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**DETERMINATION OF PHYSICAL WORKING ABILITY OF STUDENTS
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The article discusses the somatic health of students aged 18–20 through the prism of indicators of maximum oxygen consumption. The purposeful use of complexes of exercises in physical culture classes with the inclusion of funds from the health system M. Gagulan, with a given intensity, allows one to achieve positive dynamics in the level of physical performance of the body of those involved in one semester. For each student, according to our modified methodology, an individual level of physical condition and a general level of physical condition was determined (calculated), which made it possible to determine their motor age and compare the physical condition of this contingent engaged with peers from other countries.

Keywords: *exercise complexes of various intensities, somatic health of female students 18–20 years old, maximum oxygen consumption, motor age.*

Introduction. The educational process in the university takes place against the backdrop of increasing physical inactivity, and is also associated with great psychophysiological stresses, which makes high demands on the functional state and physical performance of students. Physical education at the university is presented as an academic discipline, which is one of the compulsory disciplines, which emphasizes its importance in the formation of a health culture of future specialists in the process of training. Physical education, mass sports, a healthy lifestyle should become reliable protection, able to help students adapt to new living conditions and professional activities, to resist the constantly deteriorating environmental situation [9].

The health problem of the younger generation and students is a priority in the social policy of our state, because youth health largely determines the future prosperity of the nation [9]. In this regard, the most relevant means of introducing young people to a healthy lifestyle are physical education.

P.F. Lesgaft, knowing that physical exercises stimulate the function of subcortical formations (hypothalamus), increase the working capacity of the brain, thus increasing the productivity of mental work, wrote “Mental and physical must be in close unity, any one-sided development will certainly destroy harmony in education and will not create the conditions for the development of a whole person”.

A number of authors point to a rather high variability of individual resistance to various training influences and its adaptation to physical activity with the activation of the urgent adaptation mechanism [5]. Some experts point to indicators of reactions of the main physiological systems in response to physical activity of varying magnitude and intensity [10], which can serve as an indirect criterion for the state of somatic health and, in turn, is interconnected with the level of physical development and fitness.

Numerous studies of the physical fitness of university students in a group of girls aged 18–20 show that the physical development of this contingent is at a low and medium level with a steady growth trend of a low level [6; 7].

The effectiveness of recreational activities with girls 18–20 years old is determined by the dynamics of changes in the level of physical fitness and, in particular, physical performance, and as a result – obtaining a healing effect. The physical education program of higher education involves the use of various means, in particular a variable component, in order to maintain and improve the health status of students, which was used in our work.

Main part. Identification of the level of physical performance is possible during the PWC170 test. Some authors note that the results of this test have a high correlation with the maximum oxygen consumption (MOC), correlation coefficient ($g = 0,9$) [3].

The physical performance indicator was considered by us as one of the main criteria for students' somatic health and was determined by the values of maximum oxygen consumption, indicating the aerobic capabilities of the body [13; 14]. The IPC indicator was determined by us indirectly, by the maximum result (min, s) of the race over a 1000-meter distance [15]. The results obtained were compared with the data in the corresponding table, and when determining the MOC value (ml / min / kg), the level of physical performance was revealed [11]:

- moderate level – 29–34 ml / min / kg;
- the average level is 35–43 ml / min / kg;
- a good level is 44–48 ml / min / kg.

The experimental health-improving program that we developed was carried out on a continuous basis in the main part of classes with a frequency of 2 times a week according to the academic schedule for 2nd year students ($n = 93$). In the course of the experiment, the following tasks were solved: the development of the physical qualities of those involved, the increase in the level of functional capabilities of their body, and the introduction of systematic physical exercises. The intensity of the load was regulated by changing the number of repetitions of exercises and the duration of their execution, varying the pace and amplitude of movements, rational alternation of exercises with different directions.

Exercises from the wellness system of M. Gagulan were included in the complexes of exercises of the experimental motor program. A characteristic feature of this experimental program was the use in classes of the same sets of exercises in content, but performed with different intensities according to [4] (60%; 70%; 80% heart rate max).

In order to control the intensity of physical activity in terms of heart rate and improve the process of self-control of students during training and self-study, we used the method of “Subjective assessment of muscle sensations” [12].

