



Dynamics of psychophysical health profile of female medical university students

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Abstract

Objective of the study was to study the dynamics of the psychophysical health profile: physical development, physical fitness, self-esteem of health and addictive behavior of first- and final-year medical university students.

Methods and structure of the study. We examined the dynamics of physical development and physical fitness of 147 first- and final-year students of a medical university. The respondents took part in psychological testing: the «self-assessment of health» test (SH according to V.P. Voitenko) and the «diagnostics of addictive behavior» test (according to N.N. Telepova).

Results and conclusions. It is shown that the anthropometric indicators of the subjects do not change during the training period. At the same time, the indicators of strength and speed-strength abilities decrease. Self-assessment of health among freshmen and graduates remains approximately at the same level. However, graduate students develop the prerequisites for addictive behavior. Thus, the study showed the presence of negative changes in physical fitness and the formation of addictive behavior among senior female students. At the same time, the level of self-assessment of health status did not change throughout the entire period of study.

Keywords: *dynamics of physical development, motor qualities, self-assessment of health, level of addiction.*

Introduction. The process of training a specialist in higher education is associated with significant mental and emotional stress, combined with a decrease in physical activity [4]. Being under long-term stress cannot but affect the state of one's health and creates preconditions, among other things, for the formation of addictive behavior. Theoretical analysis showed that there is a lack of research materials describing changes in students' health that occur during the study period. Most often, such scientific research works cover one or two years of study at a university. These studies are devoted either to the processes of adaptation of yesterday's schoolchildren to studying at the university, or to the applied aspects of the use of individual sports disciplines in the physical education course.

Objective of the study was to study the dynamics of the psychophysical health profile: physical development, physical fitness, self-esteem of health and ad-

dictive behavior of first- and final-year medical university students.

Methods and structure of the study. 147 full-time students of the Kirov State Medical University (KSMU) of the first (n=113) and final (n=34) courses were examined. The average age of the girls was $18.41 \pm 0,08$ years in the first year and $23,41 \pm 0,21$ years in the last year of study. At the time of the study, no one made any complaints about their health; all students gave voluntary consent to participate in the survey. To implement a comprehensive survey system, we used the following methods and techniques. To identify the level of physical development, body length, weight, and chest circumference (CHC) were measured. The state of the cardiovascular system was determined by heart rate (HR, palpation) [3]. To assess the state of the respiratory system, the respiratory rate was measured, the Stange test and the Genchi test were performed. To determine physical fitness, the level of



development of basic motor qualities was assessed in the conditions of the gym and stadium in the following exercises: standing long jump, bending from a standing position on a bench, flexion and extension of the arms in a lying position; the students also underwent psychological testing: the «self-assessment of health» test (POP according to V.P. Voitenko) [1] and the test «diagnostics of addictive behavior» (according to N.N. Telepova) [2]. The research results were subjected to statistical processing using parametric statistics methods in the Microsoft Excel software package on an Intel Pentium computer. The arithmetic mean (M) and standard error of the mean (m) were calculated, which was expressed in the text and tables as M±m. Differences were assessed using Student's t-test for independent samples and were considered significant at $p < 0,05$ (indicated in the text as «*»).

Results of the study and discussion. Analysis of the dynamics of physical development shows that anthropometric indicators generally do not change (Table 1). However, there is a decrease in physical fitness indicators: strength and speed-strength abilities.

This is due to an insufficient level of physical activity. Physical education classes included in the curriculum cannot fully compensate for this negative trend.

At the same time, years of study at the university had virtually no effect on the self-assessment of health among first-year and final-year students (Table 2). There are no statistically significant differences either in the average self-esteem scores ($11,07 \pm 0,36$ points for first-year girls, $9,79 \pm 0,99$ points for fifth-year girls), or in the ratio of groups that «fit» into certain ranges of scores. The average POP scores of the subjects are at the upper limit of the normal range (6-10 points). This indicates that female students have not yet accumulated a «burden» of chronic diseases, and the body's capabilities make it possible to compensate for the high psychophysical stress and stress that arise during the learning process.

Nevertheless, tension exists and finds outlet in addictive behavior. Thus, for two signs of addiction («change in tolerance» and «loss of control»), a statistically significant increase was recorded among graduate students compared to first-year students.

Table 1. Physical development, physical fitness and functional state of female students

Parameters	First course			Graduation course		
	n	M	m	n	M	M
Age		18,21	0,03		23,19	0,08
Body length, cm		163,86	0,27		165,28	0,51
Body weight, kg		56,80	0,38		58,55	0,77
Chest circumference, cm		86,80	1,17		85,85	0,54
Bend forward from a standing position, cm		12,26	0,52		13,07	0,55
Standing long jump, m		161,60	1,20		153,79*	1,93
Flexion and extension of the arms while lying down, once		10,44	0,40		9,07*	0,54
Heart rate, beats/min		80,84	0,47		77,90	1,14
Respiration rate per 1 min,		17,11	0,20		17,03	0,19
Stange test, s		45,94	0,65		48,01	1,23
Genchi test, with		29,15	0,43		27,99	0,71

Note: * – differences are significant, $p < 0,05$.

Table 2. Self-assessment of health and diagnosis of addictive behavior

Parameters	First course		Graduation course	
	M	m	M	m
POPs, points	11,07	0,36	9,79	0,99
Diagnosis of addictive behavior				
Changing tolerance	4,04	0,31	6,40*	0,63
Withdrawal syndrome	2,88	0,31	3,77	0,72
Losing control	4,70	0,34	6,63*	0,82
Failed attempts to abstain	3,09	0,28	2,63	0,65
Using «Despite...»	2,23	0,21	2,68	0,67
Denial of your addiction	3,49	0,24	4	0,5
Drastic changes in lifestyle	3,81	0,27	3,31	0,63
Total amount	24,23	1,61	29,59	3,56

Note: * – differences are significant, $p < 0,05$.



Also, during the period of study, the proportion of female students whose addiction is not traceable or is in the initial stage decreases significantly – from 62,8% to 40,9%.

Conclusions. The results of the study showed the presence of negative changes in physical fitness and the formation of addictive behavior among senior female students. At the same time, the level of self-assessment of health status does not change throughout the entire period of study.

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