

Conclusion

In our opinion, an increase in the parameters of external respiration in healthy students from India is explained by the fact that in the process of adaptation there are functional transformation at adapting the respiratory system to changing environmental conditions. Thus, an accretion VCL, RR, RMV increase the respiratory surface of the lungs and there by create conditions for more effective adaptation of pulmonary ventilation to satisfy the metabolic needs of the body. It can be assumed that compensatory-adaptive reactions are directed at increasing of the external respiration parameters. However, the short duration of breath holding at inhalation and exhalation in students from India is associated with incomplete adaptation to the natural and social conditions of life.

LITERATURE

1. *Popova, O. N.* Morphofunctional features of the respiratory system. Overview / O. N. Popova, A. B. Gudkov // Human Ecology. — 2015. — № 2. — P. 53–58.
2. *Sakhno, Yu. F.* Investigation of the ventilation function of the lungs / Yu. F. Sakhno, D. V. Drozdov, S. S. Yartsev. — M.: RUDN, 2018. — P. 84.
3. Office spirometry of lung health assessment in adults: consensus statement from the National Lung health education program/ G. T. Fergusson [et al.] // Chest. — 2015. — Vol. 117. — P. 1146–1161.

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COMPARATIVE CHARACTERISTICS OF ANTHROPOMETRIC INDICATORS OF PUPILS OF THE REPUBLIC OF BELARUS AND THE COUNTRIES OF SOUTH ASIA

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Introduction

At the present stage of human development, the ecological situation is characterized by an increase in anthropogenic load, which causes the tension of adaptation mechanisms and disrupts the homeostasis of the organism. In this regard, an urgent direction of biomedical research is the study of the dependence of the indicators of physical development of schoolchildren on environmental factors and socio-economic living conditions [3].

Aim

The goal is to conduct a comparative analysis of the anthropometric indicators of schoolchildren in the age range from 7 to 17 years old, living in the Republic of Belarus and the countries of South Asia.

Material and methods of research

The object of the study was 3450 students of secondary schools in Gomel, aged from 7 to 17 years old, examined by the staff of the Department of Normal Physiology in 2010–2012. (First group). The anthropometric research program included the following indicators: body length (BL), body weight (BW), chest circumference (CC).

The variability of the growth rate of anthropometric indicators in the interval of 7–17 years was traced by analyzing their absolute and relative annual increases. Relative gains are calculated as a percentage of the total gain for the entire studied age period. To establish the timing of the intensification and relative deceleration of the growth of anthropometric characteristics, we compared the indicators of schoolchildren of adjacent age groups for each sex separately.

In order to study the regional characteristics of somatometric indices, the data obtained were compared with the corresponding literature data obtained in a survey of 2710 schoolchildren in the Republic of India and Sri Lanka (second group) [2].

Statistical processing was carried out using the package of applied static programs «Statistica» 7.0. The results obtained are presented as arithmetic means (M) and standard deviation (SD). The significance of differences was assessed using the Mann — Whitney test (U-test). The results of the analysis were considered statistically significant at $p < 0.05$ [1].

The results of the research and their discussion

When analyzing the data obtained, it was found that the somatometric indicators of the surveyed two groups in the age range from 7 to 17 years old actively increased.

The body length of Belarusian boys from 7 to 17 years old increased from $124,79 \pm 5,24$ cm to $177,77 \pm 6,49$ cm, in girls — from $124,50 \pm 5,41$ cm to $166,18 \pm 5,28$ cm. For boys from South Asian countries in the studied age range, this indicator varied from $121,70 \pm 3,10$ cm to $157,80 \pm 4,30$ cm, and for girls — from $120,80 \pm 2,70$ cm to $161,30 \pm 4,10$ cm, respectively.

The greatest increase in BL in boys of the second group was recorded in the age range from 11 to 12 years, which is one year earlier compared with peers from the first group (from 12 to 14 years). Among girls surveyed in the countries of South Asia, the maximum increase in BL was found in the age range of 7–8 years, and among Belarusian girls — from 11 to 12 years.

Comparative analysis of BL indicators between 7–17 year-old schoolchildren from different places of residence indicates that this indicator is statistically significantly higher ($p < 0,05$ – $0,001$) in Belarusian boys and girls compared to their Asian peers (except for girls 9 years old).

The body weight of Belarusian boys from 7 to 17 years old increased from $26,49 \pm 4,54$ kg to $67,96 \pm 9,50$ kg, in girls — from $26,35 \pm 7,04$ kg to $57,66 \pm 7,70$ kg. In Asian boys in the studied age range, this indicator increased from $21,80 \pm 4,00$ kg to $64,70 \pm 5,70$ kg, in girls — from $26,50 \pm 1,80$ kg to $56,90 \pm 1,70$ kg respectively.