The experimental groups, depending on the values of the intensity of physical activity performed during the experiment, had a symbol (P-60; P-70; P-80). The homogeneity of the samples is determined by Student's t -criterion for the main indicators: age (years) and level of physical performance (MOC ml / min / kg).

The aerobic abilities of the girls' body before the start of the experiment were determined by the average MOC value of $36,71 \pm 1,07$ ml / min / kg, which corresponds to the average level of manifestation of physical performance (P-60 – $36,75 \pm 1,53$ ml / min / kg, the P-70 group – $35,45 \pm 1,84$ ml / min / kg, the P-80 group – $38,34 \pm 3,34$ ml / min / kg). Among the groups, students were noted who, according to individual indicators of the MOC values, had a different initial level (19% – moderate; 77,0% – average; 4,0% – good).

During the experiment, data were obtained on changes in the aerobic abilities of girls' bodies, described by linear regression equations (table 1).

Table 1. – Change in indicators of physical performance of students 18-20 years old

Group	Changes in the level of physical performance, %			Linear regression equation ($p < 0,05$)
	Group	Moderate	Middle	
П-60	$8,1 \pm 4,6$	$8,1 \pm 0,5$	$8,4 \pm 0,8$	$y = 33,1 - 0,8x; r = 0,7$
П-70	$16,3 \pm 0,8$	$11,3 \pm 2,2$	$15,3 \pm 2,1$	$y = 43,9 - 0,7x; r = 0,9$
П-80	$18,5 \pm 0,7$	$11,8 \pm 2,2$	$16,8 \pm 2,4$	$y = 82,7 - 1,5x; r = 0,9$

As a result of the analysis of the obtained data, a qualitative improvement in the composition of the subgroups in terms of the MOC indicator, conditional ‘transfer’ of girls from one level of manifestation of physical performance to another.

After the completion of the training cycle in the P-70 group, the ‘transfer’ from one subgroup (moderate level) to another (middle level) was noted in 11.4% of cases with a relative increase of $14,7 \pm 1,1\%$. In 26,8% of those observed with ‘average’ MOC values, when they change by $24,2 \pm 0,8\%$, an increase in the indicator to values corresponding to a ‘good’ level is noted.

In the P-80 group, we noted similar changes in the indicators of the functional state. In the subgroup of the “moderate” level of working capacity, the average value of the relative increase in the indicator was $11,8 \pm 2,2\%$, which in absolute terms corresponds to the indicators of the “average” level. For 63,0% of students with a load intensity of 80% heart rate, the influence of classes is positive ($10,3 \pm 1,1\%$), but not enough for a significant change in functional state, and an increase of $17,1 \pm 1,8\%$ for 22,0% it turned out to be sufficient for the girls that the MOC indicator began to correspond to a “good” level of manifestation of working capacity.

In the P-60 group, a qualitative change in the composition of the subgroups was not noted.

We used tables of the supposed improvement of the girls' physical performance indicators calculated according to [4], taking into account its initial level (table 2).

Table 2. – Prediction of growth in percent (%) of the indicator of maximum oxygen consumption in students during physical activity of varying intensity [4]

Load intensity	Initial level in terms of MOC, ml / min / kg								
	26,0	28,0	30,0	32,0	34,0	36,0	38,0	40,0	42,0
60% MOC	25,8	14,4	13,0	11,6	10,2	8,8	7,4	6,0	4,0
70% MOC	23,5	21,7	19,9	18,1	16,3	14,5	12,7	10,9	9,0
80% MOC	37,1	33,5	29,9	26,7	22,7	19,1	15,5	11,9	8,0

Using the tables of pedagogical forecasting of changes in indicators of physical performance in the MOC, it is possible to choose the proper motor regime according to the intensity of the load and in the cycle of classes (one academic semester) obtain actual data of a certain healing effect.

Indicators of aerobic capabilities of the body of girls have a certain relationship with indicators of their functional state. Using the values of the MOC indicator and the formula according to [1], we can theoretically calculate individually for each observed conditionally accepted "functional age".

This formula is recommended for use in cases where the MPC value for each specific case is less than 40,0 ml / min / kg.

