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## **Problem organization of physical education of university students in accordance with their interests, level of physical fitness and physical development of the individual**

**Abstract. Purpose:** to substantiate the construction of a system of physical education university students with current norms and standards of physical development. **Material and Methods:** analysis of the sources of literature and public documents relating to the organization of physical education in Ukraine. **Results:** analysis of the literature on this problem suggests that theoretically grounded on the belief that the human body is an outward display of metabolic processes and is the basis of preclinical diagnosis, reflecting the individual structural features of somatotype, allowing clinical anthropometry as a method of establishing the physical development of a person in any of its age. **Conclusions:** the level of physical fitness with its division into general and special remains the unsolved problem in organizing the process of individualization of physical education. This is due to the lack of tests that assess the quantitative and qualitative characteristics of physical fitness with the individual predisposition morphofunctional organization somatotype to preferred forms of physical activity which determine their propensity for classes.

**Keywords:** physical development, biological age, physical condition, physical fitness, individual norm.

**Introduction.** Health of each citizen is the property of the state and reflects the level of its labor and defensive potential. The importance of physical training of younger generation and the need of control of the level of physical fitness of various groups of the population is repeatedly emphasized in a number of documents [1]. Students of higher education institutions are one of the categories of such groups of the population. A high level of their physical development and an appropriate level of physical fitness provide their effective educational activity during the stay in educational institution and the follow-up professional activity. It is a rather complex problem which is solved in each social and economic period of the development of the state depending on the level of its general culture of the corresponding period of the development. Physical culture reflects the level of its social development as an integral component of a complete culture of the society [2]. As well as the general culture in general, physical culture has its making components to which its material, spiritual and physical components belong. The interconditionality of these components of physical culture defines the efficiency of its providing at each stage of physical development [3]. Each of the noted components of physical culture represents the independent scientific directions of researches which decision assumes that other interdependent components of physical culture have an appropriate level of an adequate resolution. The physical component includes physical development which demands the necessary volume of the motive activity available to this age, and the hygiene of food corresponding to it in every period of the age development [4]. From these constitutives the orientation of the conducted researches is connected with the efficiency of the organization of the necessary motive activity providing the normal physical development of the considered contingent of student's youth.

**Communication of the research with scientific programs, plans, subjects.** It is naturally supposed that the problem of hygiene of food is solved according to requirements of the age period of this contingent. Practically the objective belongs to a problem of providing a healthy lifestyle of student's youth and is connected with the implementation by that of the Consolidating plan of the research works of the Ministry of family, youth and sport of Ukraine No. 0111U001206 (2013-2014), No. 0111U000192 (2011-2015).

**The objective of the research:** to prove the creation of system of physical training of students of higher education institutions taking into account modern norms and standards of physical development.

**The tasks of the research.** To establish the basic provisions defining a structure of the creation of physical training of student's youth.

**Material and methods of the research:** the analysis of sources of literature and the state documents concerning the organization of physical training in Ukraine.