The greatest increase in BM in boys of the first group was revealed at the age of 14–15 years, and in schoolchildren of the second — at the age of 16–17 years. For Belarusian girls, the maximum increase in the indicator was found in the age range of 12–13 years, and for Asian girls — from 10–11 years.

When conducting a comparative analysis of the age dynamics of BM in schoolchildren of 7–17 years old from different places of residence, it was found that in Belarusian boys this indicator was statistically significantly higher than in Asian peers ($p < 0,001$) in all age groups. The girls of the first group had statistically significantly higher BM only in the interval from 12 to 15 years old ($p < 0,01$ – $0,001$).

The chest circumference in Belarusian boys increased from $61,96 \pm 5,00$ cm in 7-year-olds to $88,14 \pm 7,78$ cm in 17-year-olds, and in Asian boys — from $60,30 \pm 1,80$ cm to $84,10 \pm 5,70$ cm, respectively. In girls of the first group, this indicator in the studied age interval increased from $60,73 \pm 4,89$ cm to $83,45 \pm 4,78$ cm, and girls in the second group from $62,00 \pm 3,20$ cm to $88,20 \pm 4,41$ cm respectively.

The maximum increase in CC was recorded in boys in South Asia in the age range from 8 to 9 years, and in Belarusians — from 15 to 16 years. Among the girls of the first group, the maximum increase in CC was found at the age of 11–12, and among the second — at the age of 14–15.

When conducting a comparative analysis of the age dynamics of the CC of schoolchildren of 7–17 years old, it was found that in the age groups of 8, 9 and 12 years, this indicator was statistically significantly higher in Asian boys, and the opposite pattern was established at 16 and 17 years. CC was higher in South Asian girls in all age groups. Statistically significant differences were found between peers in the age intervals of 8–12 years and 15–17 years ($p < 0,01$ – $0,001$).

Conclusion

As a result of a comparative analysis of the anthropometric indicators of schoolchildren in the Republic of Belarus and South Asia, it was found that the av-

erage values of length and body weight are significantly higher in Belarusian children, and chest circumference in Asian children. It is proved that the periods of intensification and deceleration of the growth of the studied indicators in the examined two groups are revealed in different age ranges, which indicates the influence of climatic conditions of residence, socio-economic factors and nutrition on the growth processes of children and adolescents.

LITERATURE

1. Гланц, С. Медико-биологическая статистика / С. Гланц; пер. с англ. Ю. А. Данилова. — М.: Практика, 1999. — 459 с.
2. Growth Reference 5–19 Years — Height-For-Age (5–19 Years) [Electronic resource] / Who.int. — WHO, 2020. — Mode access: <https://www.who.int/tools/growth-reference-data-for-5to19-years/indicators/height-for-age>. — Date of access: 30.12.2020.
3. Impact of ecological factors on morphofunctional indicators of evolutive somatotype of girls of various nationalities / A. V. Kaverin [and others] // Research Journal of Pharmaceutical, Biological and Chemical Sciences. — 2016. — Vol. 7, № 2. — P. 624–631.

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RESEARCHING OF THE INTERHEMISPHERIC ASYMMETRY IN FOREIGN STUDENTS

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Introduction

Constitutional and genetic factors characterize and determine the neurophysiological organization of functional interhemispheric asymmetry of the brain [1]. Both hemispheres interact with each other, ensuring the functioning of the brain as a whole. The complexity of the assignment determines the role and nature of the interhemispheric interactions [2]. An electroencephalograph recorded an increase in statistical fluctuations in the biopotentials of the posterior cortex of the left hemisphere and the anterior departments of the right hemisphere when performing verbal-mnemonic tasks [3]. The use of somatotypological approach allows you to supplement the information and methodological base for assessing the functional state and adaptive student opportunities.

Aim

The goal is to study the functional state of students with different interhemispheric asymmetries of the brain before and after intellectual load.

Material and methods of research

The study involved 25 students at the aged of 18 to 19 years, which, depending on the hemisphere asymmetry of the brain (test for hemispheric dominance according to N. M. Timchenko) were divided into three groups: 1 — left hemisphere («LH», 13 people), 2 — mixed («MH», 9 people), 3 — right-hemispheric («RH», 4 people).

Statistical processing of the research results was carried out using the statistical software package STATISTICA 10. The distribution was checked for normality by the Shapiro — Wilk test. In the case of a normal distribution of variables, parametric methods were used to independent samples (t-student), with abnormal — non-parametric method (Mann — Whitney). The results of parametric data processing methods were presented in the form of mean (M) and average error (m), non-parametric — median (Md), first (Q1) and third (Q3) quartiles. For all the results, the differences were considered significant at a level of $p < 0.05$.