In the P-60 group, 6,5% of those studying at the beginning of the experiment showed complete agreement between the passport and "functional age" data, and in the P-70 group – in 7,1% of cases. At the end of the experiment, a significant improvement was revealed in the final indicator of "functional age" to full compliance with the passport 41,5% and 70,8% in the P-60 and P-70 groups (respectively), and in the P-80 group at 43,1% the initial compliance showed an improvement of up to 97%.

To determine the motor age, students of the experimental groups (P-70 and P-80) were tested using our Health Card. For each student, according to our modified methodology, an individual level of physical condition (ILPC) and a general level of physical condition (GLPK) was determined (calculated), which made it possible to determine their motor age [2].

An analysis of the results revealed that the average value of the general level of physical condition for P-70 students was -0,033, which corresponds to 6 points on the ILPC rating scale proposed by us, and 0,029 for P-80 students, which also corresponds to 6 points. The highest indicators were among P-70 students in the long jump from the place 0,021 – score of 7 points, raising the body 0,231 – score of 7 points, torso forward 0,273 – score of 7 points. For P-80 students, only in the test of raising the torso the indicators 0,076 have a score of 7 points, and in the long jump from a place -0,021 have a score of 6 points and a tilt of the body -0,227 has a score of 6 points. Less developed, in relation to other qualities, were the strength abilities of P-70 students – hanging on the crossbar -0,259 – rating 6 points, bending and unbending the arms in lying support -0,234 – rating 6 points, among P-80 students – hanging the crossbar -0,158 – score of 6 points, flexion and extension of the arms in lying support -0,201 – score of 6 points. Endurance turned out to be at an equally stable level, running 1000 meters – 0,56 and – 0,142, respectively – a score of 6 points.

Long-term experience shows that for the qualitative development of the material of the curriculum in physical education, students need to have significant physical training, and in particular, give priority to the development of strength and general endurance, increase the amount of physical activity in a weekly cycle to 10–14 or more hours [16].

Conclusion.

1. It is shown that the systematic use of the means of the health-improving system of M. Gagulan with different intensity of the load (60%, 70%, 80% heart rate max) revealed a positive effect on the functional state of girls aged 18–20 years. In all groups, improvements were noted in the changes in the MOC indicators, which will allow us to state an increase in the level of physical performance of the body of students, and as a result, their somatic health.

2. The motor mode with an intensity of 80% heart rate max is the most optimal for improving the maximum oxygen consumption. Less significant changes were detected in the group working with an intensity of 70% heart rate max.

3. For people with minimum MOC values of up to 41 ml / min / kg, the greatest effect is achieved during classes with an intensity of 80% heart rate max, and for those engaged with an initial level of aerobic capacity above 41 ml / min / kg the most favorable is physical activity with an intensity of 70% heart rate max.

4. The results of the study (testing of physical conditions, determination of functional and motor age, etc.), served as the basis for obtaining a comprehensive assessment of the physical condition of students and the construction of experimental forms of physical education.

5. Experimental data allow us to state that only innovative, scientifically sound means and methods of physical education are able to significantly improve students and achieve their positive motivation for systematic physical education.

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ОПРЕДЕЛЕНИЕ ФИЗИЧЕСКОЙ РАБОТОСПОСОБНОСТИ СТУДентОК ПО ПОКАЗАТЕЛЯМ МАКСИМАЛЬНОГО ПОТРЕБЛЕНИЯ КИСЛОРОДА

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Рассматривается соматическое здоровье студенток 18–20 лет через призму показателей максимального потребления кислорода. Целенаправленное использование на занятиях по физической культуре комплексов упражнений с включением средств из оздоровительной системы М. Гагулан с заданной интенсивностью позволяет в течение одного семестра добиться положительной динамики уровня физической работоспособности организма занимающихся. У каждой студентки по модифицированной нами методике был определен (рассчитан) индивидуальный уровень физических кондиций и общий уровень физических кондиций, их двигательный возраст и сравнить физические кондиции данного контингента занимающихся со сверстниками из других стран.

Ключевые слова: комплексы упражнений различной интенсивности, соматическое здоровье студенток 18–20 лет, максимальное потребление кислорода, двигательный возраст.