**Results of the research their discussion.** The organization of physical training, concerning only full physical development, is connected taking into account specific features of its course. At the basis of this process the defining role is played by the motive activity. The leading need of the improvement and the development of biological objects for a phylogeny is the motive activity which defines not only the formation of difficult forms of the locomotor activity, but also the development and the formation of system of their management and trophic providing. The deepest foundation of this process is presented in the work of the academician E. K. Sepp "History of the development of the nervous system in vertebrata" [5]. Just lokomotions were the cornerstone of the formation of touch systems of an assessment of the external and internal environment and the development of neurohumoral systems of coordination of their equilibrium state. That is, the whole adaptive process and the improvement of a complete organism. The formation of an organism in ontogenesis, fully reflecting needs of its phylogenetic development, proceeds at a direct requirement of the motive activity, adequate for each age period. In this case conditions act equally adversely both as hypodynamia and as hyperdynamia [6]. The main objective in this case consists in the establishment of optimum volume of the age physical activity. The accounting of individual predisposition to its contents on an arsenal of the physical exercises available to each individual, and the mode of their performance is not less important factor in its implementation. The solution of this question is closely connected with the constitutional features of a somatotype. Much attention was paid by Hippocrates, Aristotle to the importance of structure of a body and its features of physical development, connecting the structure of a body with a measure of resistance of an organism to various factors of the environment. Their humoral theory of the formation of a body formed the basis of the theory of constitutional predisposition of a somatotype to certain diseases that served the development of the theory of donozologic diagnosis of diseases [7]. In the subsequent development of this direction led to the formation of medical constitutional anthropometry which was based on the foundation of that fact that the body of a person is an external display of exchange processes and can serve as the most effective indication of donozologic forecasting. This statement is a fundamental in an assessment of specific features of physical development and a necessary base for the creation of physical preparation taking into account individual opportunities and requirements of an organism [8–10]. There is a sensitive issue of an assessment of their preliminary physical fitness and the current physical state concerning the organization of physical training of student's youth and a choice of means of ensuring of their physical preparation. It in turn demands the existence of age norms of physical development, standards of its assessment, control tests and the development of methods of systematic monitoring of the process of physical development, physical fitness and physical state [11; 12]. The order "About the approval of the concept of the Nation-wide target social program of the development of physical culture and sport for 2012-2016" was accepted by the cabinet of Ukraine of August 31, 2011 on No. 828-r. It is said in it that the way of life of the population of Ukraine and a condition of the sphere of physical culture and sport create a threat and are an essential call for the Ukrainian state at the present stage of its development that is characterized by certain reasons, basic of which act: the demographic crisis reflecting the reduction of the population of Ukraine; the absence of the settled traditions and motivation to physical training and mass sport as to the most important factor of physical and social wellbeing, the improvement of a state of health, the maintaining a healthy lifestyle and the increase in its duration; the deterioration of a state of health of the population with sharply progressing chronic diseases of heart, hypertension, neurosis, arthritis, obesity and other diseases that reduces a number of persons who can be attracted in an elite sport, capable to maintain the considerable physical activities necessary for the achievement of high sports results; in comparison with 2007 the number of persons who are carried to special medical group increased; the discrepancy to requirements of the present and essential lag from the international standards of resource, personnel, scientific and methodical, medicobiological, financial, material, information support is observed. Now there is no uniform system of the accounting of the level of physical development of the population, physical fitness and a physical state in the country. The only system of an assessment of the level of physical development is developed in Japan in 1964 by K. Hirata [13]. There is a development of such system to the People's Republic of China (China) and in Russia intensively. It should be noted that in the thirties the XX century such system was developed in Russia, but for a number of the objective reasons, it didn't gain the further development [14]. This problem is developed on such subjects in Ukraine according to consolidating plans of carrying out scientific works of the Ministry of Education and Science of Ukraine in the field of a family of youth and sport: "Theoretical and applied basis of the construction of physical development, physical fitness and physical state of different groups of the population" (No. 0111U01206, 2013-

