level of physical health and physical fitness of students. According to many studies, students often have a negative attitude towards physical education. This indicates that physical education as a part of the general culture of the individual is not formed in students. Practice shows that not all students of the main group fulfill the standards of the work program, some students belong to a special medical group, about a third of students are generally exempted from practical classes due to health reasons. Low level of physical fitness and lack of systematic knowledge of physical education are associated with the lack of continuity in physical education of students in comprehensive schools and universities.*

*Innovative technologies in the field of students' health help in the formation of the necessary knowledge, skills and abilities for a healthy lifestyle and help to use the acquired knowledge in everyday life. The cognitive activity of students is based on the optimal combination of motor and static loads, the use of special exercises for the prevention and correction of posture, vision training, the use of visualization and a combination of various forms of information. Of particular importance in mastering the basics and a healthy lifestyle of students is the optimization of their physical condition, preparation for life practice, which are considered as a huge contribution to the development of the culture of society and as a means of educating a comprehensively developed personality of students in the context of exclusively material values. Pedagogical technologies allow us to minimize improvised learning and move it to the path of preliminary design of the educational process and subsequent practical implementation.*

***Key words:*** *information technology, physical education, teacher, student, training.*

***Гаврилова Надія, Лускань Олег, Кузьменко Наталія. Інноваційні форми, засоби та технології у фізичному вихованні студентів.*** *Вищі навчальні заклади нашої країни покликані випускати не тільки конкурентоспроможних, висококваліфікованих спеціалістів, а й духовно і фізично розвинених людей, здорових і загартованих, здатних до плідної праці та захисту Батьківщини. Міцне здоров'я та добра фізична підготовленість молоді є одним із найважливіших критеріїв потенціалу розвитку сучасного суспільства та показників рівня культурного вигляду особистості. Виховання та всебічна підготовка нових якісних спеціалістів можливе лише за допомогою сучасних методів, що базуються на останніх досягненнях інформаційних технологій. Найбільш актуальною проблемою фізичного виховання є низький рівень фізичного здоров'я та фізичної підготовленості студентів. За даними багатьох досліджень, студенти часто негативно ставляться до фізичного виховання. Це свідчить про те, що фізичне виховання як частина загальної культури особистості не сформована в учнів. Практика показує, що не всі студенти основної групи виконують нормативи навчальної програми, деякі студенти належать до спеціальної медичної групи, близько третини студентів взагалі звільняються від практичних занять за станом здоров'я. Низький рівень фізичної підготовленості та відсутність систематичних знань з фізичного виховання пов'язані з відсутністю наступності у фізичному вихованні учнів загальноосвітніх шкіл і ВНЗ.*

*Інноваційні технології у сфері здоров'я учнів сприяють формуванню необхідних знань, умінь і навичок здорового способу життя та допомагають використовувати набуті знання у повсякденному житті. Пізнавальна діяльність учнів базується на оптимальному поєднанні рухових і статичних навантажень, застосуванні спеціальних вправ для профілактики та корекції постави, тренуванні зору, застосуванні наочності та поєднанні різноманітних форм*