Materials of Conferences

THE STUDENS' BIOLOGICAL AGE, AS AN INDICATOR OF THE ADAPTATION

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The diagnostic-level health indicators model for the direct-method determination of the biological age in the monitoring control by V.P.Voytenko adaptive capabilities of students at the Department of the Preventive Medicine, the Orenburg State University, has been introduced in this paper. The 116 boys, and the 164 girls at the age of 17–21 years have been involved in the study. The results, having obtained in the course of the study, and based on the biological age relative evaluations, have been shown a lower speed (e.g. tempo) of the women aging, in comparison with the boys. Dramatically, the slow aging rate has been found in 61,4 % of the girls, and 58,3 % of the boys, the slow aging rate has been found in 20,5 % of the girls, and 16,7 % of the boys; the biological age has been determined by the passport, 13,6 % of the girls and 16,7 % of the boys; the accelerated aging pace has been diagnosed at 4,5 % of the girls and at 8,3 % of the boys.

The cross sectional study and examination of 1,517 students, at the age of 17–21 years, having studied at the first course of the Orenburg State University, have been carried out. All the students had been living on the territory of the Orenburg Region five and more years (e.g. 60 and more months), gave the informed consent to be participated in the study. So, the exclusion criterion has been the student's illness during the period of the cross sectional study and examination. That's why, the method of V.P. Voytenko has been used for the biological age (BA) determination of the students. Thus, the BA young men $26,985 + 0,215$, BPS $– 0,149$, BHE $– 0,151$, SB $+ 0,723$, SEH; the BA young women: $–1,463 + 0,415$, BPP $– 0,140$; SB $+ 0,248$; BW $+ 0,694$; SEH. So, the physiological testing has been performed for the biological age (BA) determination. A set of the tests for the young men and the young women has been differed.

BPS – the systolic blood pressure – it has been measured by the standard generally accepted method, by means of the Korotkov device on the right hand, in the sitting position, three times at the intervals of 5 min (e.g. 300 s), moreover, the lowest blood pressure values have been also taken into account by us;

BPP – the pulse blood pressure – it has been determined, as the difference between the systolic and the diastolic pressures (e.g. $BPP = BPS – BPD$), which have already been determined, by means of the Korotkov device;

BHE – the duration of the breath – holding after the deep expiration – it has been measured, by means of the stopwatch at the intervals of 5 min (e.g. 300 s), moreover, the highest value has been also taken into account by us;

SB (the statistic balancing) – the balance or the equilibrium maintaining time, while standing on the one leg with the closed eyes, sec. The SB duration is being measured. So, the test is being repeated three times, at the intervals of 5 min (e.g. 300 s), moreover, the best obtained result is being taken into account by us;

BW – the body weight, kg;

SEH (the subjective estimate of the health) – it is being assessed, by means of the questionnaire, having consisted of the 29 challenges. So, the questionnaire poll results assessment has been conducted on the total number of the adverse challenges and the responses. The poor ones are the responses «YES» to the challenges 1–25, the responses «NO» to the challenges 27–29, and the responses «bad» and «very bad» to the challenge 26. Then, the quality primary health estimate condition has been carried out: the excellent one 0–2 points; the good one 3–5 points; the satisfactory one 6–9 point; the poor one 10 and more points. The less accumulated points score, the better human health condition. The perfect sense of their own health is consistent with the self – esteem value, which is equal to «0» points; in the case of the various health general state violations, the index value can be gradually increased up to 29 points. So, the SEH is sharply being deteriorated, with the further aging on.

So, the values obtained have been compared with the biological age were to become (BAB), having characterized the population standard: for the young men: $BAB = 18,56 + 0,629{\times}CA$; for the young women: $BAB = 17,24 + 0,581{\times}CA$, where CA – the calendar age. Then, the health status of each student has been determined the aging degree value (e.g. BA – BAB). So, it is reflected the BA difference, having examined with the population standard. Finally, it has been made the conclusion on the individual heath number, by the BA value. In the case, if the aging degree is greater, than the performance levels degree were to become, then the $BA – BAB > 0$. In the case, if the aging degree is less, than the figures were to become, than $BA – BAB < 0$. In the case, if the aging degree is practically the same, as the figures were to become, then the $BA – BAB = 0$. So, the most favorable ones are considered the last two options.

So, the obtained study final results have been shown a lower speed (e.g. tempo) of the young women aging, in comparison with the young men. Dramatically, the slow aging rate has been found in 61,4 % of the young girls, and 58,3 % of the young

boys, the slow aging rate has been found in 20,5 % of the young girls, and 16,7 % of the boys; the biological age has been determined by the passport, 13,6 % of the young girls and 16,7 % of the young boys; the accelerated aging pace has been diagnosed at 4,5 % of the girls and at 8,3 % of the boys.

This is consistent with the general view of the gerontologists that the young women age is practically much slower, and they are living longer for 6–8 years (e.g. 72–96 months) that it is reflected a quite slow decline at the first ones vitality, with their aging on. In this regard, under the assumption on the mutual correspondence of the relative and the absolute estimates of the BA, it can be considered the consistent facts. The calculation of the students' biological age (BA) was shown, that it had exceeded the calendar age (CA), on average, at the young men for 9,15 years (e.g. 108,15 months), and at the young women for 9,26 years (e.g. 81,26 months).

So, the index of the subjective estimate of the health (SEH) at the students, mostly, is quite good. Then, the SEH lowest rate has been determined $2,98 \pm 1,16$ at the young men, and the longest one $2,65 \pm 1,13$ at the young women. At the end, the BA has been shown that there are no students, who have dramatically the accelerated aging pace. The young men in the area of their calendar age are only 10 % of the boys EG and 5,9 % KG. The 16,7 % of the young men and 13,6 % young women have accelerated pace of aging. The main part of the examined students have the slow rate of their aging: 71,9 % at the young women and 58,2 % at the young men. Thus, the results of the study, which has been carried out by us, have been shown, that the students' biological age indicators are completely depended on their gender.

This technique using has been intensified the preventive direction of the work in the Orenburg State University. The automated system of the monitoring health (ASMOH) has already been created in the Orenburg State University on the initiative of the Federal Service Management of the Russian Federation for the control of the drug trafficking in the Orenburg Region with the participation of the management control of the modern information technologies in the Orenburg State University and the Center of the Information Technologies organization. This study has been carried out through the «Internet». Each student has his login and the password, through which they contribute their data to the various sections of this system. These are the special sections on the somatic health, the psychological health, the stress tolerance, and the social adaptation in the process of the leaning in the University. Just after the complete filling out all the necessary sections, the students will be received two types of their recommendation – the general character on the healthy lifestyle creation and the individual one formation, with due regard for his personal characteristics and also the life circumstances. Thus, the biological age determination by the V.P. Voytenko technique is practically and completely included into the ASMOH for the individual health and the modern student's quality of life monitoring.

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THE STUDENT'S INDIVIDUAL PERSONALITY PROFILE ON THE EMOTIONAL TENSION LEVEL AND ADAPTATION IN GENERAL

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The main methods of the students' physiological state determination, having studied individual characteristics, and the students' adaptation mechanisms to the educational activities, the emotional intensity dynamics, that is depended on the individual's some individual properties in the special environments have been discussed in the paper. All these studies' results, despite of the high stress load, have been shown no adverse physiological reactions at the students. The human organism, through various adaptive response, has been compensated the high load during training at the University.

The one – time cross sectional study and examination of 254 young men and women, the students, at the age of 17–21 years, having studied at the first and the fifth courses in the city of Orenburg, and in the Orenburg State University branch in the town of