2014) and “Theoretic-methodological basis of the construction of a mass control and an assessment of the level of physical development and physical fitness of different stratum of the population” (No. 0111U00192, 2011-2015). However it should be noted that all existing and developed systems of an assessment of physical development, a physical state and physical fitness are constructed on the basis of average data that is an essential shortcoming, especially in the countries having essential climatic-geographical differences in various regions. This fact was proved by works of Novosibirsk academy of sciences with big persuasiveness by the comparison of norms of criteria of an assessment of physical health of natives of the Asian North and the European regions of the USSR [15]. If to proceed from the situation that the structure of a constitution is an external display of exchange processes, in works with anthropometrical researches this fact was considered even earlier [16; 17]. At the modern level, raising a question of the need for the organization of physical training to consider specific features of physical development and level of physical fitness, it is necessary to proceed from a creation of individual norm of physical development. This problem is actively understood in the 80th years of the last century. Having theoretical development which a reasonably open essence of this problem, its practical use in the theory of the organization of system of physical training didn't find the application [18] that demands the development of methods of its use in the organization of control of physical development of the controlled contingent and the introduction in the organization of physical training of students. One of the reasons of such condition of a question is that the individual physical development is connected with the process of physiological maturing the morphofunctional systems of an organism. The time of course of this process defines a biological age of an individual which in a significant amount of cases doesn't coincide with a chronological age [19]. The existing methods of its definition yield rather contradictory results which rather specific individual establish a various biological age for it. The time of maturing of the chosen morphofunctional indicator used for a control is the cornerstone of an assessment of a biological age. Height, weight, ossification process, emergence of teeth and any nonspecific reactions of an organism belong to a number of such indicators. Now there are more than one hundred and fifty of them. The discrepancy of indicators of rather specific individual in an assessment of his biological age testifies that the speed of maturing of various functional systems in ensuring physical development of the specific individual can reach a certain mismatch. This effect generates their inconsistency and is shown in allometry of the form-building process of a somatotype [20]. Geoffroy Saint-Hilaire, considering this question, paid attention to the need for the process of physical development to allocate a growth and a shaping. The growth of form-building body weight is actually that the main indicator of the biological development which most substantially reflects its biological age. If on the population of one chronological age to determine a body weight, the established average size will reflect the most characteristic body weight which is defined by the characteristic of biological age. Concerning this body weight it is possible to divide all other surveyed one chronological age as lagging behind and advancing in the speed of biological maturing. In the most generalized form this approach defines the minimum sufficiency for the unambiguous definition of a biological age and an assessment of level of physical development. The qualitative characteristic of allometric deviations connected with a maturing mismatch of morphofunctional educations can be reflected with the necessary extent of specification at the increase in a feature set and accuracy of their measurement that is rather in details stated in the researches which are conducted in Kharkov state academy of physical culture. The determination of level of a physical state is the second component of the organization of physical training of students taking into account their specific features and, on the basis of it, an assessment of a measure of their preparedness for the performance of physical activity of certain intensity, volume and the corresponding qualitative orientation. For this purpose the most expedient is the use of nonspecific reactions of an organism which act as an integrated indicator of the reaction of an organism to an action of various factors of the environment. The control of characteristics of the cardiovascular system and, in particular, the frequency and the amplitude characteristic of a cardio signal and a change of the arterial pressure measured at the same time on the left and right hand with a simultaneous assessment of four of its indicators in uniform coordinate system of their representation are at the existing hardware providing a physical state with the most effective method of an assessment [21]. For the determination of level of physical fitness tests of an assessment of the general and special physical fitness are required. The unified state system of such tests isn't present. However this task has its resolvability from a rather big arsenal of the existing tests of an assessment of physical qualities, the level of their manifestation and the control methods of current state. In relation to student's youth of higher educational institutions, it is necessary to consider specifics of their activity which are regulated by features of the organization and course of the

educational process. Specifics of student's activity proceed within five years and take the most viable period. The organization of physical training these five years has a especially significant role as it is necessary not only to keep the high level of viability of an organism, but also to prepare it for specifics of the forthcoming professional activity which in most cases significantly differ from a rhythm of life and its specifics in the period of students. The essence of special physical preparation of an organism of future expert consists in it which activity will proceed in essentially other – the professional and production environment. This task practically not only isn't solved in one of the existing higher education institutions, but also isn't put. Despite of that it has the vital value for preservation of duration of an effective production activity. One of factors of the solution of this question is instilling during student's activity of deep understanding of the importance of physical activity for the preservation of physical health and preparation of necessary knowledge for the performance of this task in the changing conditions of the forthcoming activity.

**Conclusions.** The analysis of data of literature on the considered problem allows to consider that theoretically reasonable provisions that the body of the person is an external display of exchange processes and forms a basis of donozologic diagnostics, reflecting specific features of a structure of a somatotype that allows to use clinical anthropometry as a method of the establishment of physical development of a person at any his age.

The assessment of the individual physical development connected with allometry of the formation of a constitution, and the establishment of a biological age of an individual on the methods which are stated in works [4; 6; 7], allow with a necessary accuracy of similarity of the structure of a somatotype to form uniform groups on the level of physical development of the contingent of student's youth.

The determined consistent patterns of behavior of the cardiovascular system as a nonspecific integrated reaction to the influence of alternating factors of the environment which are presented in the works [12; 21], give the chance to define the current physical state of an individual that allows to define optimum conditions of his functional loading.

The level of physical fitness with its division into the general and special one remains the most not resolved task in a question of the organization of an individualization of the process of physical training. It is connected with the lack of system of tests which allow estimating quantitative and qualitative characteristics of physical fitness taking into account an individual predisposition of the morphofunctional organization of a somatotype to preferable forms of physical activity, determining the tendency to classes by them.

The lack of the noted sort of tests, necessary standards and norms define a **further orientation of the conducted researches** on the declared subjects of the performed scientific work.

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